



	
PROGRAM A	
→	<h2>Decision Support Tools for Risk Management</h2> <hr/> <p> Dr Kevin Tolhurst Derek Chong Martin Strandgard <small>School of Forest and Ecosystem Science, University of Melbourne, Victoria</small> </p> 
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PROGRAM A : Project A4 - Bushfire Risk Management Model	
→	<h2>Project A4 (Bushfire Risk Management) - Outcomes</h2> <ol style="list-style-type: none"> 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 the impact of 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.



PROGRAM A : Project A4 - Bushfire Risk Management Model
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→ 3 Essential Components of Bushfire Risk Management:

1. A Bushfire Management Business Model (= Mitigation)
2. A Fire Simulation Model (= Likelihood)
3. A Bushfire Impact Model (= Consequence)


1. Business Model (mitigation)

Increase by 10%	With resources from:	Current % Budget	Potential Nett Saving	Default Resources %	Default Risk Reduction %	Default Resources %	Default Risk Reduction %
Prevention	Preparedness	5.9	2.4	27.8	12.3	40.1	38.3
	Response		6.3		26.0	44.7	50.4
	Recovery		-0.7			24.3	7.9
	Regime Mgt		-0.6			35.8	27.5
Preparedness (incl. FRB / HR)	Prevention	31.8	-3.2	40.1	38.3	27.8	12.3
	Response		-0.4		59.2	44.7	50.4
	Recovery		-3.1			24.3	7.9
	Regime Mgt		-3.1			35.8	27.5
Response	Prevention	47.5	-4.7	44.7	50.4	27.8	12.3
	Preparedness		-1.1		71.2	40.1	38.3
	Recovery		-2.1			24.3	7.9
	Regime Mgt		-3.2			35.8	27.5
Recovery	Prevention	3.1	-0.2	24.3	7.9	27.8	12.3
	Preparedness		1.3		18.9	40.1	38.3
	Response		2.6			44.7	50.4
	Regime Mgt		-0.2			35.8	27.5
Regime Mgt	Prevention	11.6	-1.2	35.8	27.5	27.8	12.3
	Preparedness		-1.2		46.8	40.1	38.3
	Response		-1.2			44.7	50.4
	Recovery		-1.2			24.3	7.9
		99.9					

