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## Supplementary Material

# A comparison of fuel hazard in recently burned and long-unburned forests and woodlands

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**Fig. S1.** Sites from the study area typical of: 0.5 to 2 years since fire (a, d); 6 to 12 years since fire (b, e) and > 96 years since fire (c, f) in dry sclerophyll forest (top row) and sub-alpine woodland (bottom row).

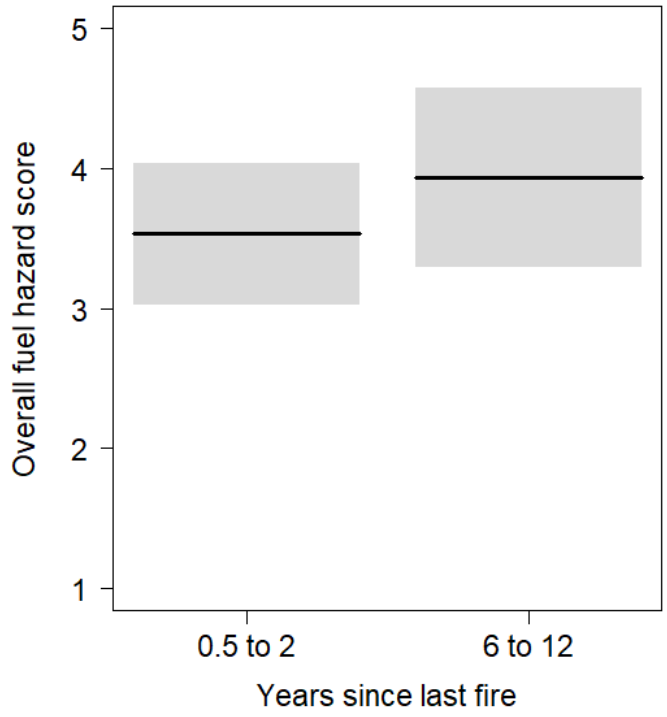


**Fig. S2.** Predicted overall fuel hazard scores (mean ± 95% confidence intervals) for wet and montane wet sclerophyll forests for the two fire age classes that were present in these forest types. Predictions were based on the model with the lowest $AIC_c$ (model 1.1) in Table 4.

