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The Eucalyptus Weevil in Portugal Importance and control

Carlos Valente

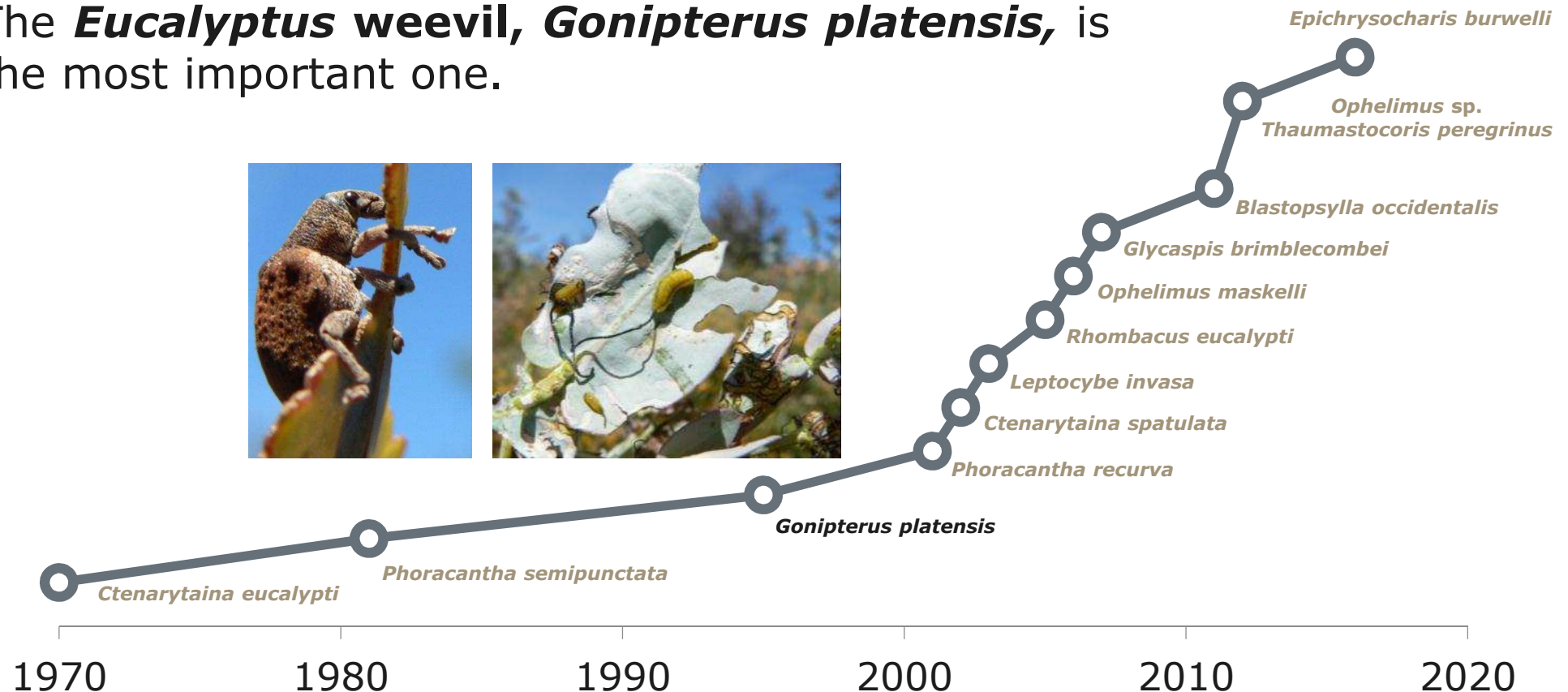
Eixo, October 4th 2017

Eucalyptus pests in Portugal

To date, 13 Australian arthropod species (12 insects and 1 mite) have been found in association with *Eucalyptus* in Portugal, most of them within the last 15 years.

Only a few are severe pests.

The ***Eucalyptus* weevil**, *Gonipterus platensis*, is the most important one.



Importance of *G. platensis* in Portugal

In a recent study (unpublished), we estimate that:

- almost half of the area planted with eucalypts in Portugal is affected by *G. platensis*;
- up to 1 thousand m³ of tradeable eucalypt wood have been lost annually;
- wood losses accrued to about 650M € in the last 20 years.



Biological control

The egg parasitoid *Anaphes nitens* was first introduced in Iberia (Galicia) in 1994.

About 300 thousand *A. nitens* were released in Portugal from 1997 to 2000.



The parasitoid adapted quickly and managed to keep the pest under control throughout most of the country. However, *A. nitens* failed to prevent severe attacks in mountain areas in the central and northern parts of Portugal.