Risk Reduction
with 10% shift



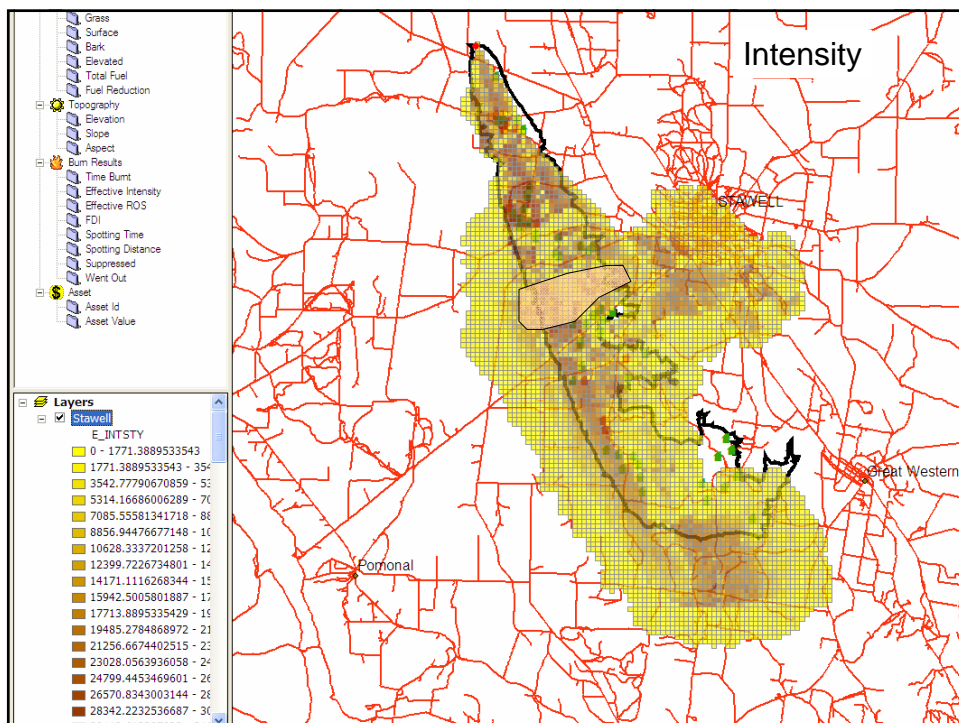
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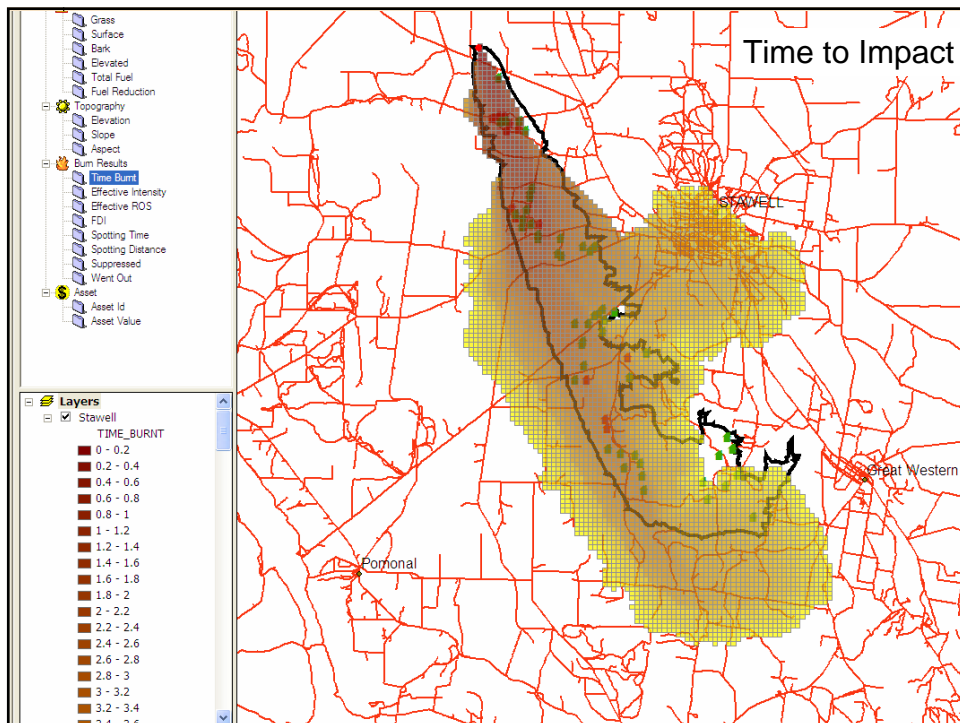
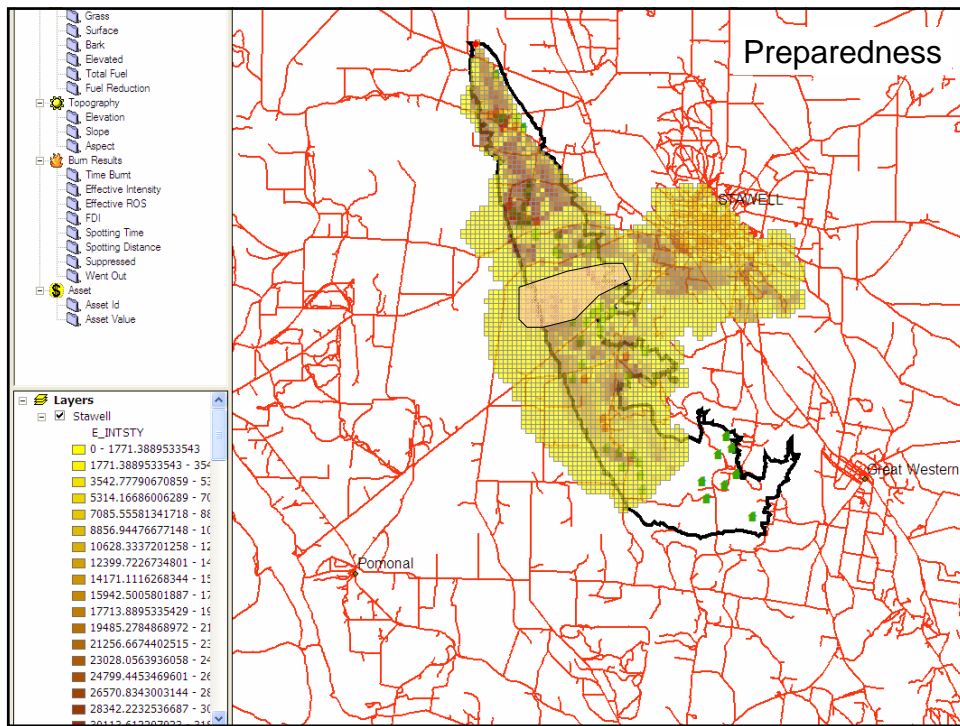