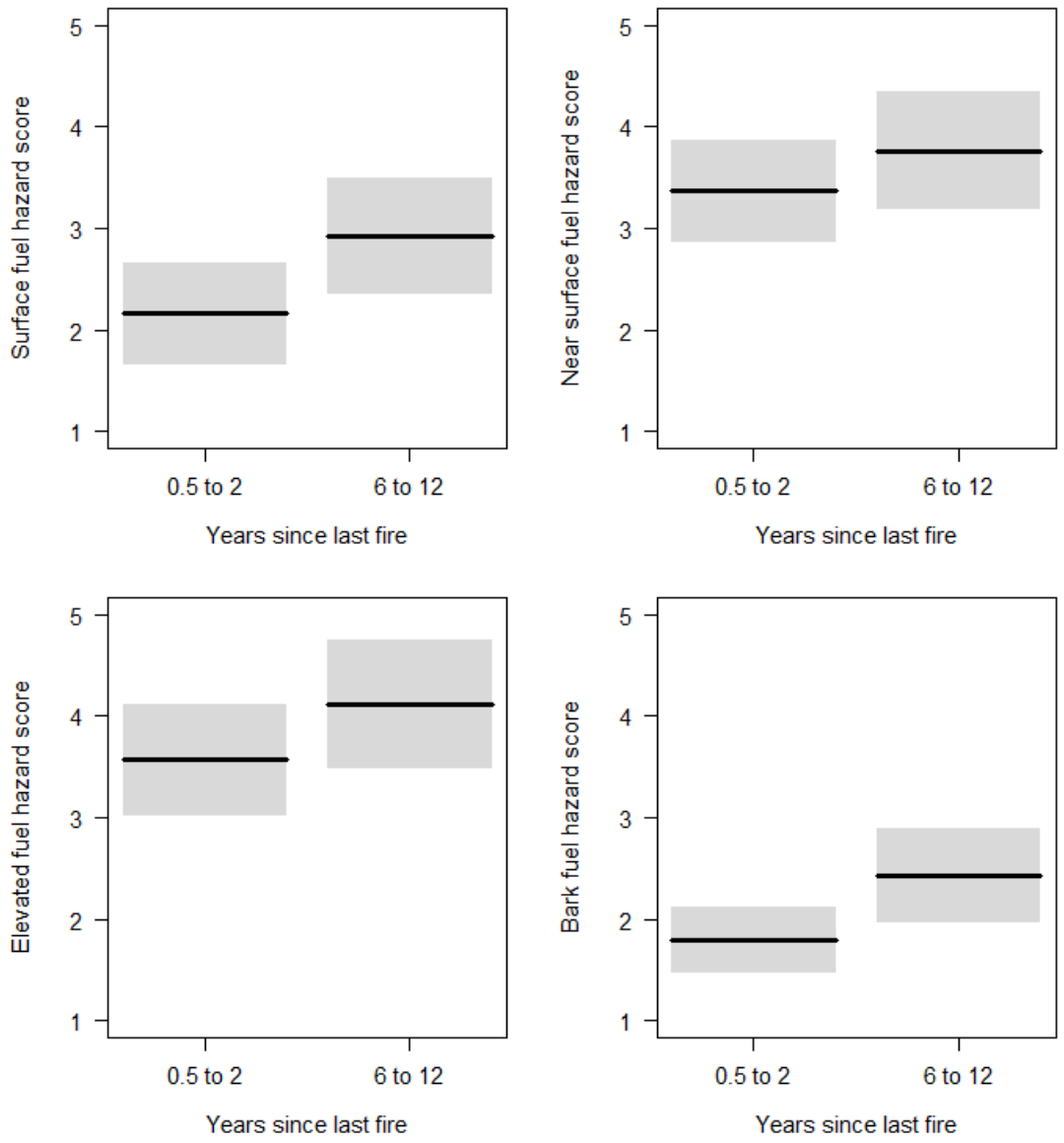


**Fig. S3.** The predicted fuel hazard scores (mean ± 95% confidence intervals) for each fuel component of the overall fuel hazard score, clockwise from top left: surface, near-surface, elevated and bark hazard for wet and montane wet sclerophyll forests with changes in time since last fire (years). Predictions were based on the model with the lowest $AIC_c$ in Tables S3–S6.

**Table S2. Coefficient estimates and their standard errors for model 1.1, Table 4**

Coefficient estimates and their standard errors for the significant explanatory variables used in the best model (model 1.1, Table 4) to predict overall fuel hazard. Time-since-fire is a categorical variable with three levels with 0.5 to 2 years since fire used as the reference level. Dry sclerophyll was used as the reference level for vegetation class and north was used as the reference level for aspect categories. There were no long unburned wet/montane wet sclerophyll sites

| Variable | Parameter estimate | SE |
|---|---|---|
| Intercept | 6.149 | 1.598 |
| Time-since-fire 0.5 – 2 years [A] | 0.000 | 0.000 |
| Time-since-fire 6 – 12 years | 0.650 | 0.303 |
| Time-since-fire > 96 years | -1.658 | 0.450 |
| Vegetation class: dry sclerophyll [A] | 0.000 | 0.000 |
| Vegetation class: sub-alpine woodland | -1.525 | 0.423 |
| Vegetation class: wet/montane wet sclerophyll | 1.000 | 0.352 |
| Mean annual warm temperature | -0.137 | 0.062 |
| Aspect: north [A] | 0.000 | 0.000 |
| Aspect: east | 0.354 | 0.223 |
| Aspect: south | 0.554 | 0.244 |
| Aspect: west | 0.456 | 0.205 |
| Time-since-fire 0.5 to 2 years x dry sclerophyll [A] | 0.000 | 0.000 |
| Time-since-fire 6 to 12 years x dry sclerophyll [A] | 0.000 | 0.000 |
| Time-since-fire > 96 years x dry sclerophyll [A] | 0.000 | 0.000 |
| Time-since-fire 0.5 to 2 years x sub-alpine woodland [A] | 0.000 | 0.000 |
| Time-since-fire 6 to 12 years x sub-alpine woodland | -0.031 | 0.490 |
| Time-since-fire > 96 years x sub-alpine woodland | 1.953 | 0.564 |
| Time-since-fire 0.5 to 2 years x wet/montane wet sclerophyll [A] | 0.000 | 0.000 |
| Time-since-fire 6 to 12 years x wet/montane wet sclerophyll | -0.641 | 0.516 |
| Time-since-fire > 96 years x wet/montane wet sclerophyll | - | - |

[A] reference level.

