

Using prescribed burning to mitigate the effects of wildfires

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NSW RURAL FIRE SERVICE



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Dr Simon Heemstra, July 2017

Wildfires



Top Wambelong Fire 2013 (Source: facebook), regrowth (C Quinn) Grassfire Tamworth, Property impact Mudgee (LMcCoy).
Above Smoke under an inversion Tweed Valley 2006 bush fires, Kinglake area 2009 (LMcCoy NSW RFS)

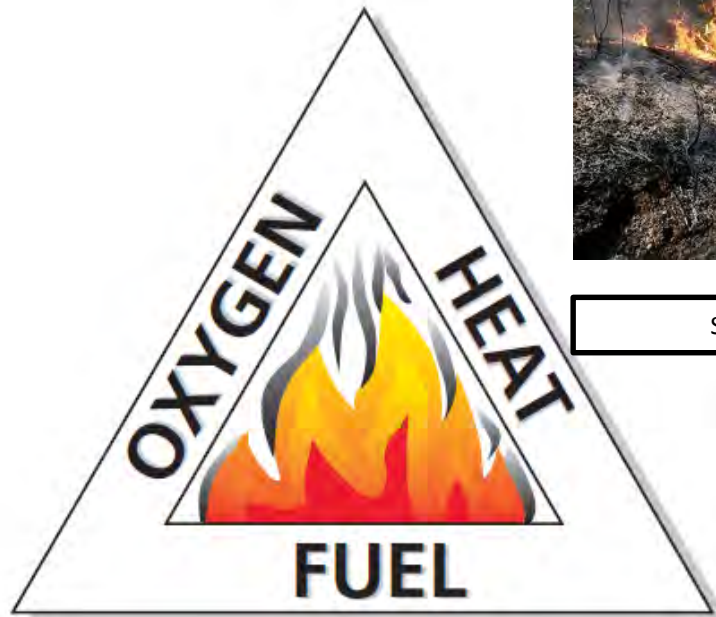
Summary of Activity

Season		2012/13	2013/14	2014/15	2015/16	2016/17*
Measures of Severity	TOBANS	26	42	19	13	27
	Habitable Structures Destroyed	62	217	6	0	65
	Catastrophic FDR	2	0	0	0	6
Measures of Extent	Total Area Burnt (1000ha)	1,447	573	182	65.5	268
	Bush/Grass Fires (in RFD)	5,885	6,971	6,955	64	8176