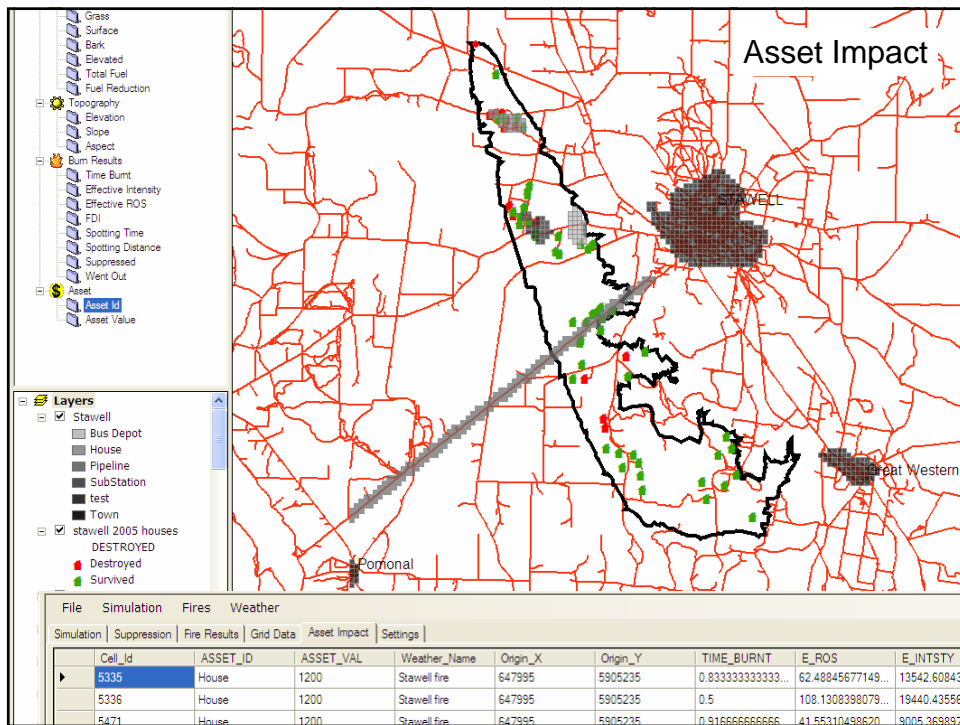
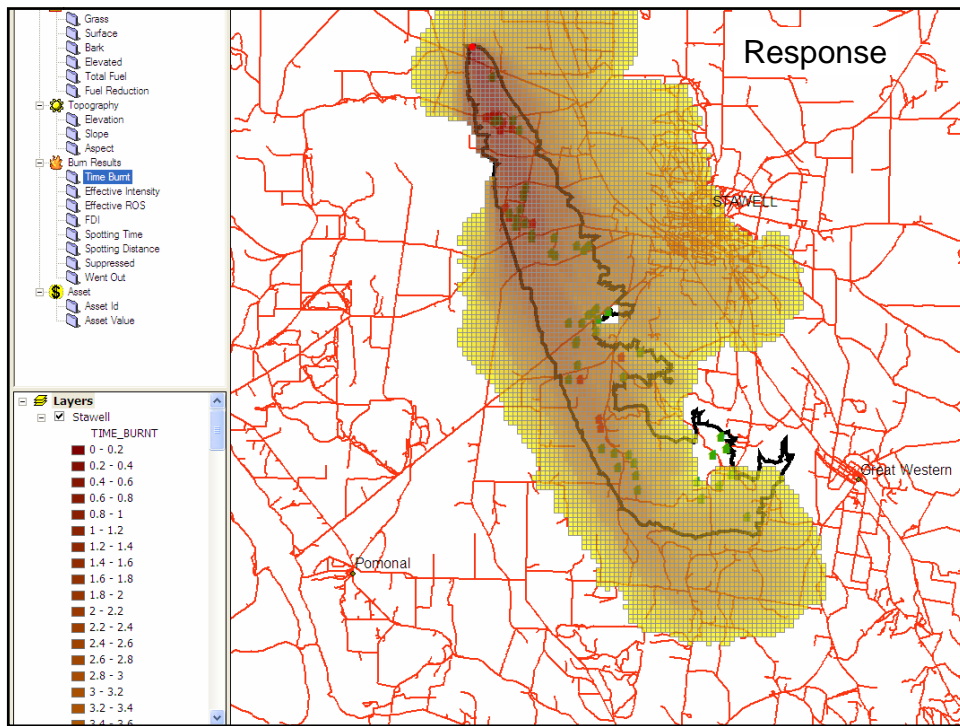
A Bushfire Management Business Model (= Mitigation)

