

*“Social and Visual Media: Tools & Techniques for Engagement”*

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# In the next fifteen minutes .....

- some reflections on the current debate in Australia on a carbon price and how people are so badly served with information
- some ideas based on our recent R&D for better communications:
- the challenges of attracting (good) information consumers

# Australian Attitude to Carbon Tax

## THE GREAT CLIMATE DEBATE

Thinking now about the carbon tax proposed by Julia Gillard.

Based on what you have seen or heard about the carbon tax, on balance, are you in favour or opposed?



In favour **28**  
Opposed **58**  
Uncommitted **14**

Does Julia Gillard have a mandate to introduce the carbon tax or should she call an early election before she introduces it?



Has mandate **24**  
Should call election **64**  
Uncommitted **12**

Do you believe that you will be better off financially or worse off if the carbon tax is introduced?



Better off **7**  
Worse off **73**  
Uncommitted **20**

Do you expect the carbon tax to have a major impact, a minor impact or no impact on the environment?



Major impact **20**  
Minor impact **46**  
No impact **29**  
Uncommitted **5**

# A quality debate!

## AGE/NIelsen POLL

Do you support or oppose the introduction of a price on carbon?



### Marriage

ALL FIGURES ARE IN PERCENTAGES. POLL CONDUCTED ON THE TELEPHONE NATIONWIDE ON MARCH 10-11 WITH 1400 ELECTORS. MAXIMUM MARGIN OF ERROR TO APPLY TO THIS SAMPLE IS APPROXIMATELY 2.6%.

# What can change our minds?



**The latest Newspoll shows public support for the carbon tax has risen 6 per cent since the details of the carbon pricing scheme were revealed by Prime Minister Julia Gillard.**

The poll published in today's Australian newspaper suggests 36 per cent of voters now support the carbon tax.

# Real information???

Q. How much have you read and heard about Government's carbon pricing scheme?

	Total	Vote Labor	Vote Lib/Nat	Vote Greens
A lot	35%	37%	41%	28%
Something	30%	27%	33%	30%
A little	30%	30%	24%	38%
Nothing				
Don't know				



*For Australian, climate change is an issue with long term outcomes but little local control.*

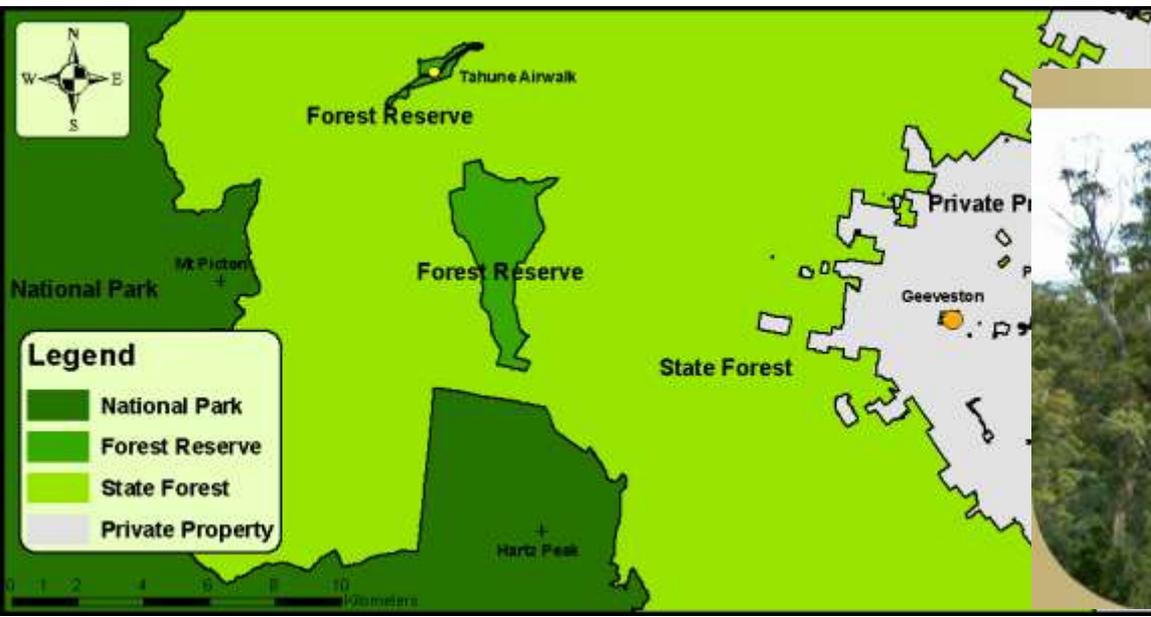
- The rationale for local action is (a) being a good global citizen and (b) hoping that our actions will help/prompt others to take similar steps.
- So, what can I talk about?
- ‘accelerating social learning and collective action through innovative and practical methods such as action research, interactive visual media and participatory modeling of future scenarios’
  - Scenario Chooser, Forest Tasmania
- ‘where should the sustainable community field be going (technologically)\*?’
  - Augmented Reality, Serious Games

# Accelerating social learning through participatory modelling of future scenarios

- Project to explore the acceptability of forest management options in wet eucalypt forests in Tasmania
- Three key phases:
  - identify issues and concerns,
  - develop visions,
  - involve public and assess their attitudes



# Study Area



# Identify issues and concerns

- Groups of people from different backgrounds were taken to the case study area.
- During the field trips, participants were asked to describe the landscapes and their general views on forest management.
- Then we needed ways in which:
  - stakeholders could create scenarios which reflected their values and interests
  - the distribution of harvest types in the scenario could be rendered for public review, and
  - these renderings could be combined with other information about the scenario and made available to the public such that they could make reliable choices about their scenario preferences.

# Scenario Builder

- In this context a scenario is a pattern of forest management which involves a mosaic of forest harvest approaches.