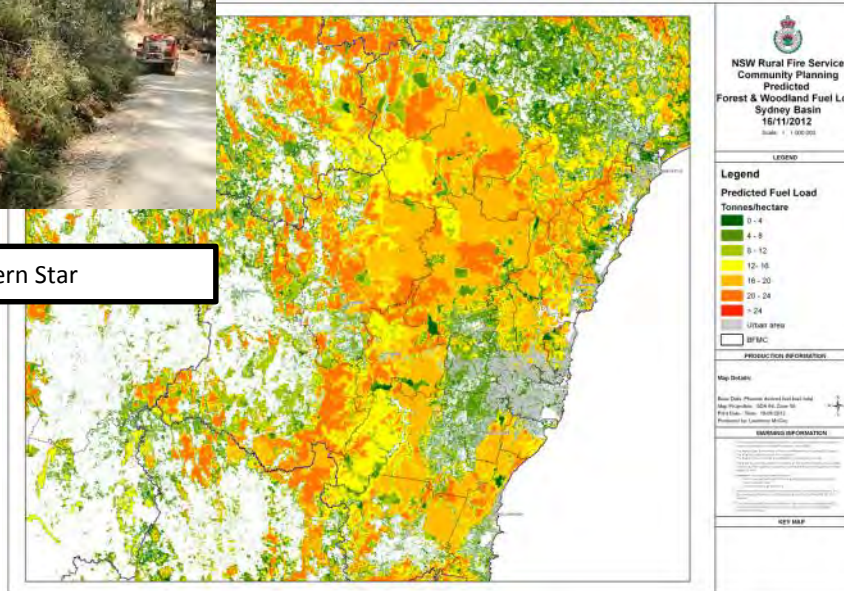
Principle of Prescribed Burning

➤ Fuel reduction

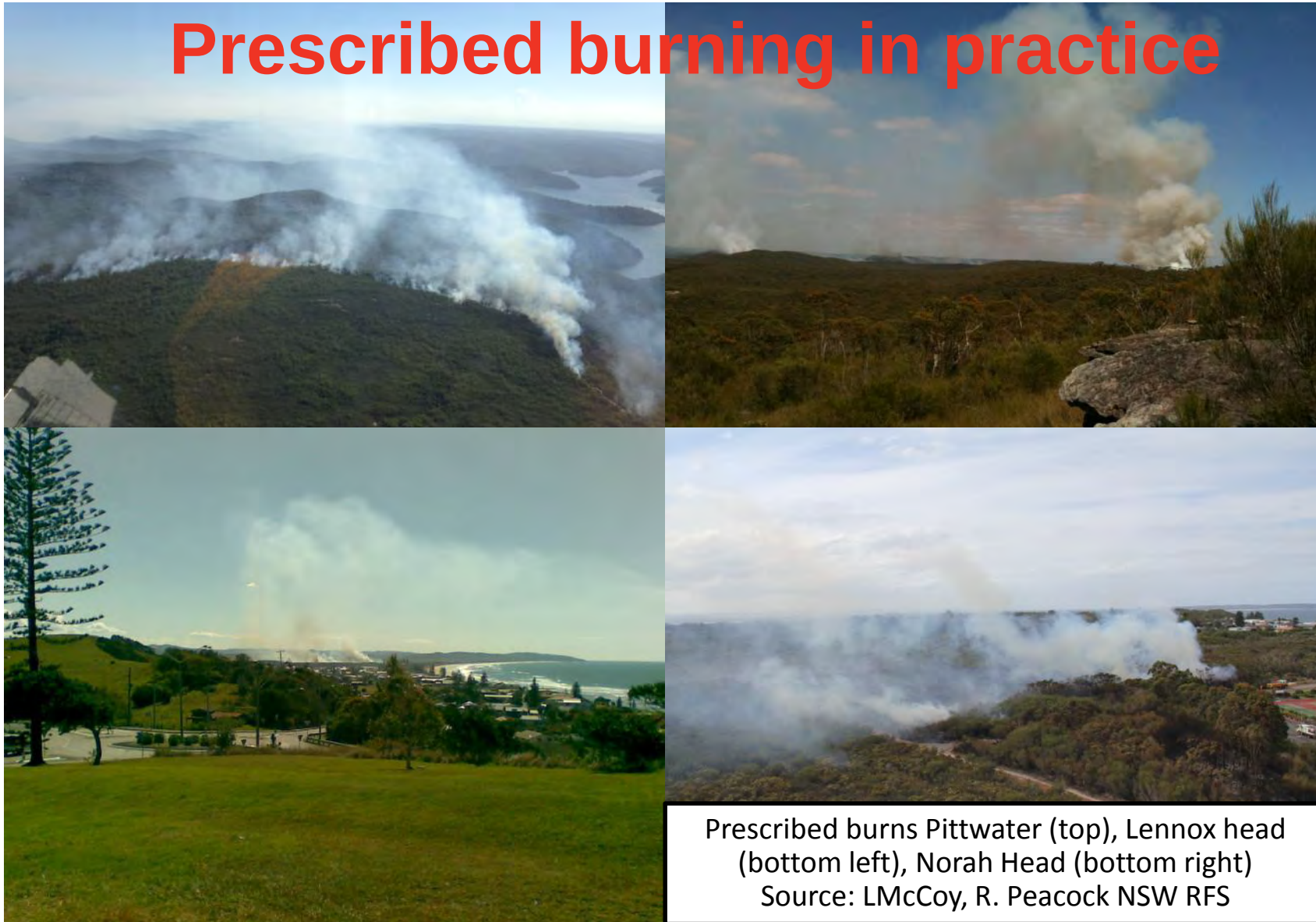
Intensity = Heat output x Weight of fuel x Rate of Spread