In the absence of biological control, we estimate that wood losses would be 3.7 to 11 times higher than with this natural enemy.

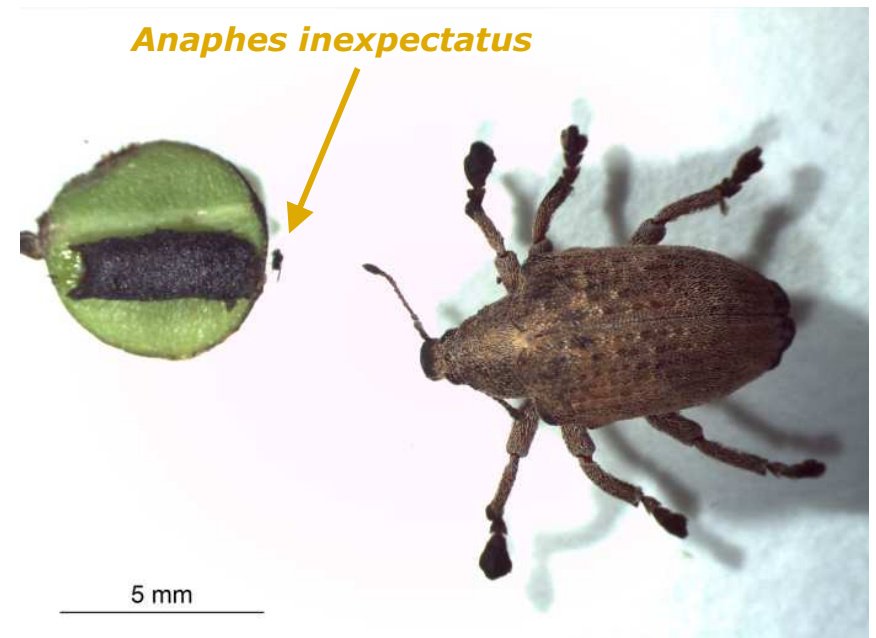
Biological control

Due to incomplete control by *A. nitens*, in 2008 we started searching for other natural enemies in Tasmania.

Among several egg and larval parasitoids...



...we selected *Anaphes inexpectatus* for further studies.



Biological control

We studied the biology of *A. inexpectatus* and the risks of its introduction.



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Pre-selection and biological potential of the egg parasitoid *Anaphes inexpectatus* for the control of the *Eucalyptus* snout beetle, *Gonipterus platensis*

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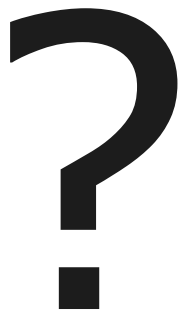
Environmental risk assessment of the egg parasitoid *Anaphes inexpectatus* for classical biological control of the *Eucalyptus* snout beetle, *Gonipterus platensis*

Authors [Authors and affiliations](#)

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Laboratory studies suggest that this parasitoid may be an effective BCA.

However, field data do not show good results yet. Field releases started in 2012 and parasitism is still very low (<5%).



Can *A. inexpectatus* improve BC of *G. platensis*?

Is *A. inexpectatus* ineffective?

How long should we keep studying *A. inexpectatus*?

Biological control

Meanwhile, we are studying the potential of other Tasmanian natural enemies, such as the larval parasitoid *Entedon magnificus*.



Resistant eucalypts

We identified alternative *Eucalyptus* species and hybrids that are more resistant than *E. globulus* to defoliation.



Yet, these eucalypts are not as good as *E. globulus* in terms of their forest potential or wood properties.

Insecticides

Two insecticides have been used effectively against *G. platensis*: Epik (acetamiprimid) and Calypso (thiacloprid)



Without insecticide








1 month after insecticide application

However, insecticides have some disadvantages/ risks, such as:

- non-target organisms may be affected;
- risk of soil and water contamination;
- repeated applications are necessary;
- legal and forest certification restrictions;
- public concern over pesticide use.

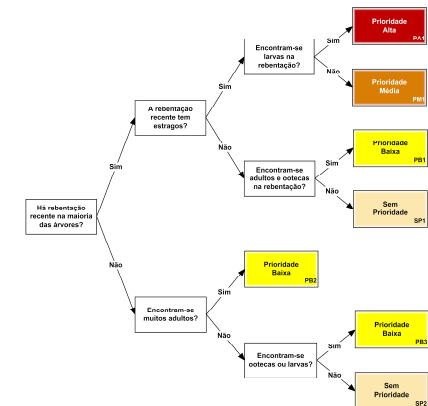
Criteria to decide what to do and when

What to do?

