Climate Change & Bushfire Risk

Ross Bradstock

Centre for Environmental Risk Management of Bushfires

University of Wollongong

CCIARP Project collaborators: Ian Davies & Geoff Cary (ANU)

Fire management in the Sydney region

biodiversity

- 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 fires 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?

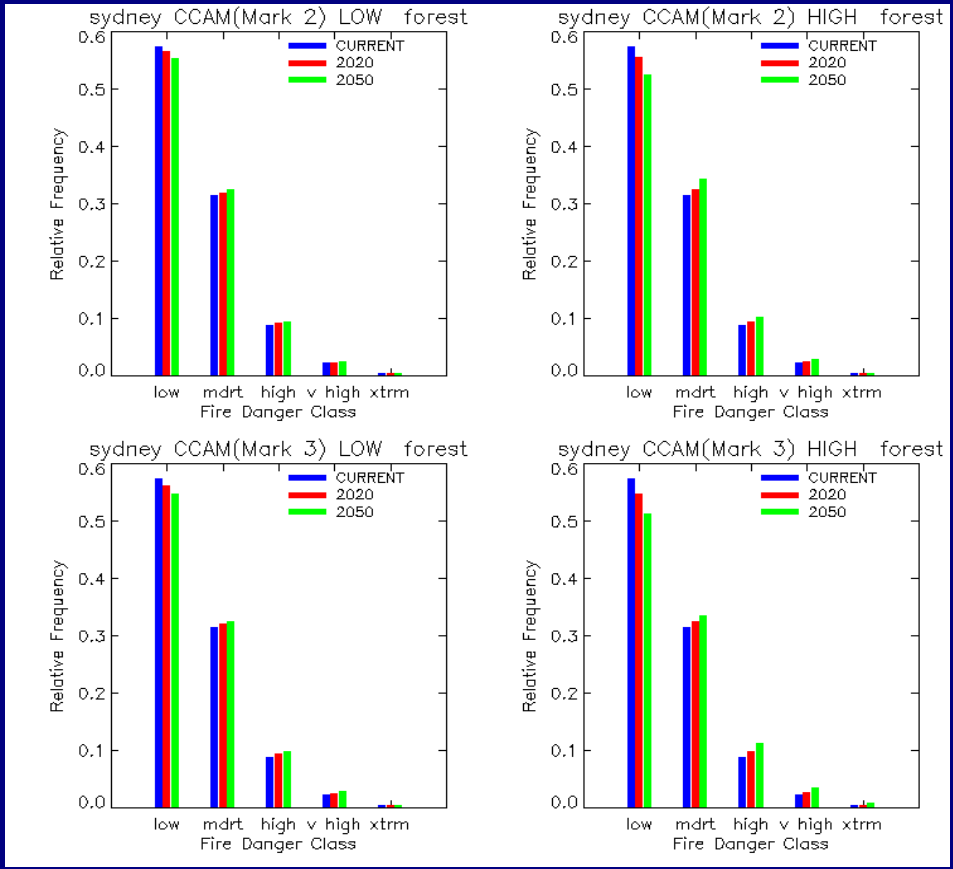
Facets of the problem

