Managing crown land boundaries
Future challenges for Invasive Species Control

The purpose of the session is to **highlight the issues** at private/public interface which impact now and how they are bring dealt with. Also **explore projected changes in the future and options for management**.

Before lunch

- **Pathogens for blackberry biocontrol.** Louise Morin, CSIRO
- **Blackberry biological control; invertebrate options and a role for citizen science.** Greg Lefoe and Raelene Kwong DEDJTR
- **Lessons from the Community Wild Dog Control Program,** Barry Davies DELWP

- Morning tea
- **Projected increases in Deer populations**. Greg Baxter University of Qld.

After lunch

- **HVP Plantations Boundary Management Program,** Andrew Bussau
- **DELWP Good Neighbour Program**, Stefan Kaiser , DELWP
- **Regional and Local Parks Victoria Pest Plant and Animal Control,** John Silins, Ranger I Kiewa Murray Area I Upper Murray and Elaine Thomas, Regional Project Co-ordinator (Alps Intensive Management Program)
- **Group Discussions:** What's working? What can we do better? Opportunities to get better outcomes.

Foundations for the day

- Listen
- Respect others point of view
- Contribute your ideas in group session- everyone involved
- Focus on issue not person
- Be solutions focussed
- Explore what is possible and think outside the square

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Blackberry Biocontrol:

Invertebrate options – Raelene Kwong

Role for citizen science – Greg Lefoe

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Background

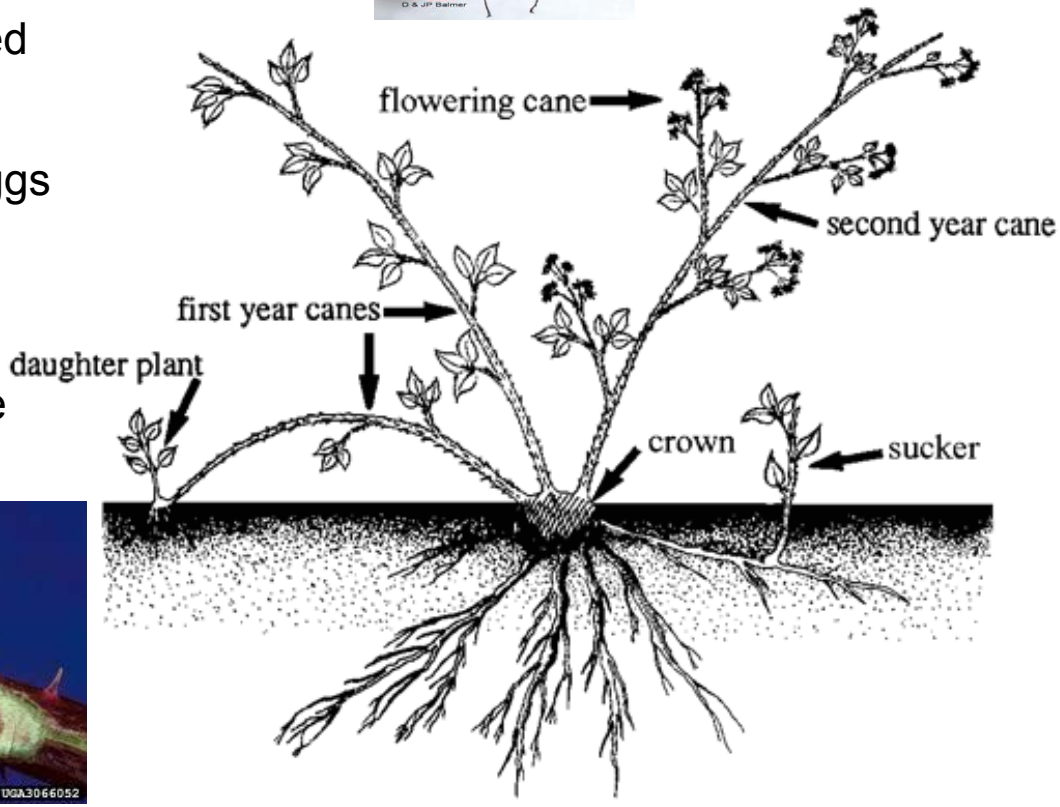
History of biocontrol of blackberry in Australia