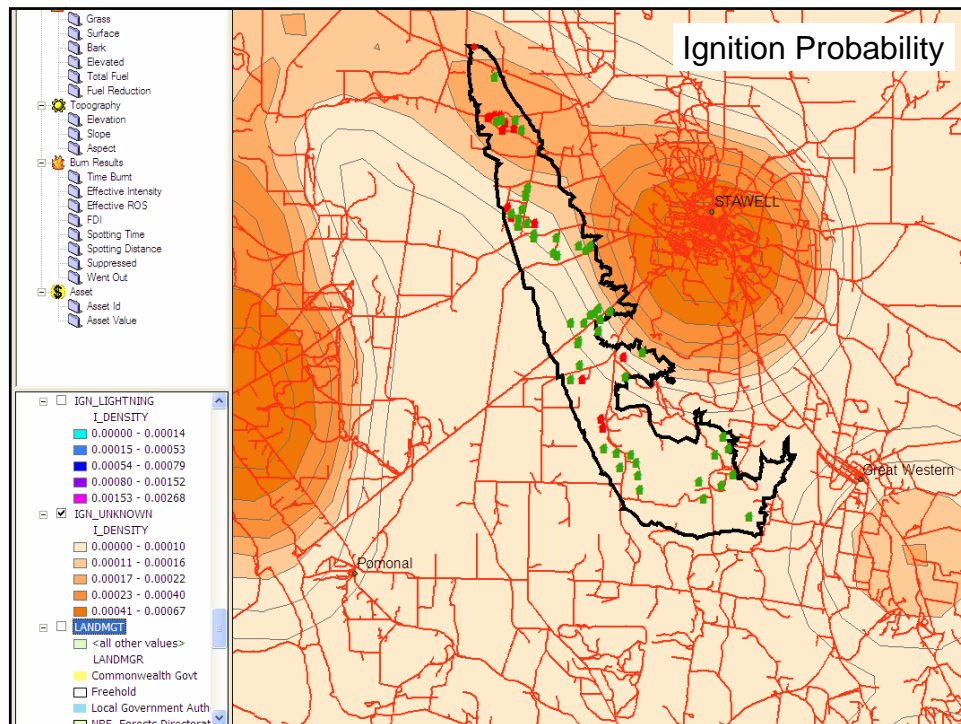
1. Prefire -
 - Ignition Density = f (Prevention)
 - Ignition Probability = f (Preparedness, Regime Mgt)
 - Fire Density = Ignition Density x Ignition Probability

2. Postfire -
 - Fire Spread (Intensity, Size)
= f (Response, Recovery, Prevention, Preparedness)
 - Assets and Values (Social, Economic, Environmental)
= f (Recovery, Fire Size, Intensity, Time to Impact, Frequency)









