

## Your details

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## Submission details

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**I am making this submission as**

Other

**Submission type**

I am submitting on behalf of my organisation

**Organisation making the submission (if applicable)**

Society for Insect Studies Inc.

**Your position in the organisation (if applicable)**

Council member and Editor

**Consent to make submission public**

I give my consent for this submission to be made public

## Share your experience or tell your story

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## Terms of Reference (optional)

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The Inquiry welcomes submissions that address the particular matters identified in its [Terms of Reference](#).

### 1.1 Causes and contributing factors

A. Climate change in combination with natural weather cycles undoubtedly played a major part in the flammability of the bush during the recent fire season. However, the Society for Insect Studies believes that the situation has been exacerbated by inappropriate burning regimes in many habitat types. Ecosystem disruption can make areas more, rather than less flammable, for example:

- i. Frequent burning, rather than reducing fuel loads, keeps the undergrowth in a permanently 'young' state, with higher fuel loads than in systems that are allowed to mature (Croft et al 2016; Sands 2018). Frequent fires also favour survival or invasion of plant species that are best adapted to, and benefit from, frequent fire and are more flammable (Bowman et al 2009).
- ii. Fires that destroy the leaf litter layer wipe out insects and other invertebrates. These are the primary detritivores that begin the break down of dead plant material and ultimately maintain soil structure and nutrient cycles. Where fires are large scale, too frequent or seasonally inappropriate, these animals cannot re-establish fast enough to prevent a large build up of flammable leaf litter in future seasons (York, 1999; Sands 2018).
- iii. Frequent burning around human habitation often promotes weed growth. Such weeds may be more flammable than the plants they replace, may repel or exclude the detritivores such that litter build-up is enhanced or keep leaf litter off the ground in a position where detritivores do not feed on it and it is highly flammable (Sands et al 2015).

#### References

- Bowman DMJS, Balch JK, Artaxo P, Bond WJ, Carlson JM, Cochrane MA, D'Antonio CM, DeFries RS, Doyle JC, Harrison SP, Johnson FH, Keeley JE, Krawchuk MA, Kull CA, Marston JB, Moritz MA, Prentice IC, Roos CI, Scott AC, Sweetnam TW, van der Werf GR, Pyne SJ. 2009. Fire in the earth system. *Science* 324: 481–484
- Croft P, Hunter JT & Reid N. 2016. Forgotten fauna: habitat attributes of long-unburnt open forests and woodlands dictate a rethink of fire management theory and practice. *Forest Ecology and Management* 366, 166–174.
- Sands DP. 2018. Important issues facing insect conservation in Australia: now and into the future (review article). *Austral Entomology* 57:150–172
- Sands DPA, Grimshaw P & Raghu S. 2015. (Abstract) Invasive flammable exotic grasses: increasing detrimental impacts on Australia's invertebrate biodiversity. Pp. 77, in *Entomology Up North & to Asia Beyond*. The Australian Entomological Society 46th AGM and Scientific Conference, Cairns 27-30 September 2015.
- York A. 1999. Long-term effects of frequent low-intensity burning on the abundance of litter-dwelling invertebrates in coastal blackbutt forests of south eastern Australia. *Journal of Insect Conservation* 3, 191–199.

### 1.2 Preparation and planning

A. Setting a target for HR burns forces the agencies responsible for habitat maintenance and public safety to focus on burning wherever and whenever they can. This "one size fits all" approach is counter-productive and is damaging environments and ecosystem functions that would otherwise help maintain low flammability. Instead, management strategies for different areas and habitats need to be informed by a combination of scientific research and local and indigenous knowledge.

B. Where burning is to form part of the management system, it must be carried out in a way that maintains vital ecosystem functions. Fire should be used in a fine scale "mosaic" both spatially and temporally across seasons and years, with long-term no burn areas (see New et al 2010). The life cycle of key detritivore species should be considered so that large parts of the population are not wiped out during seasons they are vulnerable, for instance winter burns badly impact oecophorid moths whose larvae are a major part of the detritivore fauna (see Sands 2018).

C. Hazard reduction burns, as well as having potential to enhance flammability (see under 1, above) give a false sense of security. Evidence from around the country makes it clear that no amount of so-called 'fuel reduction' will stop a wildfire that becomes a ground-to-crown fire driven by strong hot dry winds, causing the types of wildfires that far and away have caused loss of life and property and habitat destruction. This was patently evident in the recently-aired first episode of ABC's 'Barrie Cassidy's One Plus One', where Barrie Cassidy interviewed Charlie Magnuson, Captain of the Bawley Point Rural Fire Brigade, at Charlie's rural property, and who stated that the near-total clearing and burning of the undergrowth in the surrounding forest did nothing to stop the wildfire that burned through the area. Similarly, after the 2018 Tathra fires on the NSW South Coast, a senior fire officer publicly stated on ABC TV that the fires that burned through the town burned straight through the areas around the town that had prior HR burns.

#### References

- New TR, Yen AL, Sands DPA, Greenslade P, Neville PJ, York A, Collett NG. 2010. Planned fires and invertebrate conservation in south east Australia. *Journal of Insect Conservation* 14, 567–574.

### **1.3 Response to bushfires**

A. The Society for Insect Studies supports all timely action to save human life and property in the event of an imminent fire threat. Organisations such as the Police and the Rural Fire Brigade are best equipped to respond to such threats, but should not be engaged in large-scale hazard reduction burns which are patently ineffective in stopping the types of wildfires that cause destruction to life and property.

B. The effectiveness of back-burning in the face of an oncoming wind-driven ground-to-crown wildfire is highly questionable given the fact that such back-burning has often been the major cause of loss of property when back-burns undertaken in high winds went out of control. This has been the unfortunate situation in Western Australia in recent years, and in the Blue Mountains, N.S.W. during the 2019 wildfires.

### **Supporting documents or images**

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