<b>BASE HARVEST METHOD</b>	<b>LABEL</b>	<b>ROTATION (yrs)</b>	<b>APPLIED SYSTEM</b>
Clearfell Burn Sow	CBS	65, 90, 200	CBS65, CBS90, CBS200
Tasmanian Group Selection	TGS	90, 210	TGS90, TGS210
20% Aggregated Retention	ARN	90, 200	ARN90, ARN200
Plantation	EP	15, 25	EP15, EP25
No Timber Harvest	NTH	-	NTH

# Harvest Outputs

- Each harvest type has outputs relating to economic production, environmental values and amenity
- These depend on existing forest or landuse type

SAWLOG RELATIVE OUTPUT										
		LAND TYPE								
		AUEV	PLT	E1	E2	E3	ONF	RF	NF	UPF
HARVEST MANAGEMENT TYPE	TBA	0	0	0	0	0	0	0	0	0
	NTH	0	0	0	0	0	0	0	0	0
	TGS90	0	0	23	23	18	0	0.1	0	0
	TGS210	0	0	13	13	1	0	0.1	0	0
	ARN90	0	0	2	2	1.8	0	0.1	0	0
	ARN200	0	0	1.1	1.1	0.9	0	0.05	0	0
	CBS90	0	0	3	3	2.4	0	0.15	0	0
	CBS200	0	0	1.7	1.7	1.4	0	0.1	0	0
	CBS65	0	0	33	33	2.6	0	0.2	0	0
	EP25	7.7	10	10	10	8	7.5	7.5	0	0
	EP15	0	0	0	0	0	0	0	0	0

## Land Type Key

AUEV Agricultural, Urban and Exotic Vegetation consisting mainly of agricultural land.

PLT Bluegum plantations

E1,E2,E3 Native Eucalypt Forests with height potential decreasing from E1 to E3

ONF Non Eucalypt native forest

RF Rain Forest species

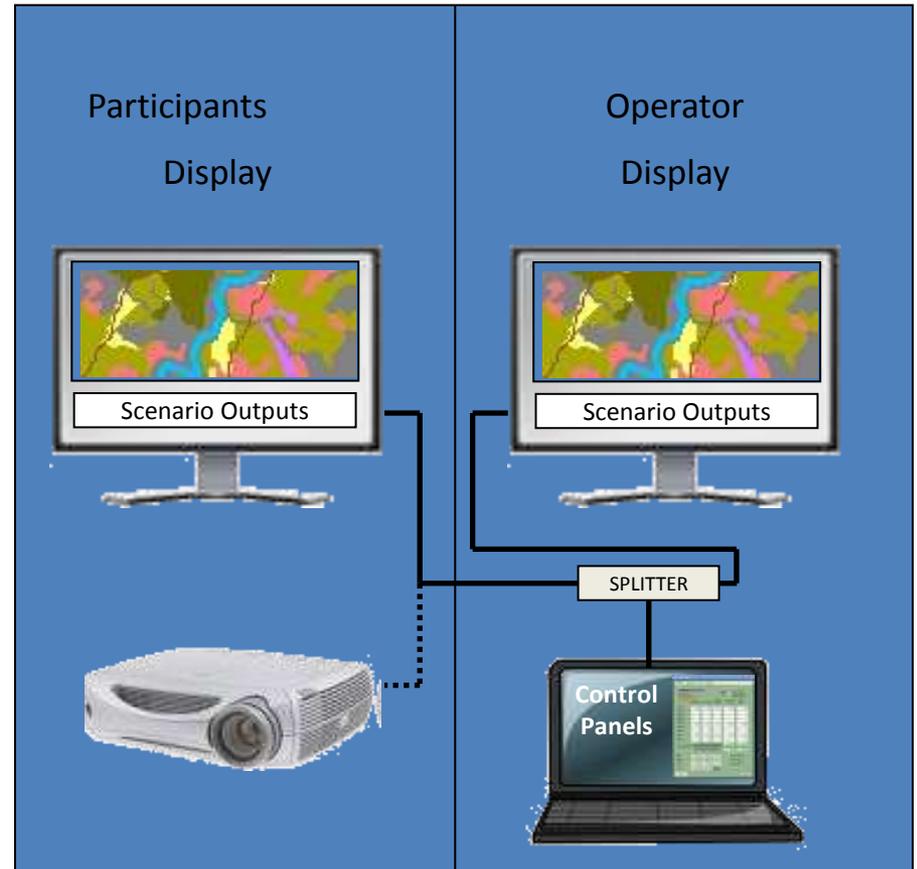
NF Non Forest consisting of sedge and grasses

UPF Unproductive forest or unknown landcover type

# ScenarioBuilder

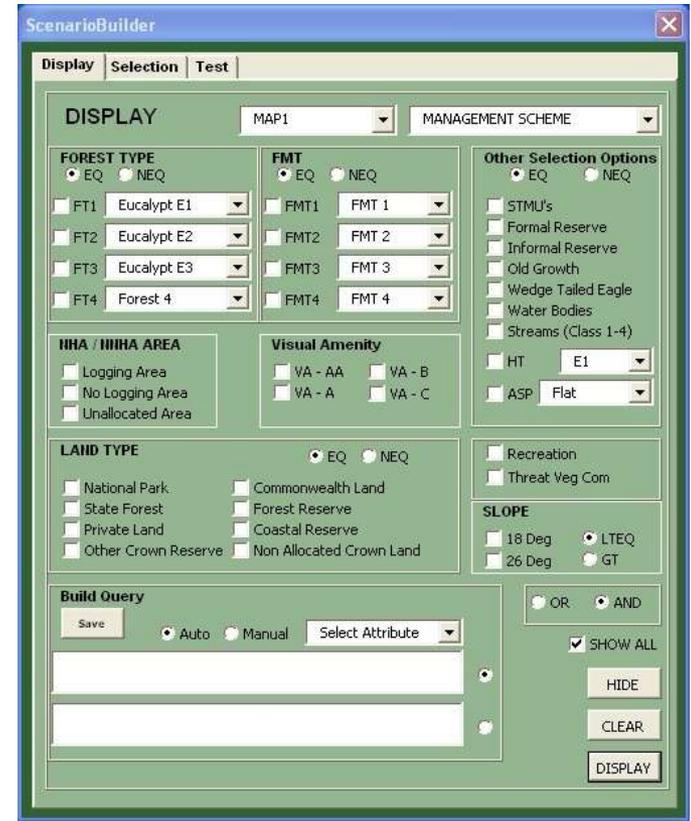
## Key Characteristics:

