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Peer Review

Review of: "Unburnt Grasstrees Adjacent to Burnt Grasstrees Are Twice as Likely to Flower as Unburnt Grasstrees Remote from the Burn, Implicating Smoke as the Flowering Stimulus"

Shane Turner[1]

1. Molecular and Life Sciences, Curtin University of Technology, Australia

This is an interesting and potentially valuable observational study that identifies a striking increase in flowering of unburnt *Xanthorrhoea preissii* adjacent to a recently burnt area. Moreover, a decline in flowering was also noted with increasing distance from the burn. The observation is potentially important because it provides a plausible field basis for the hypothesis that an airborne fire-associated stimulus (perhaps ethylene?) contributes to post-fire flowering. However, the current manuscript substantially overstates the strength of the evidence for causality. The study contains only one independently recently burnt site, one adjacent unburnt site, and one remote unburnt site, meaning that site effects cannot be clearly separated from smoke exposure. The numerous individual plants, therefore, do not provide independent spatial replication of the treatment. In addition, smoke and ethylene were not measured or quantified, distance from the road is used as a proxy for distance from the burn, and the statistical treatment of the flowering response and nonlinear distance relationship requires greater justification. I believe the study could make a useful contribution if it is reframed explicitly as an observational/hypothesis-generating study, the statistical analysis is strengthened, causal language is substantially moderated, and the proposed role of ethylene is presented as a testable mechanism rather than a demonstrated explanation.

Declarations

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Potential competing interests: No potential competing interests to declare.