#	Question	Answer(s) - in some cases, paragraph breaks indicate separate answers	
1	**Will these recordings be made available to view later?**	Yes, they will be posted to the symposium website after a bit of clean-up.	
2	**I have noticed that contractors performing fuel reduction in WUI areas end up type converting natives to exotics when they replant. How can we stop this considering development in WUI is continuing?**	This will depend on the local jurisdiction. Some municipalities require fuel reduction a specificed distance form the property line or structures. Shaded fuel breaks can help, if allowed. Often fire abatement codes are enforced at the local level. And of course there are tradeoffs between different fuel types near structures. I think an important element comes from the agencies - e.g. county, municipal, etc. - that inspect properties and enforce defensible space rules.	The enforce FMZ in our area, but then replanting occurs with exotics, emerging invasives like stipa, etc. The restoration aspect is a gap in terms of education of community members, contractors, etc. True! Garden centers (Home Depot, etc.) are also important -- what they offer is what folks mostly plant.

3	**I have been thinking for years about the compound watershed impact of fire retardants being deployed on wildland fires combined with waterdrops from our reservoirs. Could this be a huge policy miscalculation that combines potential toxins with a waste of water resources thrown at an insurmountable burn that ultimately ends up in the lower watersheds?**	Dang Sara, that's a powerful question.	
4	**Can Targeted grazing be a viable method to remove weeds?**	When I lived in Northern California, Bidwell Park … which runs through the center of the town, a beautiful forested / riparian habitat, they ran goats through once or twice a year every year. For some reason, agencies have not found a path forward with this approach in Southern California. Targeted grazing can be effective, it depends on what the grazing plan is. What livestock species, how long, how many, how to prevent new weed introductions from livestock, etc? In short a good grazing plan is needed. It is used effectively in the Sierra foothills.	Melina/Ronnie, I'm working on a couple of projects in Orange County where we doing short-term (3-5 year) experiments to do conservation grazing on places that have become senecent mustard and grass landscapes. We'll have some data in a few years, and the primary goal is to reduce weeds and flashy fuels and encourage perennial grasses and shrubs. It does require carefully timing the grazing events and follow-up with targeted control of species that are not grazed (e.g., thistles). This is work with the consulting firm Land IQ. Sounds like interesting research Travis! Looking forward to the results.

5	**'@rache wing - Could we visit the Weed Crew at work? learn from what you are learning?**	Elisa, we are a very small crew -- currently only 4 people. It would be difficult to invite the public because we are often working in quite remote areas. Also our use of herbicides does make involving the public difficult -- those involved in herbicide application require particular training for safety. I'll think about projects to refer you to though!	
6	**When it comes to building homes that are better fit for chaparral areas , do you partner with the city to make that happen ? How does that work ?**		
7	**How can creating an ecosystem of California Native Plants be good for fire prevention?**	In most instances, native shrubs are far less flammable than the annual weeds. Close to structures, those plants need to be kept appropriately spaced, but they are much better than a landscape of annual grasses, which are far “flashier” fuels.	CA and local native plants are adapted to historic natural distrubances such as wildlfire. They support ecosystems that provide for clean air and water and climate regulation, and they do not require extra maintenance due to their adaptation to natural growing conditions and relationships with organisms and communities that use andmaintain them. That said, planting them is as important as restoring economic relationships with the native plant communitiies . This is how we can prevent fire, by holisticly restoring nature with humans actively involved in them.

8	**Can someone address the effectiveness and environmental impacts of fuel breaks in chaparral and coastal sage scrub?**	Chris, I'm curious are The chemicals inside the pesticides natural, is the location taken into consideration (especially fauna)	Yes, fuel breaks can be vector for weeds. From the perspecitve of fire fighters and fire managers, fire breaks are also a good way to create defensive measures/ defensible space to try to to stop the spread of a fire, under cetain conditions. It is much easier to clear annual grasses in a fire break to prevent the spread of a fire, than to remove coastal sage scrub when a fire is approaching. It might not be the best thing we want to stop weeds, but we have to weigh the costs and benefits of fire breaks.
9	**Herbicide application for fire managment can feel like such an uphill battle with the public. I've often thought its a lost cause due to public perceptions of chemicals. Do you agree with this assesment? Should we be looking to more publically favorable methods for invasive species removal?**	I think that highlighting the tradeoffs between cost, effectiveness and fire risk, usually helps to define the methods used to reach the goals. If that makes sense. Herbicides can be highly effective at reducing herbaceous fuels, are cost efficient to apply at scale. Other methods are often less effective, which means a high risk of ignition, or are more costly (like mowing), so our limited maintenence dollars will be used on less acres, unless the public is willing to increase funding.	