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

FFDI



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

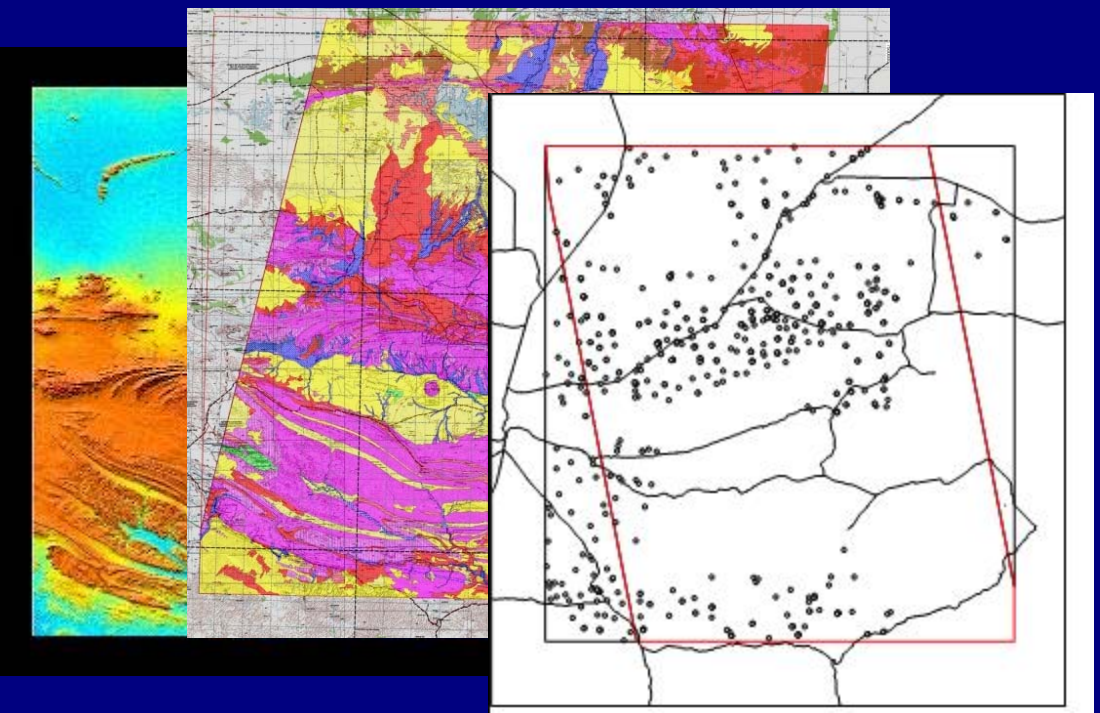
- For example
  + 1 to +10 days of VH – EXT. FFDI (2050) (Hennessy et al. 2005)

How will bushfire incidence/area burned change?

Two methodologies

Statistical modelling

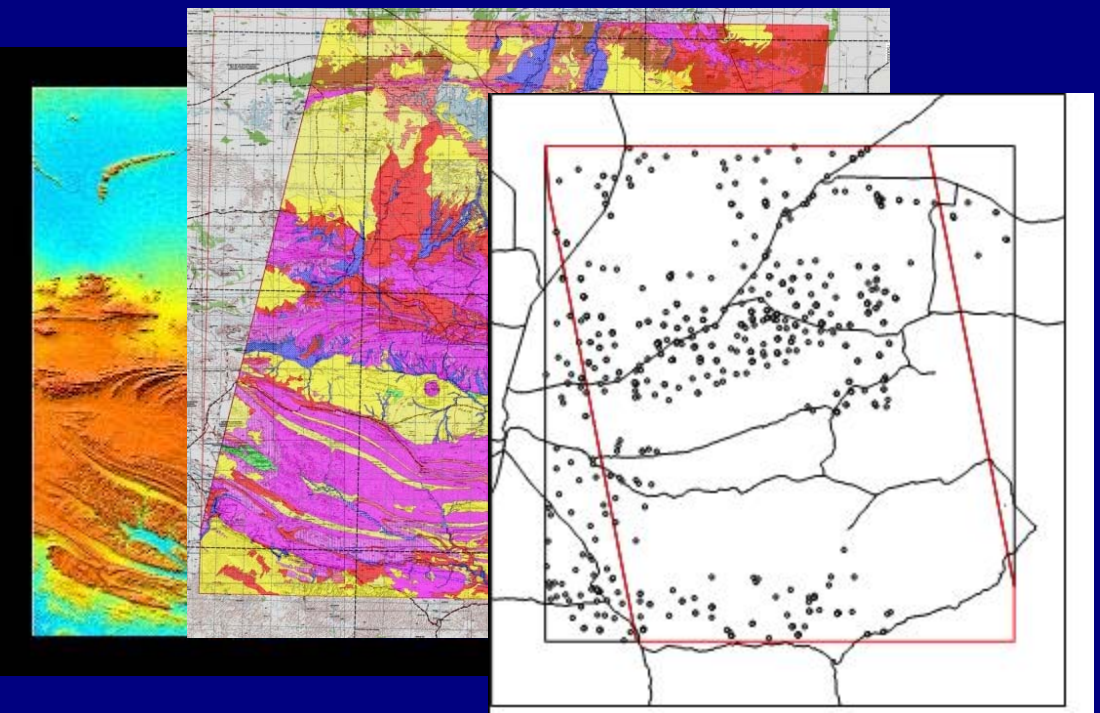
- Large fires > 40 years
- 95 % area burned
- Fire weather