Source: Northern Star

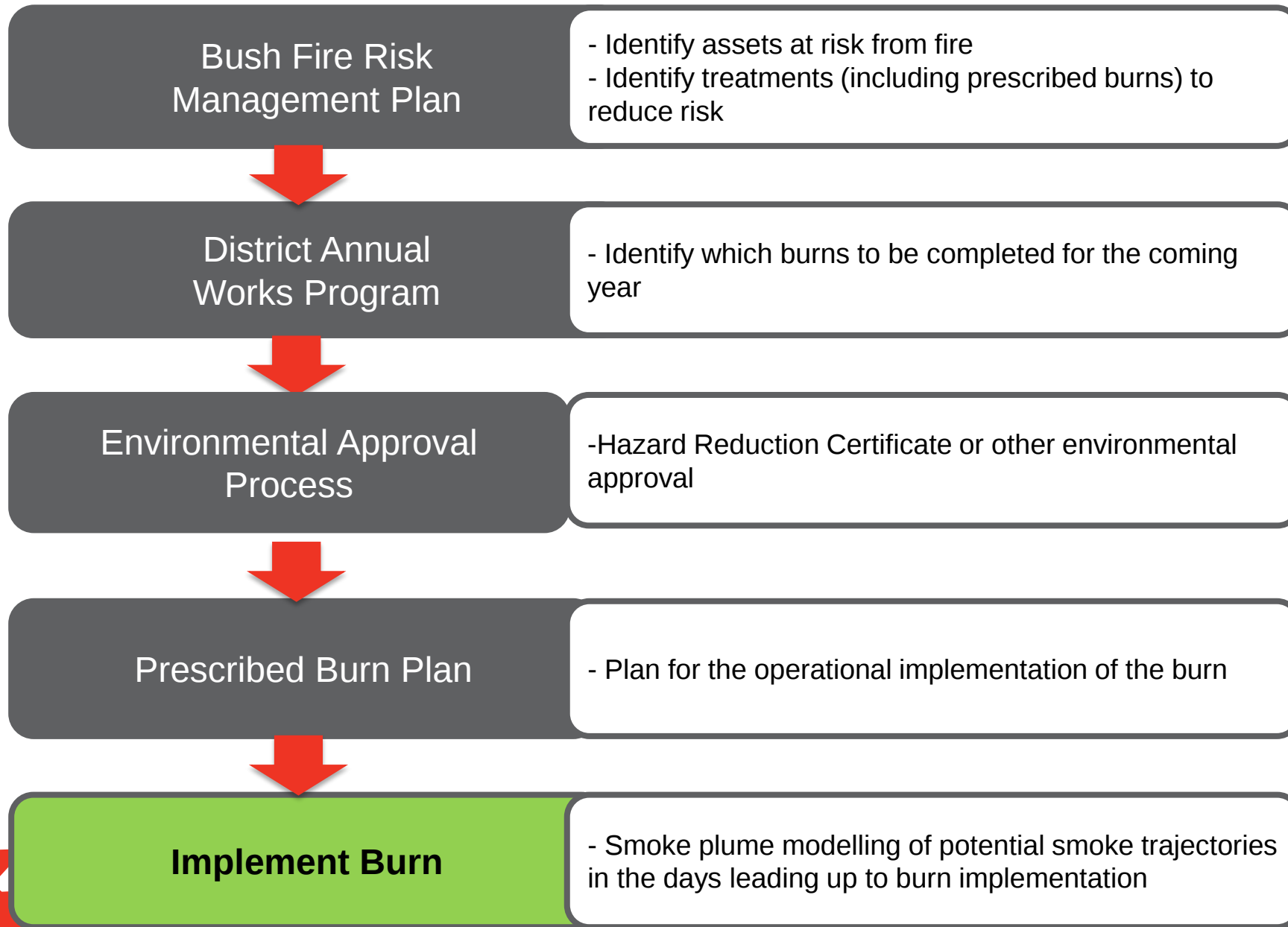


Prescribed burning in practice



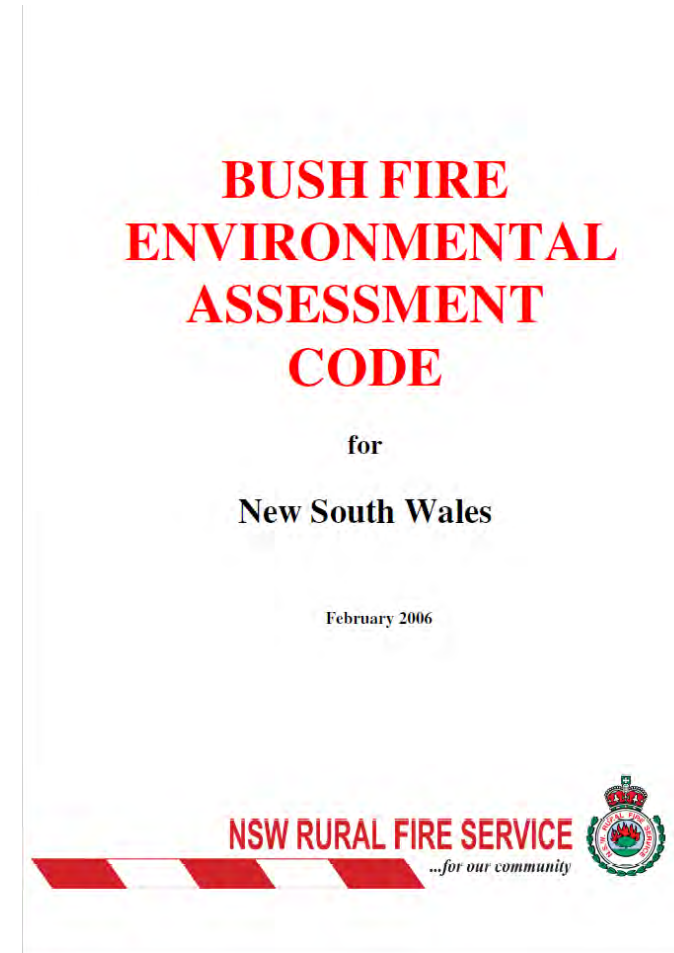
Prescribed burns Pittwater (top), Lennox head (bottom left), Norah Head (bottom right)
Source: LMcCoy, R. Peacock NSW RFS

Current planning process workflow



Hazard Reduction Certificate & Smoke

- › Neighboring resident notification 50/200m
- › Sensitive locations 100/1000m
- › Traffic
- › Tourism
- › Power lines
- › Bat Colonies
- › No Burn Notices
- › Code review