10	**Because coastal sage scrub is often a mixture of native plants and exotic grasses, is livestock grazing a good fuel reduction method in this habitat type because it might reduce native herbs and shrubs?**	The type (species) of livestock matters. Sheep are best used when grasses and shrubs are intermixed. Sheep will graze grasses first and will graze shrubs when they run out of their preferred forage (herbaceous plants). But overgrazing sheep can lead to more weeds in future uyears. It has to be timed properly and removed timely too.
11	**Chris, I'm curious are The chemicals inside the pesticides natural, is the location taken into consideration (especially fauna)**	Regarding the pesticides we use - we choose them very carefully to mitigate environmental impacts, for example, we do not use fish-toxic chemicals where they could get into creeks. Also, we use the absolutely least amount we can use with very targeted applications only to the target weed. But they are not natural substances. They are what's known as systemic pesticdes because they enter the weed's vascular system to go to the growing points in order to disrupt the plant's ability to grow. This is needed for persistent weeds.
12	**Is the fire insurance industry still driving "brush clearance" requirements over "House outward" home hardening retrofits to minimize wind-driven ember home ignitions?**	

13	**I am currently studying the WUI areas in San Gabriel Valley with the look at wildfire risk reduction zones as a band of managed land between the built environment and chaparral to help both human ignition sources be separated from chaparral and wind driven chaparral wildfire from spreading into the built environment. Not sure what the ideal width might be and the type of management. Any thoughts? Planning to not build beyond this buffer is vital. Alternatively it might be managed retreat in some areas which is not popular.**	
14	**Chris, can you provide references or literature on the effectiveness of cattle vs sheep vs goats in reducing fuels and the impacts of different grazers on soils and native vegetation?**	There are very few studies in CA comparing the different grazing species. And even fewer in Southern California. Most studies are on cows in northern or central California, and focus on benefits to livestock, rather than native plants.
15	**I should add that some homes are 5-10' from the property line bordering natural areas.**	
16	**Do any of the panelists have insight into how to best interface with municipal agencies in charge of wildfire mitigation strategies?**	I think the Community Wildfire Protection Plan process is a great approach, and often grants may be available to support that.

17	**Re: streambed alteration agreements (SAAs). The post-fire work done by Flood Control often seem to be more damaging to stream and riparian habitats than the fires, themselves. Most streams will eventually recover naturally, but recovery may be delayed by flood control activities. Is all of this considered when issuing post-fire SAAs?**	I'm not sure if my response is going to the entire group, but to answer your question, yes, we absolutely try to take this into consideration. We work closely with LA Plublic Works (i.e. Flood Control) and we are trying to have them do agreements that are much more comprehensive regarding their maintenance and operations. We are making progress, but when they do work under an emergency agreement, they are not required to do mitigation, which can be a big problem. I am currently meeting with their management to find ways that allows LA County to conduct their important flood-control work and protect the environment at the same time. We are making progress, but like all of this, it's complicated.	Thank you, Ed. We are having similar issues with working with Santa Barbara Flood Control after fires.
18	**Carlton: Do you see rapid recolonization (2 - 3 years) of hylids after fire and debris flows?**	It is really variable. It depends on fire intensity, distance to source populations, and other. But typically, within 2 - 3 years we do see hylids again.	In Santa Barbara, we see large increases in hylids in streams where riparian vegetation was burned, ca. 2 - 3 years after fire.
19	**Carlton: Were mountain yellow-legged frogs present in Alder Creek before you moved rescue frogs there? Did Alder Gulch historically contain MYLFs**	No, mountain yellow-legged frogs were not present in Alder Creek before the translocation. It is part of the pre-established area designated for recovery. It was part of their historic range as I understand	

