The article is well written, and has beautiful figures that nicely supports the results. I very much liked the first part of the article that analysis the relation between modern fire activity and current vegetation and climate. This part of their work could be an article on its own.

The second part of their work is very much restricted to the lack of enough long records, as the authors also emphasize in the last paragraph of their conclusions. This easily leads to wrong interpretations. The authors for example found for the NNeo a significant negative correlation between charcoal influx, and Arboreal pollen percentage. However, this correlation is heavily influenced by one charcoal record from lake Tulane in Florida, which record is very different from the other long record used (see figure). The Tulane charcoal record is extracted from the Reading Palaeofire database, also occur in Neotoma, but can't be found in the referred article (Grimm et al., 2006). Another charcoal record from lake Tulane (Watts and Hansen, 1988), also in the Reading Palaeofire database, is very different (see figure), but hasn't been used. An updated record for lake Tulane is likely to be published soon (Perrotti et al., 2023).

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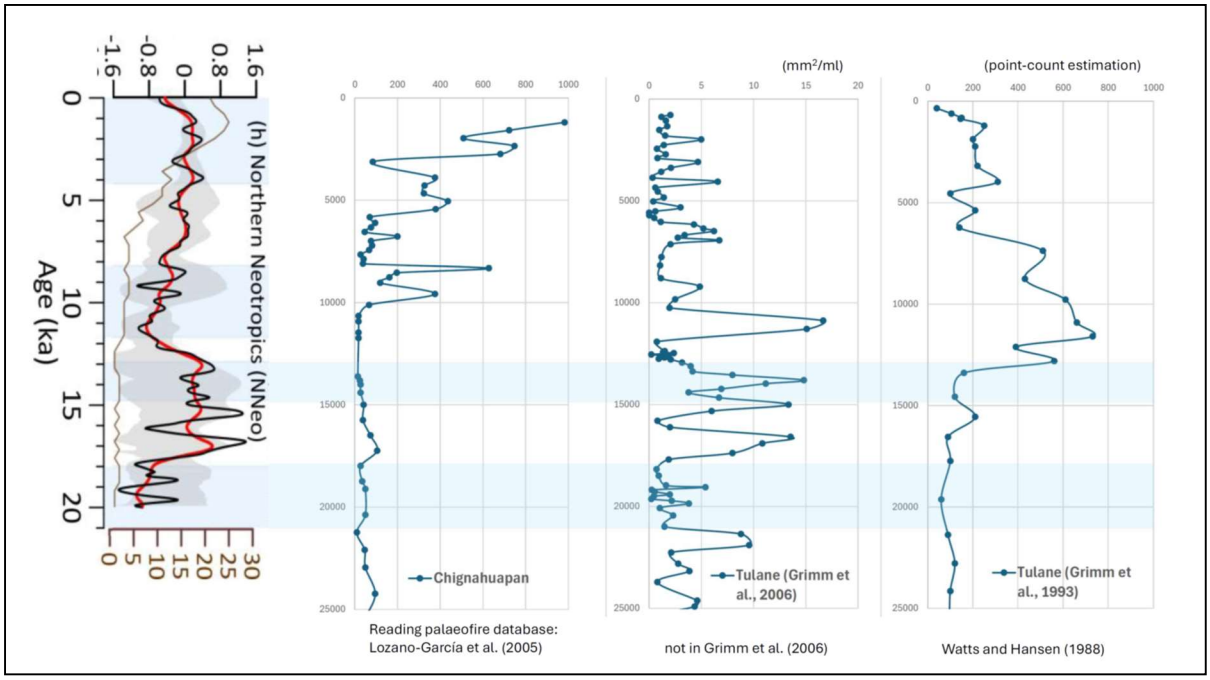

would suggest that the authors concentrate their work on the Holocene, or the last 6000 years, with a minimum number of palaeofire records for each subregion of at least ~10. They should define a minimum number of records for each subregion, and adjust the period studied accordingly. The authors should use a pre-binning of 400 or 500 years, instead of 20 years. In their current analysis many datapoints from low resolution records are missing.

Unfortunately, for many sites or the pollen or the charcoal record has been used. It would have been nice if the authors first of all investigate the relation between the charcoal and pollen record from individual sites. This would mean that more effort should have been put in the digitalization of records. It is at least a message to the palaeoecology community that more records should be added to the online databases. As long as the number of records included in the analysis is low, compared to the enormous size and heterogeneity of the study region, one should be careful with interpretation of the data, even if correlations seem significant.

Watts, W.A., and Hansen, B.C.S., 1988. Environments of Florida in the late Wisconsin and Holocene. In: Purdy BA (ed). Wet site archaeology. Telford Press, Caldwell, pp 307–324.

Perrotti et al., 2023. Does fire drive Quaternary ecosystem transformation at Lake Tulane, Florida? In: Abstracts of the 2nd Conservation Paleobiology Symposium. Bulletin of the Florida Museum of Natural History 60(2): 103.