**Table S2. Coefficient estimates and their standard errors for model 2.1, Table 5**

Coefficient estimates and their standard errors for the significant explanatory variables used in the best model (model 2.1, Table 5) to predict probability of high, very high or extreme overall fuel hazard. Time-since-fire is a categorical variable with three levels with > 96 years since fire used as the reference level. Dry sclerophyll was used as the reference level for vegetation class and east was used as the reference level for aspect categories

| Variable | Parameter estimate | SE |
|---|---|---|
| Intercept | 10.179 | 6.607 |
| Time-since-fire 0.5 – 2 years | 0.000 | 0.000 |
| Time-since-fire 6 – 12 years | -0.072 | 0.875 |
| Time-since-fire 96 + years [A] | -5.139 | 1.812 |
| Vegetation class: dry sclerophyll [A] | 0.000 | 0.000 |
| Vegetation class: sub-alpine woodland | -2.991 | 0.976 |
| Vegetation class: wet/montane wet sclerophyll | 1.779 | 1.632 |
| Mean annual warm temperature | -0.391 | 0.258 |
| Aspect: north [A] | 0.000 | 0.000 |
| Aspect: east | 1.403 | 1.005 |
| Aspect: south | 2.764 | 1.409 |
| Aspect: west | 2.146 | 1.100 |

[A] reference level

**Table S3. Candidate models fitted to predict surface fuel hazard rating**

Models with $\Delta AIC_c \leq 2$ have the greatest support. Weight is the probability of that model being the best fitting for the data

| Model | time-since-fire | Vegetation class | Aspect | Mean warm temperature | TWI | Vegetation class * time-since-fire | $AIC_c$ | $\Delta AIC_c$ | Weight |
|---|---|---|---|---|---|---|---|---|---|
| 3.1 | + | + | | | | | 185.0 | 0.00 | 0.401 |
| 3.2 | + | + | | | + | | 187.4 | 2.39 | 0.122 |
| 3.3 | + | + | | + | | | 187.4 | 2.40 | 0.121 |
| 3.4 | + | + | + | | | | 188.1 | 3.02 | 0.088 |
| 3.5 | + | + | | | | + | 188.4 | 3.39 | 0.074 |
| 3.6 | + | + | | + | + | | 189.9 | 4.85 | 0.035 |
| 3.7 | + | + | | + | | + | 190.0 | 4.95 | 0.034 |
| 3.8 | + | + | + | + | | | 190.5 | 5.46 | 0.026 |
| 3.9 | + | + | + | | + | | 190.6 | 5.54 | 0.025 |
| 3.10 | + | + | + | | | + | 190.8 | 5.71 | 0.023 |
| 3.11 | + | + | | | + | + | 191.0 | 5.99 | 0.020 |
| 3.12 | + | + | | + | + | + | 192.7 | 7.61 | 0.009 |
| 3.13 | + | + | + | + | | + | 193.1 | 8.08 | 0.007 |
| 3.14 | + | + | + | + | + | | 193.1 | 8.09 | 0.007 |
| 3.15 | + | + | + | | + | + | 193.4 | 8.39 | 0.006 |
| 3.16 | + | + | + | + | + | + | 195.7 | 10.68 | 0.002 |
| 3.17 | + | | | | | | 201.6 | 16.58 | 0.000 |

**Table S4. Candidate models fitted to predict near-surface fuel hazard rating**

Models with $\Delta AIC_c \leq 2$ have the greatest support. Weight is the probability of that model being the best fitting for the data

| Model | time-since-fire | Vegetation class | Aspect | Mean warm temperature | TWI | Vegetation class * time-since-fire | $AIC_c$ | $\Delta AIC_c$ | Weight |
|---|---|---|---|---|---|---|---|---|---|
| 4.1 | + | + | | | | | 193.8 | 0.00 | 0.253 |
| 4.2 | + | + | | | | + | 193.9 | 0.08 | 0.244 |
| 4.3 | + | + | | + | | | 195.3 | 1.47 | 0.122 |
| 4.4 | + | + | | + | | + | 196.0 | 2.24 | 0.083 |
| 4.5 | + | + | | | + | | 196.2 | 2.40 | 0.076 |
| 4.6 | + | | | | | | 196.3 | 2.55 | 0.071 |
| 4.7 | + | + | | | + | + | 196.5 | 2.66 | 0.067 |
| 4.8 | + | + | | + | + | | 197.7 | 3.89 | 0.036 |
| 4.9 | + | + | | + | + | + | 198.6 | 4.83 | 0.023 |
| 4.10 | + | + | + | | | | 200.6 | 6.76 | 0.009 |
| 4.11 | + | + | + | | | + | 201.5 | 7.67 | 0.005 |
| 4.12 | + | + | + | + | | | 201.9 | 8.07 | 0.004 |
| 4.13 | + | + | + | | + | | 203.1 | 9.36 | 0.002 |
| 4.14 | + | + | + | + | | + | 203.8 | 10.00 | 0.002 |
| 4.15 | + | + | + | | + | + | 204.3 | 10.52 | 0.001 |
| 4.16 | + | + | + | + | + | | 204.5 | 10.74 | 0.001 |
| 4.17 | + | + | + | + | + | + | 206.7 | 12.9 | 0.000 |