20	**Kendall, I was struck by the higher squirrel abundance before the fire in areas that did burn. Is this because vegetation densities or stature was different in the areas that were eventually burned versus unburned?**	Great question - Yes, the the burned and unbruned areas we're monitoring are mostly similar in terms of vegetation type, though there's slightly more shrub cover in the burned area. I think the large number of squirrel detections in the burned region before fire may be a result of there being slightly more cameras in the burned area than in the unburned area. 25 burned and 11 unburned. But i think this makes the diffefences we're seeing post fire even more alarming.	Could you standardize the camera sightings per camera or per area monitored by each set of cameras?
21	**Kendall, great study! A somewhat tangential question, are there differences in detectability in the burned and unburned areas? For example, could the cameras be more or less 'trigger happy' in burned or unburned landscapes? Or with less vegetation can you see large animals from farther away?**	Yes! Especially the months directly following the fire when the viewshed of the camera has been improved with the removal of invasive annuals. In the actual analysis, I'm trying to account for this in the detectability of species in my model. I'd definitely expect most species to be more detectable following fire as you say, but that hasn't been refelected across all the species we've examined so far.	Thanks for the response. Very interesting that it differs across species. Good luck with your research!
22	**Is homeless occupents included in your study? Thinking of the corredor open space areas.**		
23	**Megan, both habitat suitability for different species and fire patterns are patchy. How do you merge this information to predict or evaluate refuge habitat for specific species?**	Our assessment of refuge (or refugia) has been more focused on the goal of protecting natural communities or ecosystems as the landscape scale. With that coarse scale approach, there's then an opportunity to focus more finely on individual species or populations considering the species ecology and habitat needs	Thank you. Erin also addressed the approach. An important issue is the scale of analysis. What is the finest scale of analysis you use to evaluate fire refuges?

24	**Megan and Erin: Can you address the potential importance of riparian zones as refugia for wildlife?**		
25	**As the duration of the fire season increases, spring fires may pose an increasing threat to nesting birds and spring-active wildlife.**		
26	**Multiple recent articles in the LA Times highlight the "value" of fire breaks (cutting huge swaths of trees), prescribed burns, etc. Why are we seeing such a varied set of "facts" about what is effective? And seldom, if ever, do we see discussion of the imipact of wildlife in these articles.**		
27	**Allison: Do you think community wildfire buffers apply to southern CA, particularly because the creation of such buffers results in type conversion to flammable non-native grasses and weeds?**	agrred - we cant apply tall trees / connnifer forest practices to chaparral and even oak woodlands	The community wildfire buffer concept is a fairly broad framework intended to provide very general buckets to organize land. There's many important site-specific nuances, such as the example you bring up, that has to be considered in any location.
28	**Curious to know if any effort is being made in this area to underground utility lines.**	Yes, as far as I know, PG&E is engaged in an extensive effort to underground utility lines in and around Paradise. But it's cost and labor prohibitve to implement this everywhere -- especially in general across CA. So, this is looking at alternative protective measures.	
29	**Has Big Sur been mapped for Pamaps grass? Threat to Condors?**	live answered	

30	**With regard to the oak trees as a buffer. I love oaks. Have you considered the resilience of oak trees with climate change increase in temperatures.**	Hi Deborah, Oaks are typically resilient to fire and drought and other conditions related to climate change, but the conditions in which they are currently growing will be affected by climate change differently on a site-by-site basis.
31	**Am very concerned about the current use of fire retardants such as Phos-Chek, it's toxicity and long-term pollution of waterways, endangered and threatened species; not only fish, but also animals, birds and insects (such as monarch butterfies which I am involved in trying to save here in So Cal) both during and after the mega fires, the many chemicals used have long-terms effects on fresh water, and haven't heard any mention of these retardants in any of these presentations.**	
32	**But increasing the density of trails can increase fire risk by increasing human impact with flammable vegetation, spreading weeds, etc.**	