Climate Change & Bushfire Risk

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Fire management in the Sydney region

- Largest urban centre in Australia.
- Surrounded by fire-prone vegetation including a WHA.
- Topographically diverse and rugged landscapes
- Risks to multiple values.
- Effects of climate change likely to be complex, significant and important.
Summary

- When do bushfires threaten people and property?
- How will “fire weather” change?
- How will bushfire fire incidence/area burned change?
- Changes in risks to people & property?
- Future management & other consequences?
Facets of the problem

Bushland environment

Built environment
Property damage highly likely when fires burn on days of Very High to Extreme Fire Danger
How will fire weather change?
Fire weather under climate change

- Variety of studies
- Predicted increase in severity of fire weather

- For example
  + 1 to +10 days of VH – EXT. FFDI (2050) (Hennessy et al. 2005)
How will bushfire incidence/area burned change?
Two methodologies

**Statistical modelling**
- Large fires > 40 years
- 95% area burned
- Fire weather

**Landscape Simulation**
- Process based
- Integration of landscape information
- Capacity for experimentation
Preliminary results

Both approaches predict a potential increase in incidence and area burned for 2050.

circa. 10 – 30 %

based on Hennessy et al. (2005)
Climate change is predicted to substantially elevate risks to people and property.
Future Management?

- Prevention
- Preparedness
- Suppression etc.

Effects on consequential risk poorly known

Modelling approaches yielding quantitative insights

An optimum mix of activities to suit a changing world?
Summary

Fire weather predicted to be more severe

Local fire activity (incidence and area burned) predicted to increase substantially

Concomitant rise in urban risk likely

Ecosystem changes also likely

Management will be challenging