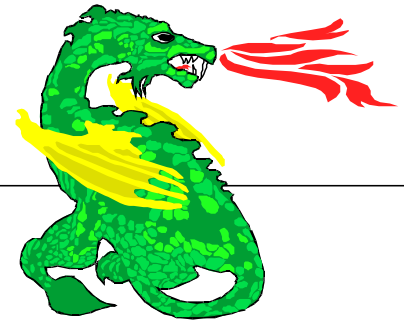


PHOENIX - a fire characteristic mapping model

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Project A4 (Bushfire Risk Management) – Outcomes

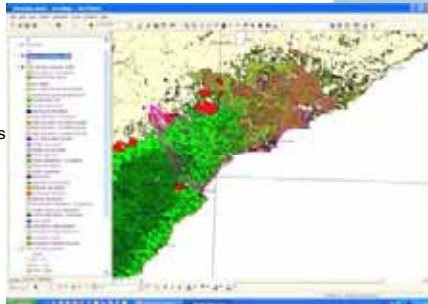
1. To provide a bushfire risk management model that demonstrates the effect of fire management.
2. To identify places and times in a landscape where fire are likely to have the greatest impact.
3. To provide a basis for assessing the relative benefits and best combinations of bushfire prevention, preparedness, response, recovery and fire regime management.

Phoenix

Phoenix is a fire simulation model that shows the spread of fire across the landscape under different weather and fire suppression scenarios. It produces statistics on the **Likelihood** of fire in the landscape and provides a means of quantifying the effects of **Mitigation** and the likely **Consequences** of fire in the landscape.

Inputs:

- Fuels
- Weather
- Topography
- Fire Suppression levels
- Assets / Values
- Scenario conditions



3 Essential Components of Bushfire Risk Management:

1. **A Bushfire Business Management Model** (to understand how the various elements of Bushfire Management interact and affect the likelihood of ignition, the extent of fire spread, the severity of bushfires, and the impact and rate of recovery on various values in the managed area. = **Mitigation**)
2. **A Fire Simulation Model** (to quantify the range of fire origin locations, fire intensities, fire sizes, fire frequencies and the speed of impact of fires across the landscape for given management, climate, weather, topography and value characteristic scenarios. = **Likelihood**)
3. **A Bushfire Impact Model** (to quantify the extent, location, and probability of damaging bushfires in the landscape, taking into account the vulnerability and resilience of various values. = **Consequence**)

Step 1.

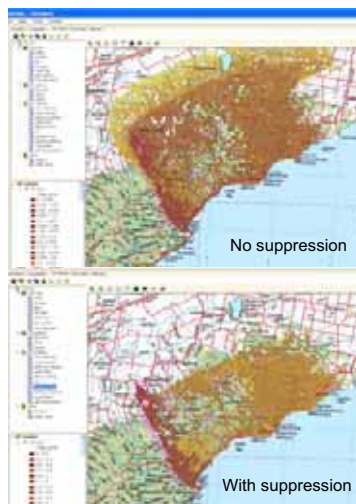
Use a GIS to generate a layer of fuel types, fire history, and topography.

Step 2.

Setup the simulation scenario by setting the fire origin/s, weather conditions, suppression resources.

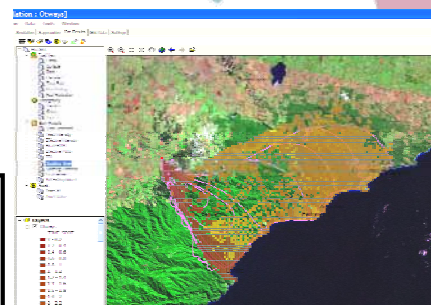
Step 3.

Run the simulation. Possibly run alternative scenarios. Here, the Deans Marsh fire of Ash Wednesday 1983 is run with and without suppression.



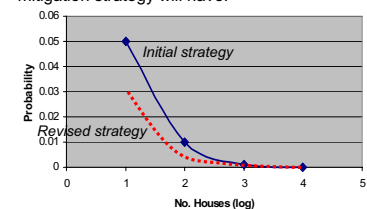
Step 4.

View the results in different ways. Intensity, time to impact, frequency, size.



Step 5.

Use the simulation results to analyze the potential consequence of each scenario set. See what impact a change to the mitigation strategy will have.



Phoenix Outputs (stored in an Access database)

- Extent of fire
- Fire intensity
- Fire size
- Fire origin
- Fire frequency
- Time to impact from time of ignition