- Flexible Selection of Land
- Combination Harvest Systems
- Supports Legislative Constraints (Including sawlog output)
- Selectable Thematic Display
- Quantifiable Outputs



# Community based Scenario Builders

- Forest planners
- Forest ecologists
- Tourism proponents
- Bush walkers
- Special timber proponents
- Green groups
- Industry advocates



# ScenarioBuilder

## Participant Display – **Constrained** Scenario

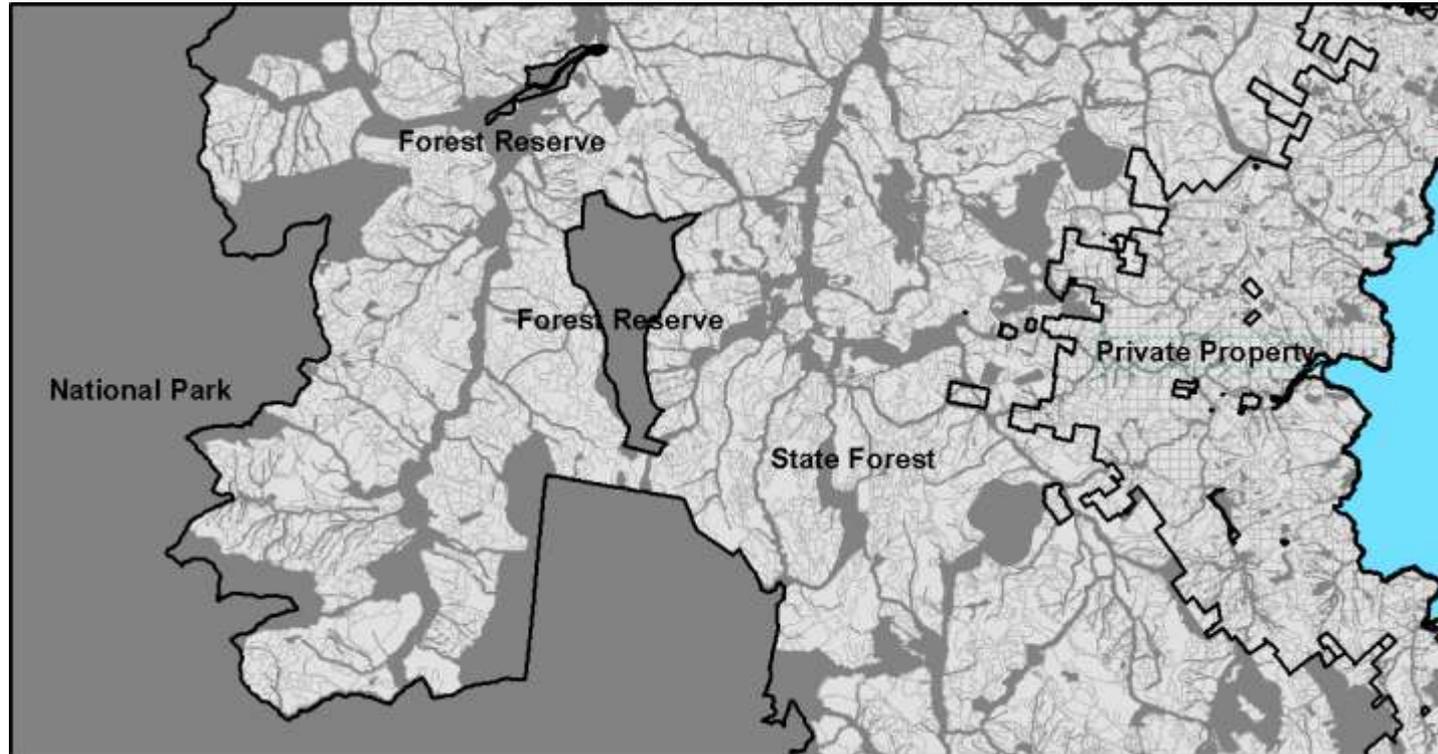
**MAP1**

- FOREST TYPE selection
- VISUAL
- ADDITIONAL DATA
- BUFFERS
- TENURE
- FOREST TYPE
- MANAGEMENT SCHEME**

FMT

- ARN200
- ARN90
- CB5200
- CB565
- CB590
- EP15
- EP25
- NTH
- TBA
- TGS210
- TGS90

- ESTABLISHMENT YEAR
- ASPECT
- VISUAL AMENITY
- DEM
- Extents



**Output Summary**

Net Harvestable Area	Polygons	Area HA	%Total
<span style="color: green;">■</span>	<span style="color: green;">■</span>	<span style="color: green;">■</span>	<span style="color: green;">■</span>
<span style="color: red;">■</span>	<span style="color: red;">■</span>	<span style="color: red;">■</span>	<span style="color: red;">■</span>
<span style="color: cyan;">■</span>	<span style="color: cyan;">■</span>	<span style="color: cyan;">■</span>	<span style="color: cyan;">■</span>
<b>TOTAL</b>			

