Major comments

Overall, this is a good and important analysis, and a well written paper. However, the discussion is too long. This could mostly be reduced by reducing speculation over variables that were not measured by this remote sensing study, projections about climate change and climate resilience, and discussion of modeling.

Response: We appreciate the comment from the reviewer. We have reduced the discussion by 22% as suggested by the reviewer.

Title: I think the context for modeling is covered well in the discussion but not important enough to elevate to the title. However, I do think "western US forests" is central and important enough to elevate to the title as these results may be specific to this geography. Suggest something like: "Divergent biophysical responses of Western U.S. forests to wildfire driven by ecoclimatic gradients"

Response: We thank the reviewer for suggesting this alternative title, which we like and have adopted in the revised version.

Under hypothesis 3, you addressed potential issues with collinearity of covariates but what about response variables LAI and albedo? Are they correlated? Would this matter?

Response: We believe that LAI and albedo are correlated as LAI is one of the variables in albedo algorithm. However, this study demonstrated that the recovery of albedo is faster than that of LAI suggesting that the post-fire recovery of albedo is driven by multiple factors in addition to early regeneration of vegetation. Moreover, our past study (Shrestha et al., 2022) of postfire biophysical dynamics in mixed conifer and ponderosa pine in Sierra Nevada and Klamath mountains showed unique relationships (different slopes and intercepts) even within same forest type which indicates LAI is not the only variable affecting albedo. Understanding the drivers of variability in response in postfire environment is one of the main points of this manuscript.

Minor comments

89 – 'failed' implies this was their goal, which it may not have been

Response: Good point, we edited this to state that the studies did not examine this feature, now reading as, "*Moreover, such studies did not examine how their results scale up to multiple fire events across broad regions*".

179 – 'yearly' to summer averages (this is confusing)
Response: We replaced "yearly" with "summer-season".

245 – edit to 'high elevation, wet'

Response: Updated as recommended.

271-272 – couple of typos. Suggest 'Similarly, there were significant regional differences in the timing and magnitude of peak albedo(?) for a given forest type group.'
Response: Updated as recommended.

276 – new paragraph for winter
Response: Updated as recommended.

279 – I don't think snow variability is 'noise' in albedo per se. it is snow signal.
Response: This is a good catch. We edited the statement to read "*We observed greater inter-annual variability in the timeseries of post-fire winter albedo likely related to variability in snow cover and also a smaller signal-to-noise ratio associated with smaller sample sizes.*"

322 – 'elevation' to 'enhancement' as is confusing in geographical context. Also 'larger' to 'greater' in that sentence.
Response: We appreciate the close, careful read and the constructive suggestions. We changed "elevation" to "increase".

326 – are these anomalies evidence of state change? See again in Discussion at 408 to 409. Perhaps these are different species? Early successional. OK you get to this in 442-451
Response: Indeed, this is discussed in discussion section.

338 – 'see' to 'experience' or 'exhibit' and 'elevation' to enhancement again (and anywhere else)
Response: Again, we appreciate the helpful suggestions. Updated as recommended.

353 – 'time events' to 'time horizons'? again in 362 and elsewhere.
Response: Updated as recommended.

413 – soils weren't included in the analysis directly. Indirectly?
Response: The reviewer is correct. Our study did not include soil assessment. We had noticed that several other studies report that soil properties influence the trajectory of post-fire vegetation growth and speculated that this could have a role. Nonetheless, we have deleted the statement from the revised manuscript.

420 – 'the decline'?
Response: Updated as recommended.

454 – moisture to moister or wetter
Response: Updated as recommended.

481 – add ‘presumably’ since you didn’t make ground measurements
Response: Updated as recommended.

501-502, again, ‘presumably’
Response: Updated as recommended.

523 – the 2014 ref. covers snags, not the 2012.
Response: Thank you for pointing this out. Updated in the revised manuscript.

543-546 – aren’t you contradicting yourself? You say fire severity is not important ‘by contrast’ but then explain how it describes important differences.
Response: Our random forest results showed lowest importance of fire severity in explaining the post-fire recovery of LAI and albedo relative to other variables. Despite its low importance, we found differences in recovery rate across fire severity classes. Here, low importance does not necessarily mean no predictive power. We added a clarifying clause to the second sentence as: “*In contrast, our analysis suggested fire severity was of relatively low importance relative to other variables considered (Fig. S2). Despite being of lesser importance, we found that higher rates of post-fire recovery were associated with low severity fire and lowest recovery rates were associated with high fire severity*.”

627 – regarding the Domingo reference and this idea: the lowering of albedo with soil moisture has been shown in drylands, I am skeptical it applies in forests, not sure this reference applies.
Response: We appreciate the reviewer’s point. This effect might apply more in open forest, low canopy cover conditions where background soils receive direct insolation. It is generally accepted that surface albedo decreases with increasing soil moisture and simple relationship based on this knowledge have been mostly used in climate models. We have replaced the reference with *Montes-Helu et al., 2009*. This research was carried out in the Ponderosa pine forest of northern Arizona. It now reads: “*With greater precipitation leading to increased soil water content, we could expect a corresponding decrease in albedo due to darkening of soil particularly in open canopy conditions where the soil received direct radiation (Montes-Helu et al., 2009). Furthermore, an increase in leaf area within the understory during the wet season could have a similar effect, as reported in Thompson et al. (Thompson et al., 2004).*”

679 – what about scorching the seed bank in the soil?
Response: It certainly affects post-fire vegetation recovery and we have added this to a list of several other factors that this study did not cover. To name a few, we included distance to seed tree, species competition, pre-fire disturbances, and physiology of cones, seeds, and seedlings.

727 – here are earlier, can you briefly clarify how you are defining vulnerability in this case?

Response: We had used the term “vulnerability” to connote slower, more limited recovery of a species post-fire. Now we revised this to be more specific as, “*Our results show that conifer forest ecosystems, particularly Douglas-fir and Ponderosa pine, are slower to recover post-fire, which may indicate they face greater risks from the projected increase in fire severity and frequency as forecasted for drier interiors of the western US (Abatzoglou and Williams, 2016; Littell et al., 2018).*”.