Landscape Simulation

- Process based
- Integration of landscape information
- Capacity for experimentation

Preliminary results



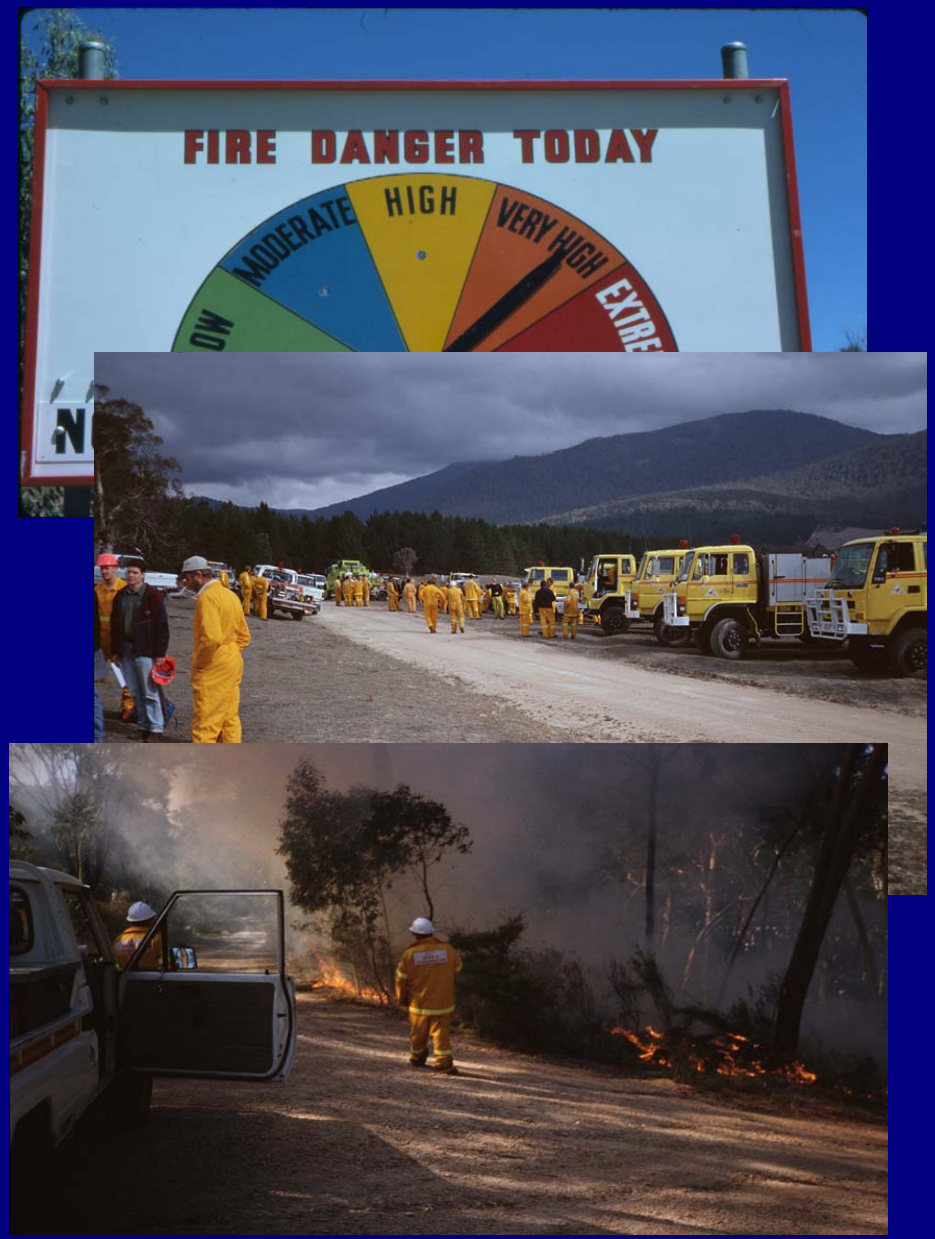
Both approaches predict a potential increase in incidence and area burned for 2050.

circa. 10 – 30 %

based on Hennessy et al. (2005)


AAE
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 quantitive 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