**WOOD & ECONOMIC**

Avg ■

Sawlogs ■

Pulplogs ■

Economic Eff ■

**NATURAL ENVIRONMENT**

Mature Forest ■

Landscape Diversity ■

Species Habitat ■

Soil & Water ■

**AMENITY**

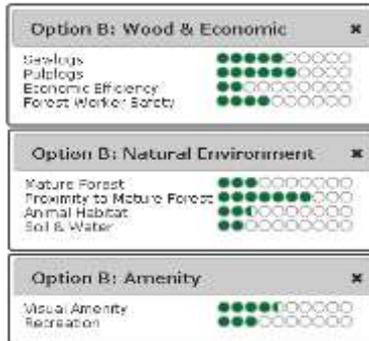
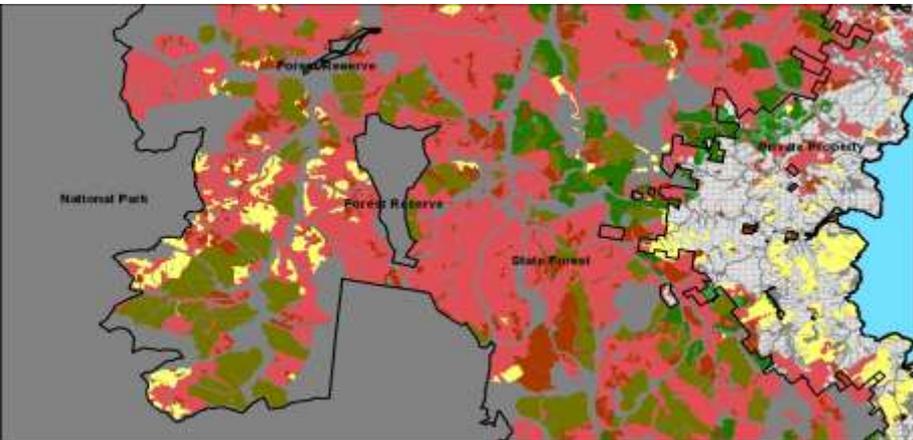
Visual Amenity ■

Recreation ■

Avg ■

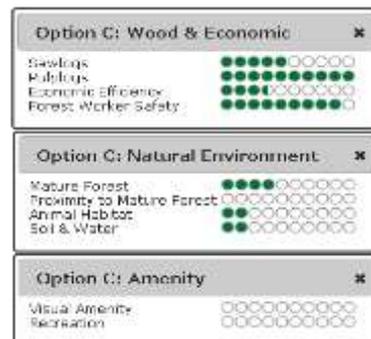
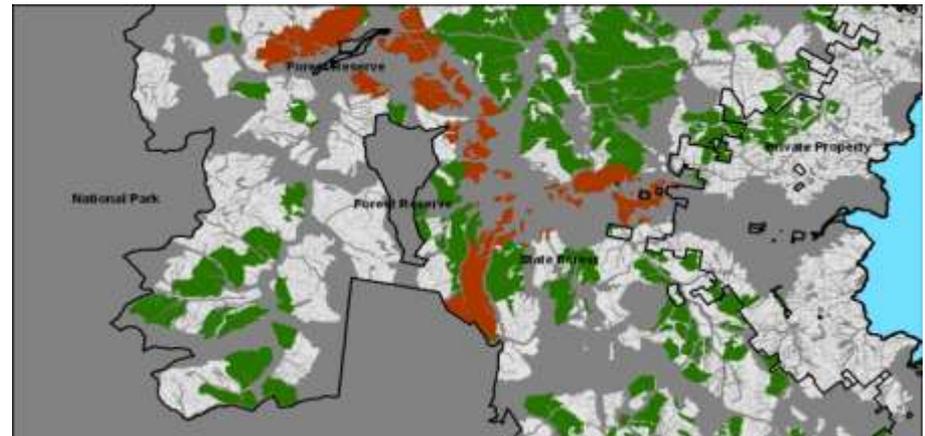
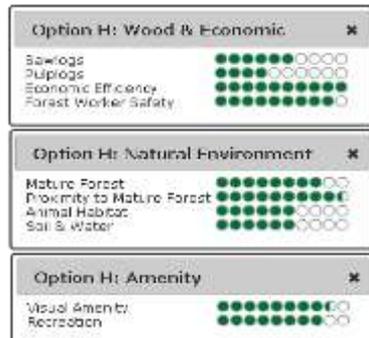
**CONSTRAINTS & PRESCRIPTIONS SET**

- Streams X1
- National Park & Forest Reserves
- Informal Reserves
- Wedge Tailed Eagle
- Non Productive Forest



Aggregated retention

Plantation



Long rotation CBS

# Landscape Panoramas

Arve



Geeveston



Picton



# Scenario Chooser

## Key system features

- For the user:
  - Scenarios are presented with minimal user interaction
  - Scenario information are displayed at different levels of granularity
  - Comparison of two scenarios at a time
  - Participants can order scenarios systematically
- For the researcher:
  - Interface interaction is recorded via a time stamp log
  - This includes panorama view direction tracking.

# Scenario Chooser

## SCENARIO CHOOSER - WEB INTERFACE



### OPTION ORDER

- Wood & Economic
- Natural Environment
- Amenity
- Random

### OPTION LIST

E

G

F

B

H

C

A

D

### OPTION COLOUR LEGEND

- Option Not Yet Viewed
- Option Being Viewed
- Option Already Viewed



### DESCRIPTION

This option places bluegum plantations on productive land to maximise timber production. Native forest is clearfelled and burnt, then seedlings of trees not naturally found on the site are planted in rows and weeds are treated with herbicide. In this option, group selective logging surrounds plantations for fire protection. The clearfell, burn and sow system is applied on less productive land. In this system forest is felled in 50ha areas. The residue is removed by an intense burn, and seed of local eucalypts is sown.