NSW RFS Smoke Plume Modelling

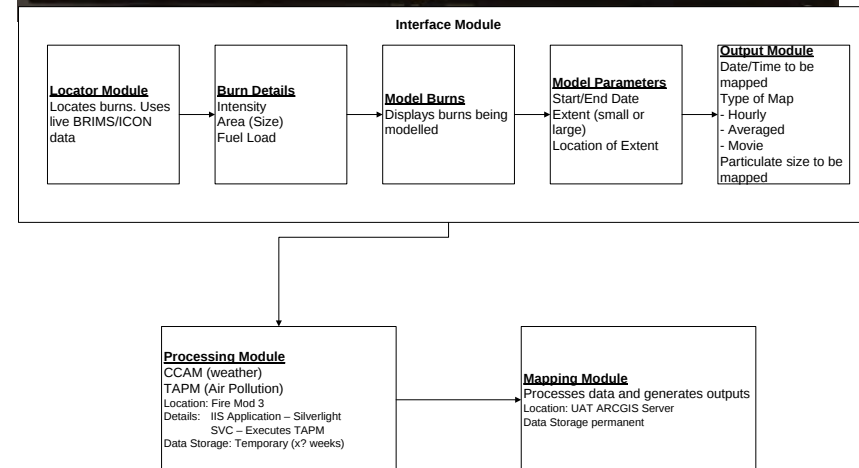
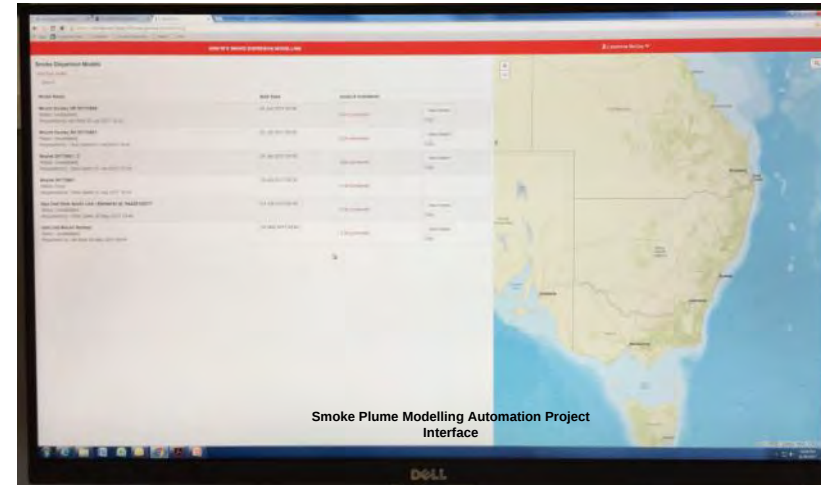
Why is the NSW RFS Smoke Modelling?

- Strategic Planning and analysis of potential impact.
- To assist prescribed burn planners inform communities and decisions.
- Available to all fire agencies in NSW



