En Amarillo: lo que nos han dicho los revisores y tenemos que contestarles:

B. The component of the study focused on land-use is very interesting and I agree that historical land-use complicates the assumption of geographic range edges as climate edges and therefore as a metric of climate vulnerability. Despite the focus on the land-use in the introduction and discussion, it is not part of the study objectives. Is there testable question about the growth responses either directly in response to the previous land-use or interactions between previous land-use and drought responses? I realize this may be difficult with only three study sites, but currently the land-use section in the discussion does not seem totally connected to the rest of the study.

– How is it known that the rear-edge is set by land use?  Is there an associated reference for this? I thought this was a question that this paper was addressing. Also, there needs to be a more in-depth introduction on why land-use would limit resilience to drought prior to this.

#13. L319 – 322 – This land-use section fills disconnected currently to the rest of the analyses. See major comment B.

C2.

The authors use the term ‘ecological edge’ but I think they are really referring to a climatic range-edge. These aren’t necessarily the same thing as an ecological edge could be determined by biotic interactions or other abiotic limits (e.g. soils). But this raises another point, are the authors sure that climate is the true determinate of this range edge? Is it possible human land-use has artificially restricted this species or that biotic interactions (e.g. competition with more southern oaks) limits their distribution? This should be clarified and discussed if possible.

Mis notas:

Los limites de distribución está determinados por clima y biogeografia. Pero en el mundo real, el hombre puede ser una fuerza tan poderosa como las natural drivers, alterando los ecosistemas. En los ambientes mediterráneos, manejados historicamente, esa fuerza humana es mucho mas evidente. Las montañas mediterráneas han sido ocupadas por el hombre desde milenios.

For example, the combination of forest inventory data with historical

and modern land‐cover maps generated form aerial images shows

that the ~25% of current forests in the Iberian Peninsula, the rear

edge of several temperate and boreal tree species, are growing on

former agricultural and grazing land abandoned after the 1950s

(Vil.‐Cabrera, Espelta, Vayreda, & Pino, 2017). Consequently, anthropogenic

habitat modification and its legacies represent a critical

dimension of marginality as they may intensify, confound or delay

climate‐driven population decline at rear edges.

Esto es lo que pone literal en Vila-Cabrera 2018:

We propose a rationale that integrates the ecological, geographical and genetic dimensions of marginality to determine the regional and local‐scale mechanisms shaping the probability of persistence (or extinction) of rear edge populations (Figure 1)

Lo que nosotros podemos proponer es algo así:

We propose a rationale that integrates the ecological, geographical and antropogenic dimensions of marginality to determine the regional and local‐scale mechanisms shaping the probability of persistence (or extinction) of rear edge populations. It is of primary importance to determine interactions among ecological mechanisms driving population decline and the influence of anthropogenic land‐use.

Y luego poniamos al final de las conclusions: This suggests that the rear edge therefore needs to be redefined

Lo que queremos decir es que el concepto de rear edge debe incorporar elementos del real world adicionales a la geografía y el clima (Vila-Cabrera 2018). Primero, debe incorporar los que son propios de la ecología de las montañas (heterogeneidad especial en las condiciones ecológicas a un grano espacial muy fino = posibilidad de microrefugios, y Segundo, la larga historia de manejo humano de las montañas mediterráneas, lo que hace que haya un histórico de legados que condiciona las respuestas que observamos en el presente. La importancia de estos legados se puede comprender mejor analizando comparativamente la respuesta frente a una perturbación natural (evento extremo = sequia) frente a una de origen antrópico ( manejo humano = logging), analizando la resistence, recovery y resilience de los robles frente a ambas. Con esta comparación podemos saber cual de las dos perturbaciones (la de origen climático vs la de origen antrópico) deja una huella más marcada en el robledal, y frente a cual de ellas el robledal se muestra más resiliente. Y la realidad es que, en ambientes mediterráneos, el robledal en su límite geográfico tiene que convivir con ambas realidades, las que corresponden a la geografía y el clima, y las que correponden a la elevada heterogeneidad espacial y el histórico de manejo humano. Combinando ambas sources de perturbación (natural and antrophic), tenemos el broad picture de la ecología del robledal at the southern limit.