### OUTPUTS

Wood & Economic ●●●●●●●● [details](#)  
 Natural Environment ●○○○○○○○○ [details](#)  
 Amenity (Visual & Quiet Recreation) ●●●○○○○○○ [details](#)

### LAND USE

[Land Use Map](#)  
 37% Native Forest Available For Logging  
 49% Native Forest Not Logged  
 12% Plantation  
 3% Agricultural Land



- VIEW LOCK ON
- ORIENTATION MAP
- FOREST KEY
- PICTON VIEW POINT
- ARVE VIEW POINT
- GEEVESTON VIEW POINT

### DESCRIPTION

This option excludes logging from many areas to protect the natural environment and cultural heritage. Timber is produced efficiently in the more disturbed East of the map, using the clearfell, burn and sow with thinning system. In this system forest is felled in 50ha areas, the residue is removed by an intense burn, and seed of local eucalypts is sown. Young forest is thinned for quicker sawlog production. In the West, there is some low impact group selective logging and much unlogged area.

### OUTPUTS

Wood & Economic ●●●●●○○○ [details](#)  
 Natural Environment ●●●●●○○○ [details](#)  
 Amenity (Visual & Quiet Recreation) ●●●●●○○○ [details](#)

### LAND USE

[Land Use Map](#)  
 22% Native Forest Available For Logging  
 67% Native Forest Not Logged  
 6% Plantation  
 5% Agricultural Land



SELECTED OPTIONS

1st

2nd

3rd

8th

MOST PREFERRED

LEAST PREFERRED

LOCK IN



# Scenario Chooser

## SCENARIO CHOOSE - WEB INTERFACE

**OPTION ORDER**

- Wood & Economic
- Natural Environment
- Amenity
- Random

**OPTION LIST**  
HIGHEST OUTPUT

B

C

H

A

E

D

G

F

B

LOWEST OUTPUT

**OPTION COLOUR**

- Option Not Yet
- Option Being
- Option Already Viewed

**DESCRIPTION**

This option makes extensive use of group selective logging in areas that have never been clearfelled to maintain tree species diversity and produce specialty species sawlogs. Large trees are removed to make gaps 80m wide and several hundred metres long. Patches of younger trees are retained to keep growing. A light burn and natural seedfall lead to regeneration.

**OUTPUTS**

Wood & Economic	●●●○○○○○○	<a href="#">details</a>
Natural Environment	●●○○○○○○○○	<a href="#">details</a>
Amenity (Visual & Quiet Recreation)	●●●○○○○○○	<a href="#">details</a>



VIEW LOCK OFF

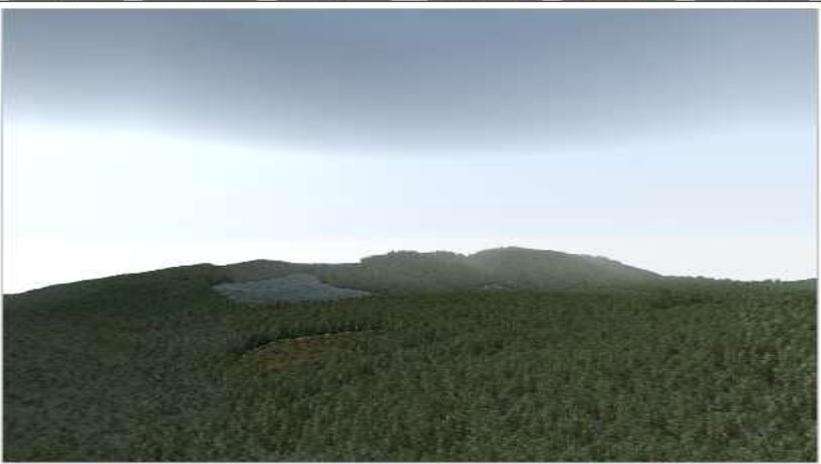
ORIENTATION MAP

FOREST KEY

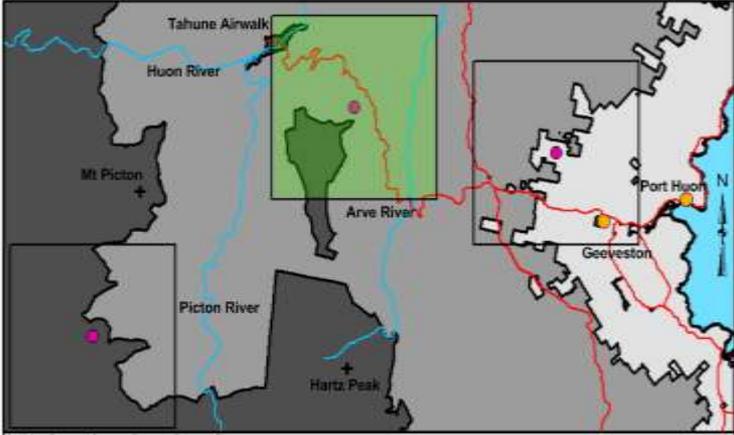
PICTON VIEW POINT

ARVE VIEW POINT

GEEVESTON VIEW POINT



**Orientation Map**



**Current Land Tenure (2009)**

<span style="display: inline-block; width: 15px; height: 15px; background-color: #808080; border: 1px solid black; margin-right: 5px;"></span> National Park & Forest Reserve including some World Heritage Area	<span style="display: inline-block; width: 15px; height: 15px; background-color: #90EE90; border: 1px solid black; margin-right: 5px;"></span> Active Panorama	<span style="display: inline-block; width: 15px; height: 15px; background-color: #FFD700; border: 1px solid black; margin-right: 5px;"></span> Town
<span style="display: inline-block; width: 15px; height: 15px; background-color: #A9A9A9; border: 1px solid black; margin-right: 5px;"></span> State Forest	<span style="display: inline-block; width: 15px; height: 15px; border: 1px solid black; margin-right: 5px;"></span> Panorama Boundary	<span style="display: inline-block; width: 15px; height: 15px; border-bottom: 2px solid red; margin-right: 5px;"></span> Main Road
<span style="display: inline-block; width: 15px; height: 15px; background-color: #D3D3D3; border: 1px solid black; margin-right: 5px;"></span> Private Property	<span style="display: inline-block; width: 15px; height: 15px; border: 1px solid black; border-radius: 50%; margin-right: 5px;"></span> Panorama View Point	<span style="display: inline-block; width: 15px; height: 15px; border-bottom: 2px solid blue; margin-right: 5px;"></span> River