**Table S5. Candidate models fitted to predict elevated fuel hazard rating**

Models with $\Delta AIC_c \leq 2$ have the greatest support. Weight is the probability of that model being the best fitting for the data

| Model | time-since-fire | Vegetation class | Aspect | Mean warm temperature | TWI | Vegetation class * time-since-fire | $AIC_c$ | $\Delta AIC_c$ | Weight |
|---|---|---|---|---|---|---|---|---|---|
| 5.1 | + | + | | | | | 204.4 | 0.00 | 0.259 |
| 5.2 | + | + | | | | + | 204.8 | 0.45 | 0.207 |
| 5.3 | + | + | | | + | | 206.4 | 2.00 | 0.095 |
| 5.4 | + | + | | | + | + | 206.6 | 2.25 | 0.084 |
| 5.5 | + | + | | + | | | 206.8 | 2.40 | 0.078 |
| 5.6 | + | + | + | | | + | 207.1 | 2.70 | 0.067 |
| 5.7 | + | + | | + | | + | 207.1 | 2.71 | 0.067 |
| 5.8 | + | + | | + | + | + | 208.6 | 4.26 | 0.031 |
| 5.9 | + | + | | + | + | | 208.8 | 4.46 | 0.028 |
| 5.10 | + | + | + | | | | 209.2 | 4.85 | 0.023 |
| 5.11 | + | + | + | + | | + | 209.4 | 5.04 | 0.021 |
| 5.12 | + | + | + | | + | + | 209.5 | 5.17 | 0.020 |
| 5.13 | + | + | + | + | + | + | 211.7 | 7.35 | 0.007 |
| 5.14 | + | + | + | | + | | 211.7 | 7.38 | 0.006 |
| 5.15 | + | + | + | + | | | 211.8 | 7.45 | 0.006 |
| 5.16 | + | + | + | + | + | | 214.4 | 10.05 | 0.002 |
| 5.17 | + | | | | | | 231.5 | 27.16 | 0.000 |

**Table S6. Candidate models fitted to predict bark fuel hazard rating**

Models with $\Delta AIC_c \leq 2$ have the greatest support. Weight is the probability of that model being the best fitting for the data

| Model | time-since-fire | Vegetation class | Aspect | Mean warm temperature | TWI | Vegetation class * time-since-fire | $AIC_c$ | $\Delta AIC_c$ | Weight |
|---|---|---|---|---|---|---|---|---|---|
| 6.1 | + | + | | | + | + | 88.5 | 0.000 | 0.670 |
| 6.2 | + | + | | + | + | + | 91.2 | 2.67 | 0.176 |
| 6.3 | + | + | | | | + | 92.8 | 4.23 | 0.081 |
| 6.4 | + | + | | + | | + | 94.9 | 6.36 | 0.028 |
| 6.5 | + | + | + | | + | + | 95.5 | 6.95 | 0.021 |
| 6.6 | + | + | | | + | | 97.4 | 8.90 | 0.008 |
| 6.7 | + | + | + | + | + | + | 98.4 | 9.88 | 0.005 |
| 6.8 | + | + | | + | + | | 98.8 | 10.24 | 0.004 |
| 6.9 | + | + | + | | | + | 98.8 | 10.24 | 0.004 |
| 6.10 | + | + | | | | | 101.1 | 12.59 | 0.001 |
| 6.11 | + | + | + | + | | + | 101.3 | 12.75 | 0.001 |
| 6.12 | + | + | | + | | | 103.2 | 14.69 | 0.000 |
| 6.13 | + | | | | | | 103.8 | 15.27 | 0.000 |
| 6.14 | + | + | + | | + | | 104.5 | 15.94 | 0.000 |
| 6.15 | + | + | + | + | + | | 106.1 | 17.56 | 0.000 |
| 6.16 | + | + | + | | | | 107.7 | 19.21 | 0.000 |
| 6.17 | + | + | + | + | | | 110.0 | 21.48 | 0.000 |