	Defoliation level	Recommendation
	Low (<20%) 	Do nothing
	Moderate to High (20-90%) 	Apply insecticides 
	Very high (>90%) 	Replace plantations with resistant eucalypts 

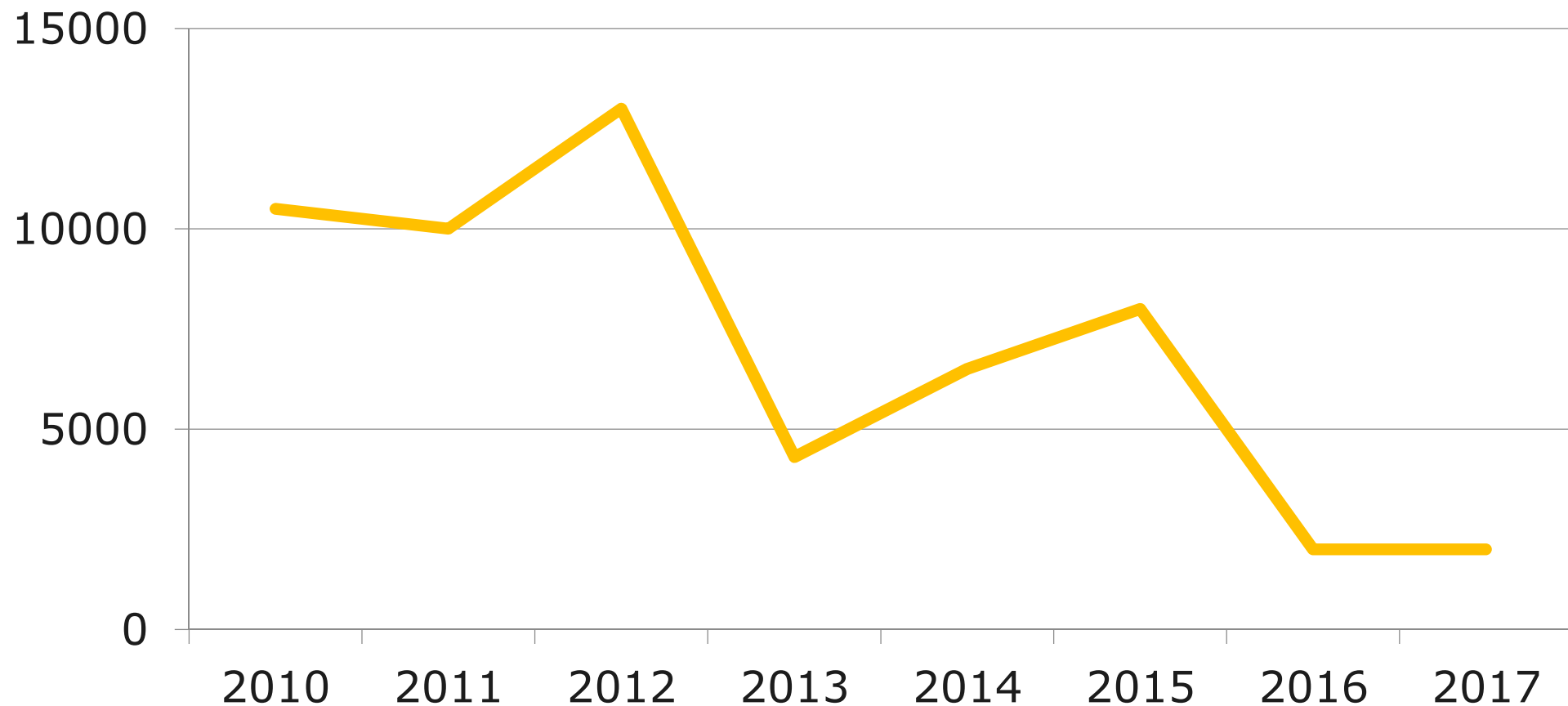
When?

Priority is decided by monitoring selected plantations every 2 weeks during march-may for the presence of *Gonipterus* eggs and larvae.



Results

**Area (ha) affected by *G. platensis*
in the Navigator Company (ca. 90k ha *Eucalyptus*)**



Concluding remarks

- *Gonipterus* is an economically important pest, despite partial control by *A. nitens*.
- Insecticides remain an important management tool, but a better IPM approach is our goal.
- Our main research efforts are to develop:
 - biological control with other Australian parasitoids;
 - resistant eucalypts with good forest potential and good wood properties for pulp and paper production.
- All the work is being conducted in close collaboration with Portuguese and Spanish pulp and paper companies (Altri Florestal and ENCE), universities (e.g. ISA-UL), national forest authorities (ICNF), and associations (CELPA).



THANK YOU FOR YOU ATTENTION