**SELECTED OPTIONS**

MOST PREFERRED

H

A

E

G

1st 2nd 3rd 4th

LEAST PREFERRED

C

LOCK IN

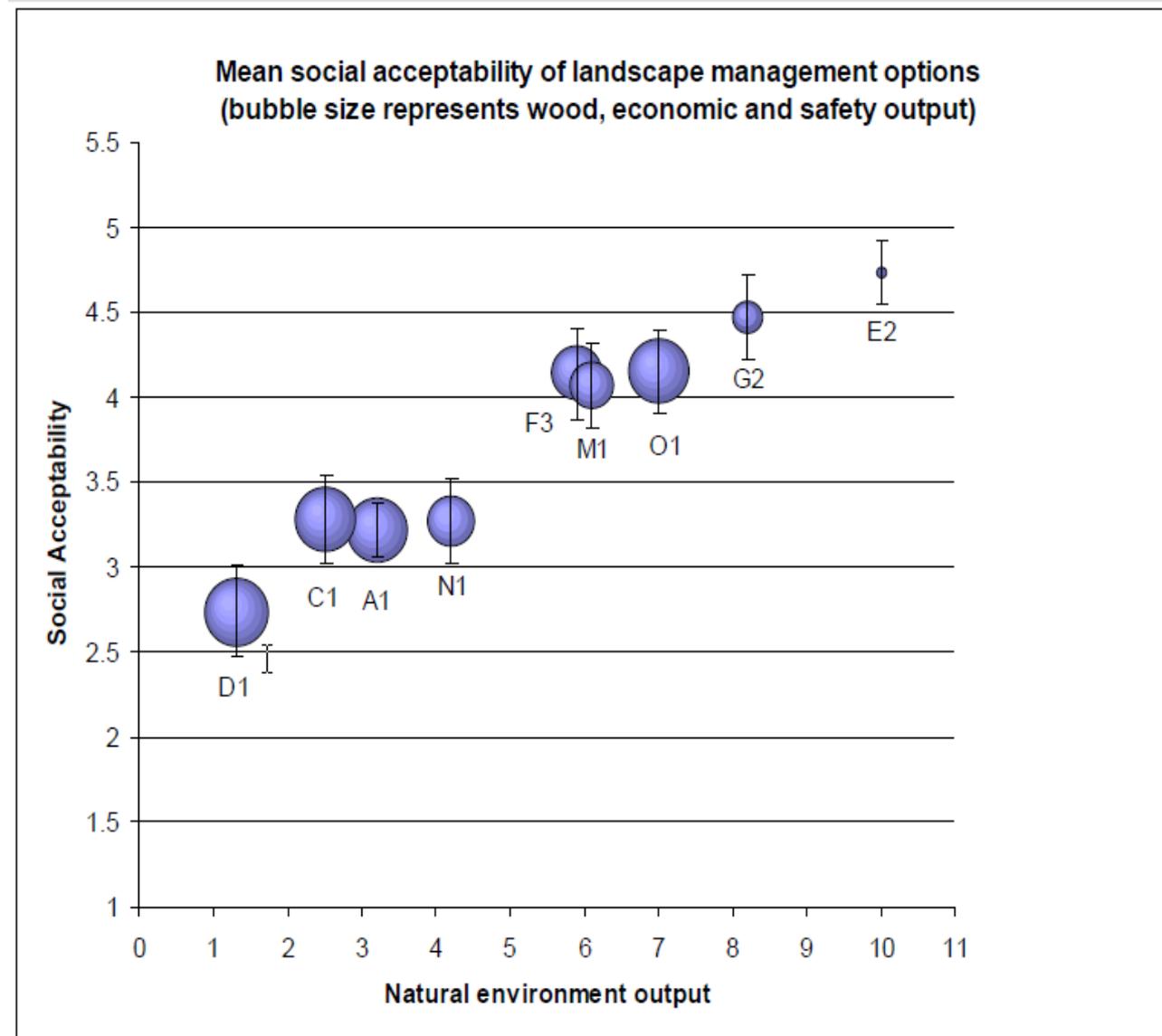
●


# RESULTS

## Management preferences

Several options provide similar sawlog supply to current management. Of these, F3, M1 and O1, have the highest social acceptability ratings.