- First surveys conducted in 1977 across continental Europe, mostly central and southern Europe
- 38 arthropods (insects and mites) and 15 pathogens identified that were restricted to *Rubus* spp.
- Three potential agents short-listed:
  - leaf-rust fungus *Phragmidium violaceum*
  - purple blotch fungus *Septocyta ruborum*
  - stem-boring sawfly *Hartigia albomaculata*

Background

Stem-boring sawfly *Hartigia albomaculata*

- Univoltine (one generation per year)
- Parthenogenetic (offspring produced without mating)
- Adults emerge in spring and lay eggs into succulent primocanes
- Larvae tunnel into the pith
- Dieback of primocanes reduces the formation of daughter plants



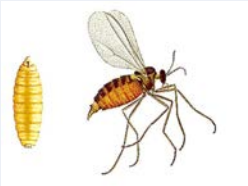
Hartigia trimaculata

Background

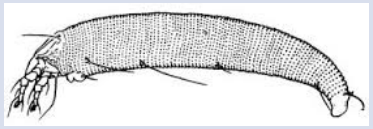
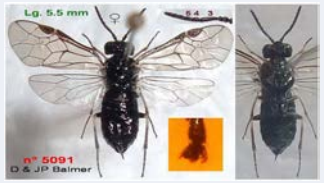
Stem-boring sawfly *Hartigia albomaculata*

- Preliminary host specificity tests conducted in 1970s on 35 plant species
- Larval development occurred on some cultivated blackberry and rose varieties
- But raspberry and four Australian native *Rubus* spp were not attacked, and
- *Hartigia albomaculata* as never been found to attack plants other than *R. fruticosus* in the field
- Results from preliminary host tests may have been influenced by laboratory procedure

New Zealand – insects imported but not released (1925-1932)

Organism	Name	Plant association	
Buprestid beetles 	*Agrilus ruficollis* (USA) - could not establish a colony for host testing *Coraebus rubi (*England) – specific to *R. fruticosus* but adults fed on a range of plants	Crown borers	
Gall midge 	*Dasineura plicatrix* *Lasioptera rubi* Attacked raspberry	Leaf and stem galls	
Moths 	*Thyatira batis* Attacked raspberry and loganberry *Pennisetia marginata* (USA) – could not be reared	Leaf feeders	

Literature – potential invertebrates

Organism	Name	Plant association	
Eriophyid mite 	*Eriophyes rubicolens*	Leaf erineum	
Sawflies 	*Claremontia alternipes* *Empria excisa* *Macrophya militaris* *M. montana montana* *Monophadnoides ruficrucis*	Leaf-feeders	
Moth 	*Ectoedemia erythrogenella*	Leaf miner	

Promising candidates

Root borers *Coraebus rubi*

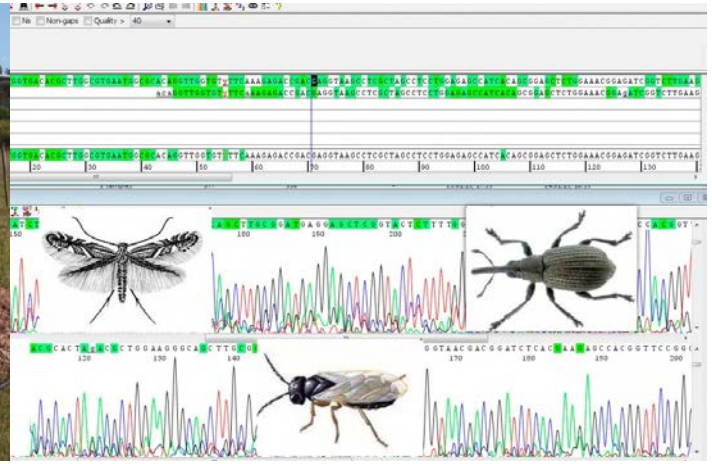
Stem borers *Hartigia albomaculata*

Gall formers *Dasineura plicatrix* (leaf galls)

Lasioptera rubi (stem galls)

Conclusions

1. Invertebrates for the biological control of blackberry warrants further investigation
2. Previous laboratory host testing (1930's & 1970s) may have dismissed "good candidates"
3. Host specificity testing procedures have greatly improved and new tools (molecular) are available



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