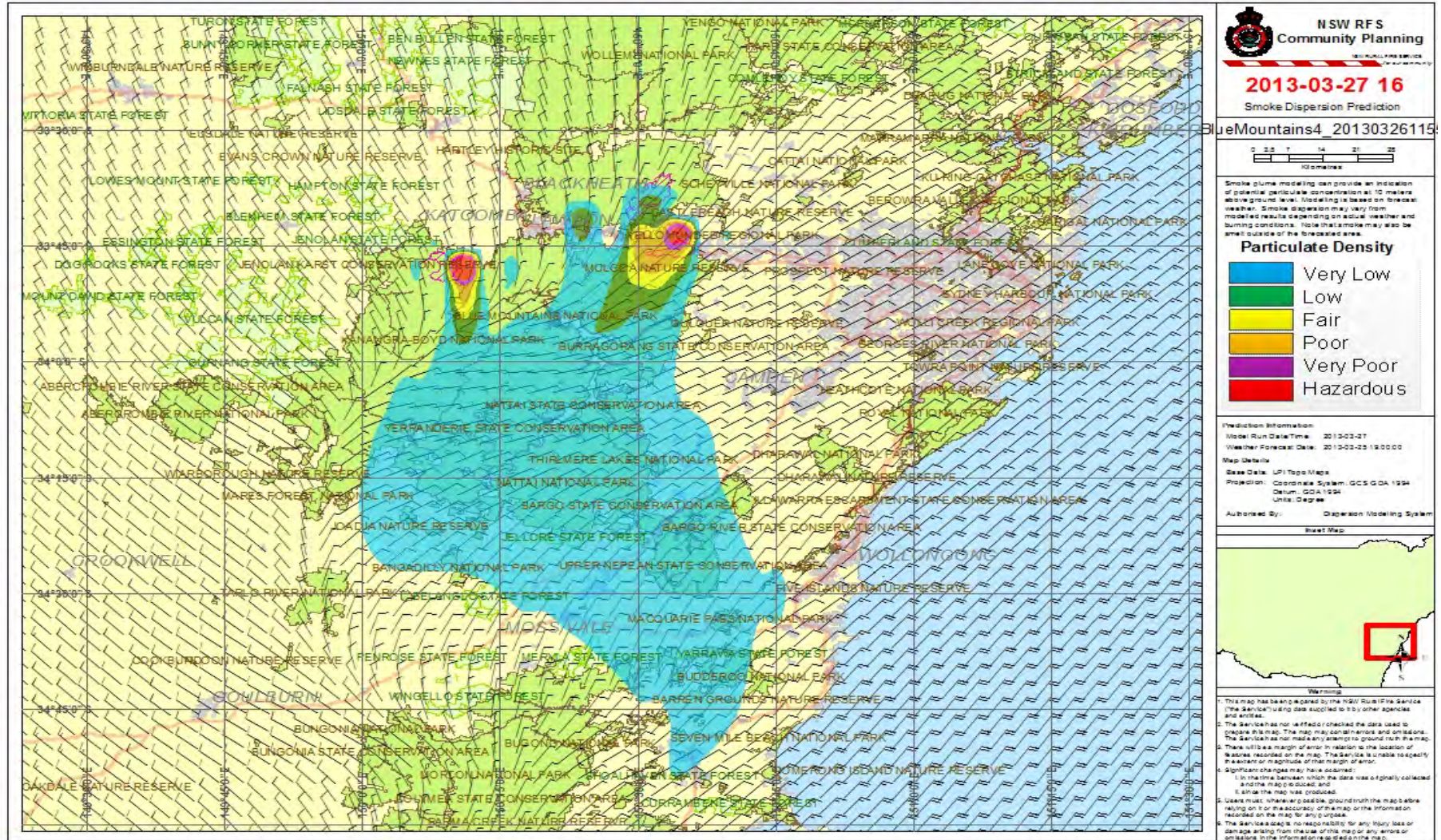
NSW RFS Smoke Dispersion System

- Modeling since 2010
 - Static maps and Animations
- Recent Enhancements :
 - Cloud solution - processing time reduced by 2-3 times
 - 3D Visualisation system. Increased forecasting capability
 - Ability to submit and process multiple model runs