Group ID: 1

Logfile: G1\_P22\_RF.txt

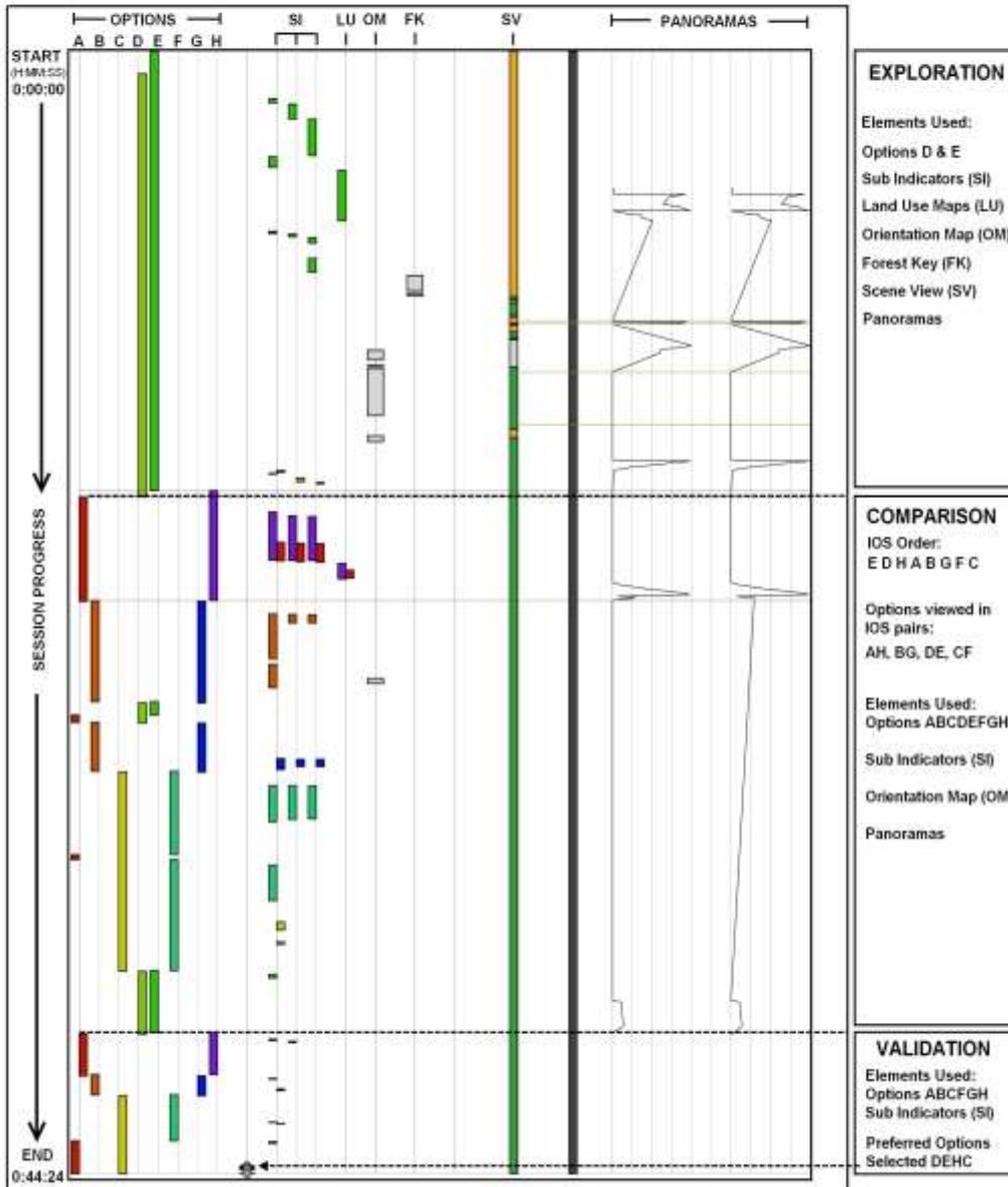
Session Length (HMS): 00:44:24

Initial Order: E D H A B G F C

Initial Viewpoint: ARVE

Selected Option Order: D E H C

Selected Option Seq: Dxxx DExx DEHx DEHC



# RESULTS

## Chooser Interface

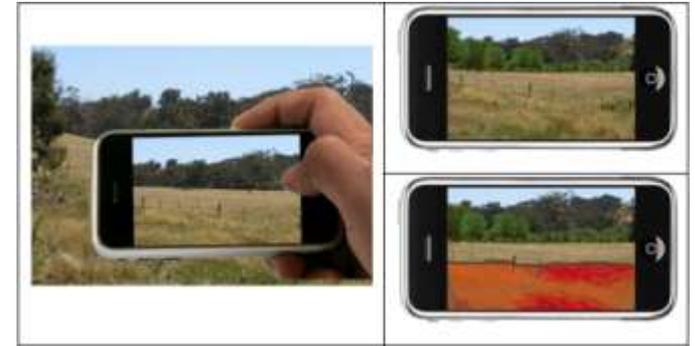
- User behaviour tracking
- Recording of user commentary
- Post use questionnaire

# Findings about Scenario Chooser

- A scenario base approach, supported by visualization, proved effective in eliciting future landscape preferences
- Some people made very little use of the visualization and made judgments primarily on outputs, while others used panoramas extensively.
- Use of panoramas as a compromise between stills/animation and fully interactive virtual realities was promising but not proven
- Patterns of use of the Chooser emerged with a exploration phase, a comparison phase and a validation phase evident

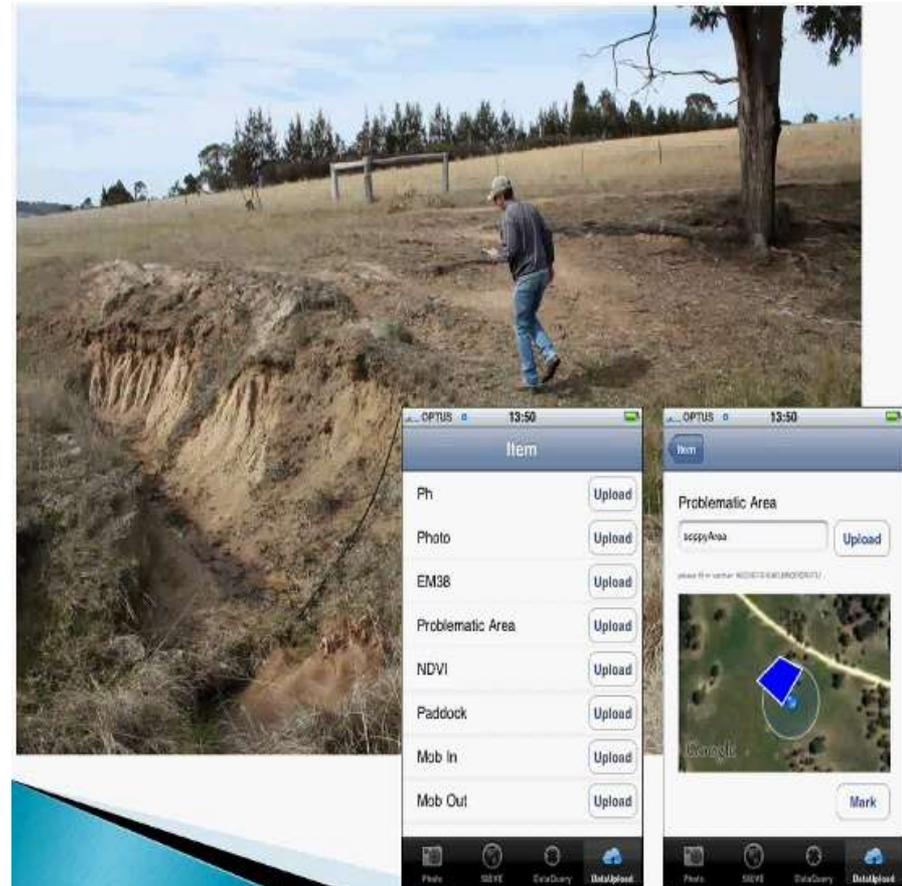
# 'where should the sustainable community field be going?'

