



# Biological control of European Blackberry

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vegetation | invasive species | management strategies | restoration

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# Background



- Australis Biological
- Weed Sciences Research Leader – DEPI
- Blackberry research – biological control
- Victorian Blackberry Task Force
- Land for Wildlife
- Conservation volunteer
- Weed control contractor



# What is biological control?

- use of specific herbivorous organisms to weaken the host
- insects, fungi, viruses, bacteria, vertebrates
- classical biological control – agents from the region of origin



# Are there herbivores on European blackberry?

**YES**

## **Australia**

- 42 species insects and mites in Victoria
- 23 are orchard and crop pests
- 8 pathogens



## **Europe**

- 144 species of insects
- 38 only known from blackberry
- 15 pathogens



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# Which biological agents are best?

- country of origin
- specific (wont attack plants of importance – crops or natives)
- Australian blackberry industry
- damaging
- available
- compatible



# Blackberry Rust Fungus (*Phragmidium violaceum*)

- native to Europe
- only occurs on blackberry
- attacks leaves, flowers, fruits
- defoliation, fruit abortion
- orange pustules in summer
- black pustules in late summer/winter



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# Blackberry Rust Fungus (*Phragmidium violaceum*)

- arrived in Australia - 1984 (Hiawatha Valley)
- deliberately introduced - 1991 (one strain F15)
- 8 additional strains – 2004
- full spectrum of blackberry species, 15 species (SE Australia)
- rust is widely established
- nearly all plants





# Is Blackberry rust a good control agent?

Depends on the management objectives

## What it does

- reduces biomass
- reduces daughter plants
- reduces cane length
- reduces thickness
- reduces leafiness
- reduces crown size
- increases light penetration

## What it does not do

- eradicate/contain
- work in dry or hot locations
- work under a forest canopy
- affect most commercial cultivars
- work well every season



## How do I use Blackberry rust on my property?

### Do

- develop a management plan
- identify areas where conventional control cannot be used
- examine climatic suitability
- look out for resistant populations
- focus on priority areas

### Don't

- attempt re-distribution
- expect eradication/containment
- forget its weakening your blackberry
- stop using other forms of control

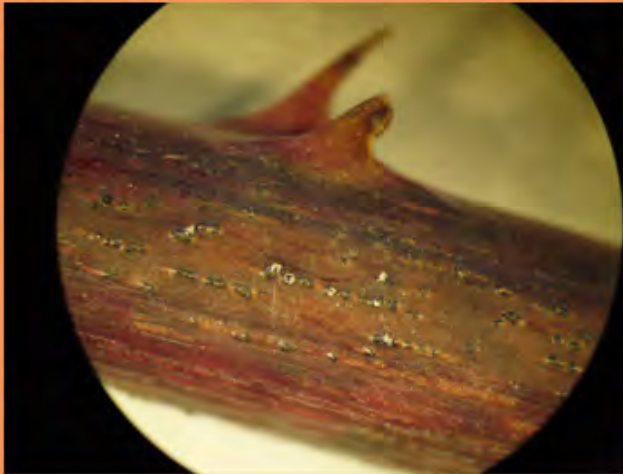


## Are there other biological control agents?

- Blackberry rust is not effective under a tree canopy
- Blackberry in native vegetation is not controlled by rust
- New agents are needed
- Federal and State government investment 2006-2011
- Purple Blotch Disease (*Septocycla*)
- Crown-boring buprestids (*Coroebus*, *Agrilis*)
- *Eriophyes rubicolens* (Eriophyidae)
- No new agents currently available



# *Septocytia ruborum*



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# Candidate arthropods



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# Questions?

## Acknowledgements

Victorian Blackberry Task Force

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