Top RFS Smoke Modeling system
Source: LMccoy NSW RFS

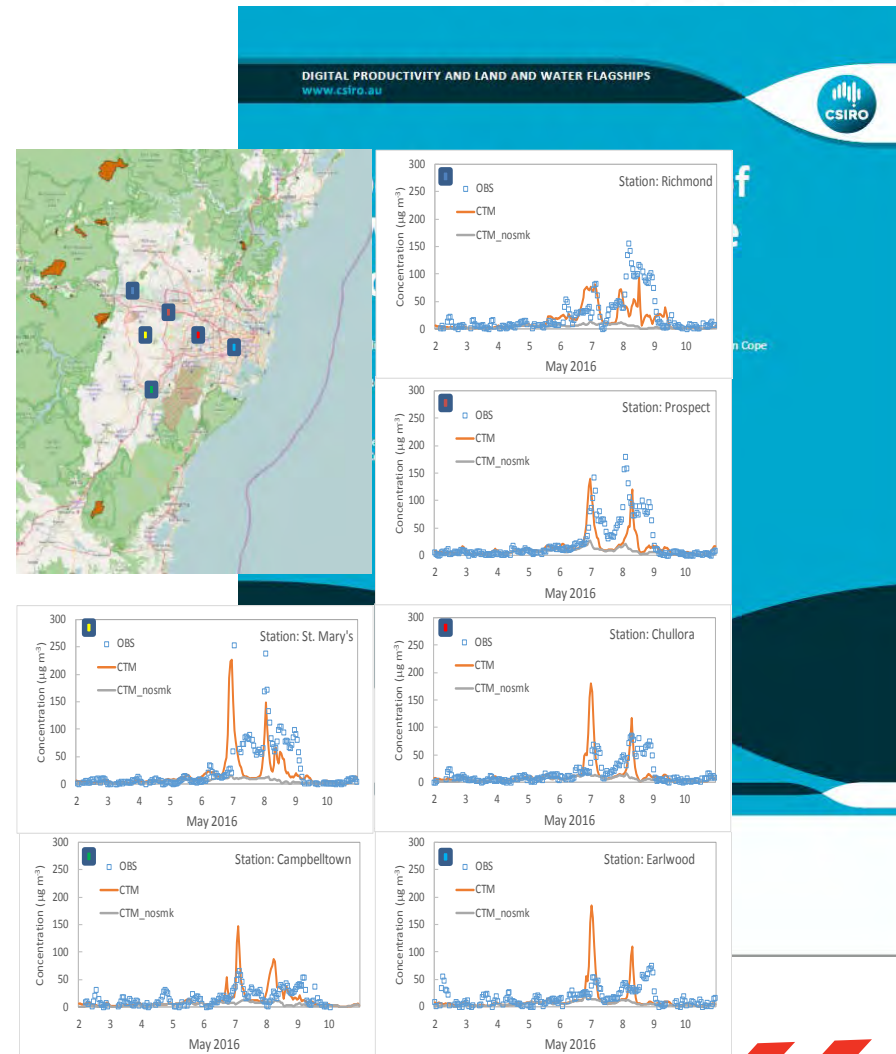
Example of Output



Research

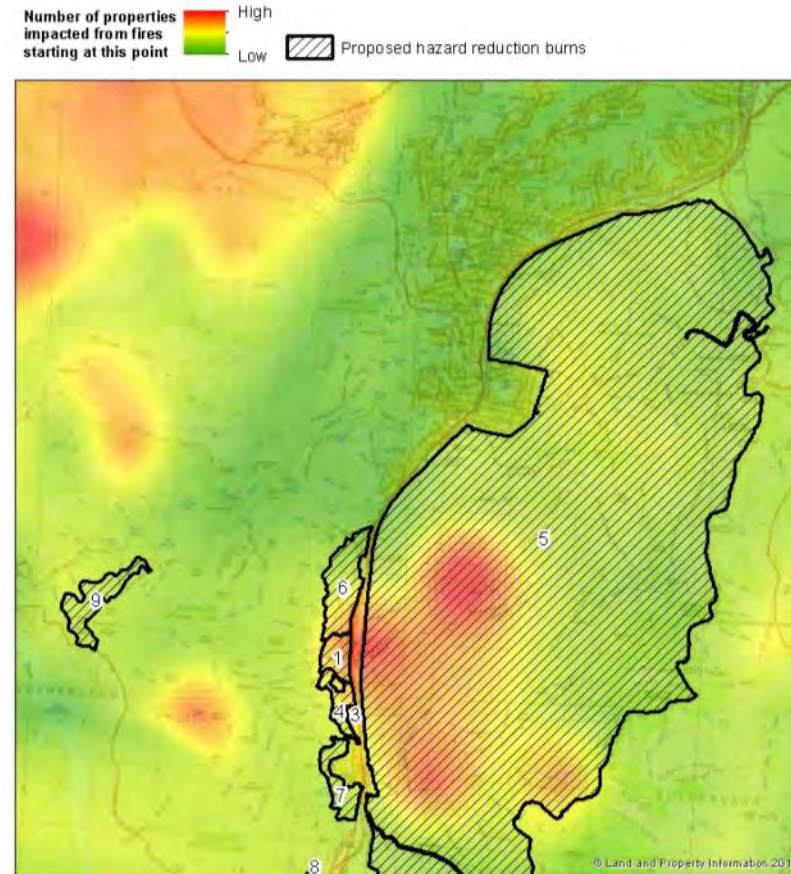
- Evaluation studies
 - Model Performance
 - CSIRO
 - University of Wollongong
 - Future Directions
 - CSIRO

Dispersion of smoke from prescribed fires Report to the Rural Fire Service and Office of Environment and Heritage (NSW)



Processes in development

- Evidence based decision making
 - Quantification of risk reduction achieved
 - Prioritisation of works based on risk reduction



Questions



Clean Air Summit

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