- Can we use mobile computing?
- Can we use serious games?



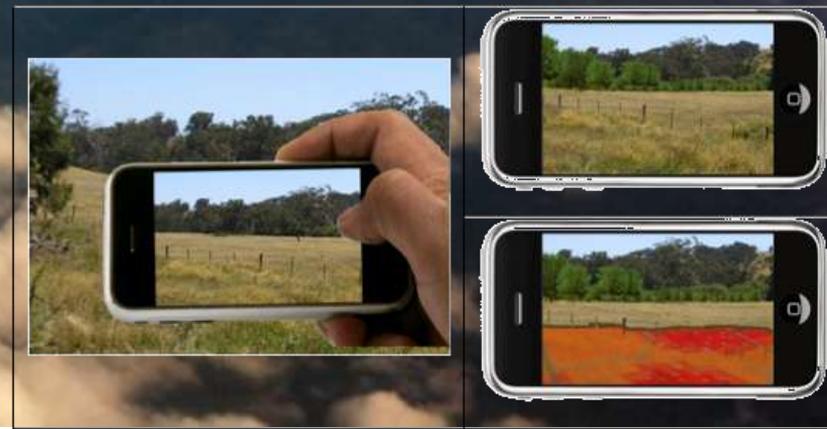
# Mobile Computing - 1

- This farmer is using iFarming
- He can draw
  - down data about his current location
  - Upload data or images about the state of his environment
- Data becomes available to researchers



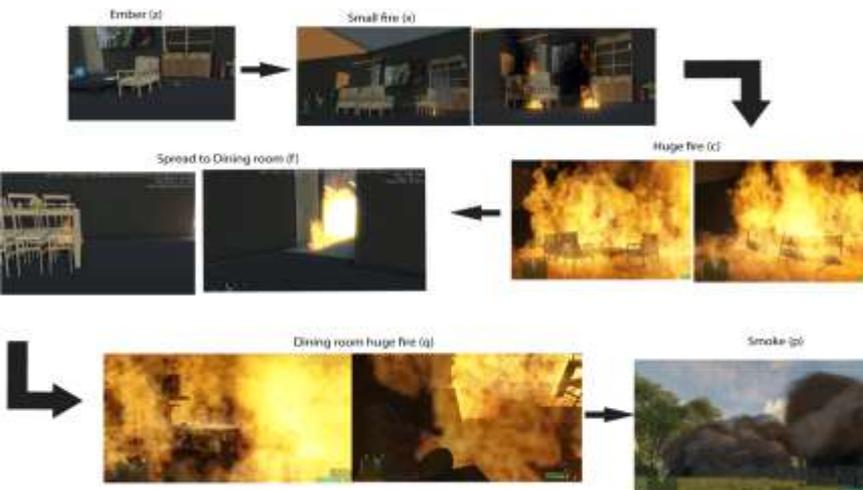
# Mobile Computing - 2

- Augmenting reality
  - Many people fly (more influential people fly more often?)
  - A captive audience with a potential view of the world and GPS equipped phones
  - Let them see future scenarios as they journey



# Serious Gaming....1

- Our objective was to use a popular computer game engine to create a game-like experience of defending a home during the passage of a bushfire front.
- Failure to properly prepare, or to become disoriented in the intensity of the fight against embers before and during the passage of the front, or failure to adequately watch for fire after passage the front would lead to destruction of the house.
- Extension is possible to many contexts but the key may be to make people think of answers for themselves, not being told what to think



Note: (f) is the key user has to press when in game mode



# Serious Gaming...2

- A review of the GeoCaching web site reveals many comments along the lines of: thanks for choosing this location, it was a beautiful place to break our journey.
- A plausible extension to GeoCaching would be to extend the game to also 'require' answers to questions (either factual or perceptual) about the location before crediting the 'find'.
- Smartphone based augmented reality systems, for example, superimpose facts about places users can see onto the camera view. These facts might include details of the forests (carbon sequestering, timber production, habitat value, fire risk, job provision), the agricultural lands (economic output, chemical usage, runoff destinations) or the infrastructures (wind farm energy output).
- In addition, people can leave a calling card in the form of their views on the state of the landscape and its potential – aspects they like or dislike
- Playing such an extended game provides the player with advanced knowledge about the landscape.
- More importantly, since all interactions can be recorded on the game server, this also can provide decision makers or researchers with a body of response sets relating to perceptions and preferences.

# Attracting Users

- Is there a reverse Gruen Transfer\*?
- We have some tools which might be attractive to users and which can increase awareness leading to social learning
- These need to be either independently useful or entertaining, but
- How do we establish that they are not simply clever propaganda?

\* The term describes that split second when the shopping mall's intentionally confusing layout makes our eyes glaze and our jaws slacken... the moment when we forget what we came for and become impulse buyers.