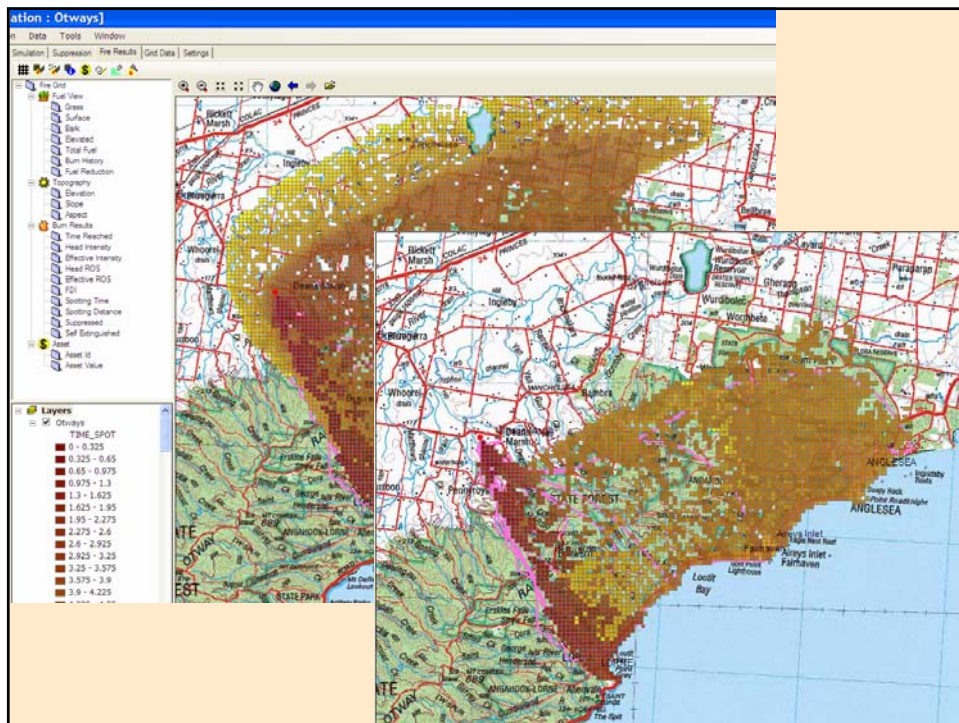
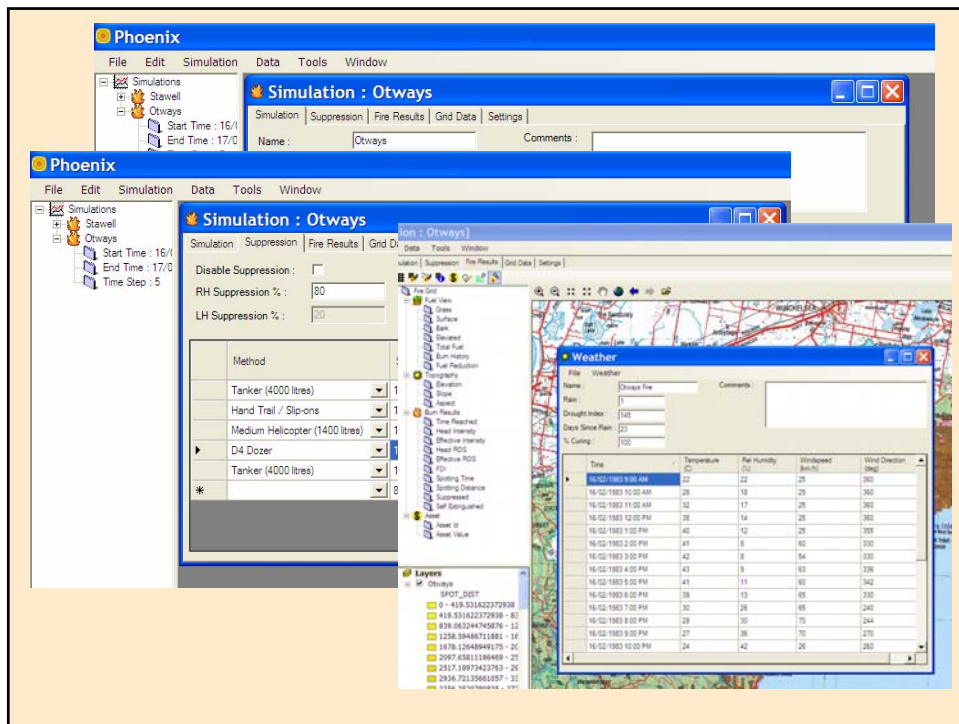
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2. Fire Simulation Model (PHOENIX) (likelihood)

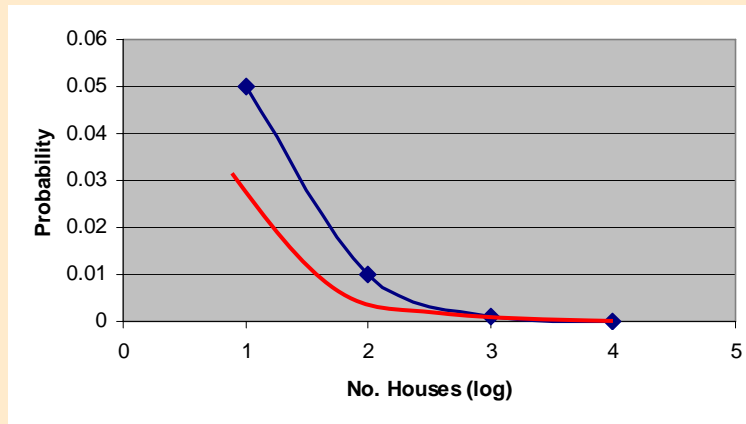
Inputs:

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





3. Impact Model (consequence)



Future Developments

- Relationships between:
 - a) Time from ignition to impact
 - b) Fire size
 - c) Fire intensity
 - d) Fire frequency
- And:
 - a) Impact (social, environmental, economic) Programs B, C, D.



Future Developments - PHOENIX

- Implementation in Vic, NSW, Tas, SA, WA, Qld
- Development of multi-fire format
- Development of asset impact functions

