

# The mimosa flea beetle is ready to travel

Assisting the spread of mimosa biocontrol in the NT



The mimosa flea beetle with the nickname 'nessie'



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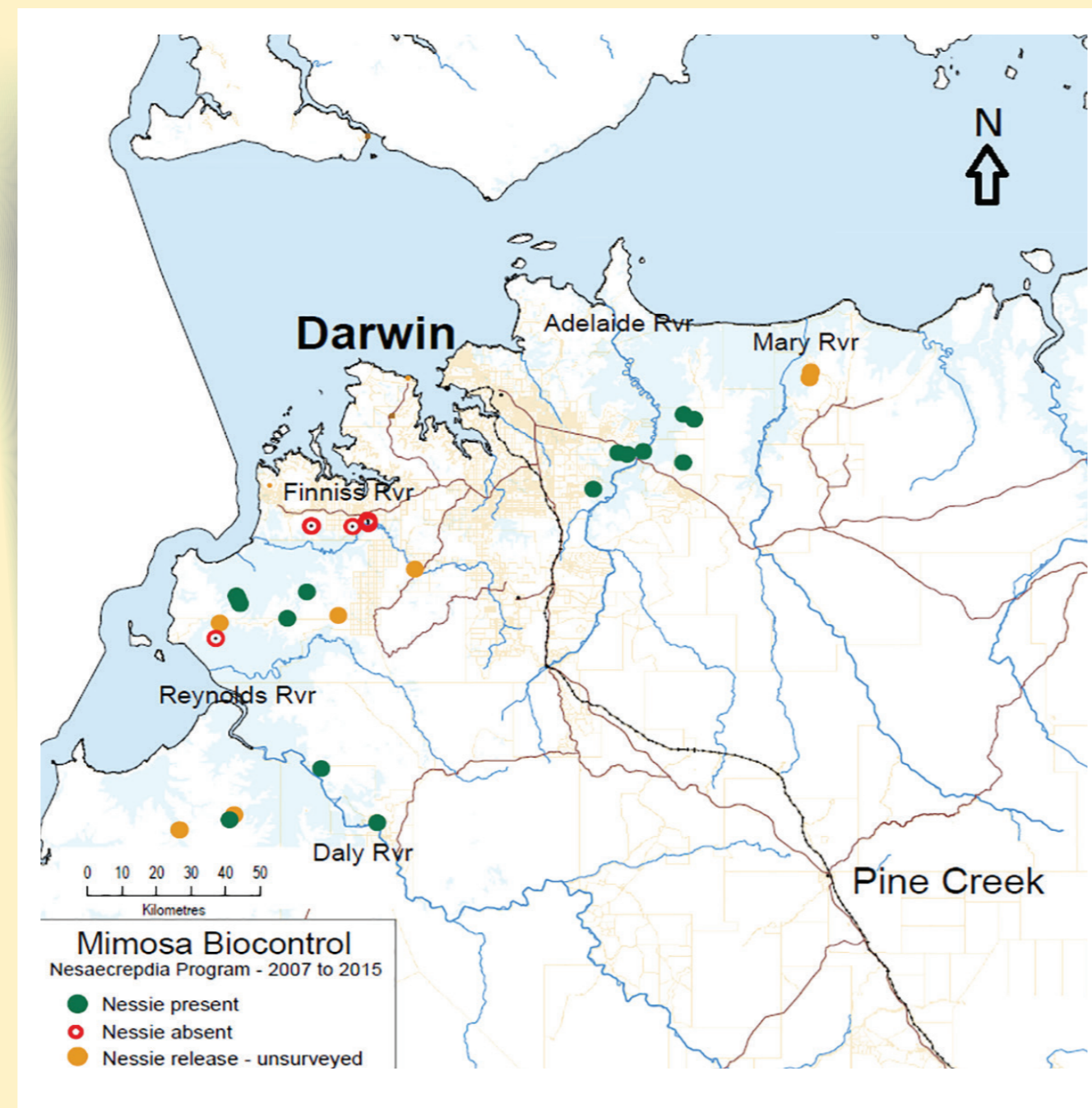
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## Summary

The mimosa flea beetle (*Nesaecripida infuscata*), is the last agent to join an elite group of natural enemies which together are shown to slow down the spread of mimosa by reducing plant health and in turn reducing seed output.

The mimosa flea beetle was released across the Top End between 2007 and 2012 and has now established and flourished at a number of locations putting continued pressure on mimosa through defoliation and root damage. The beetle is relatively long lived and has a tendency to stay close to the release site where its population increases causing significant localised damage.

Given that the beetle is naturally slow to disperse, an opportunity exists for land managers to harvest wild beetles and speed up the spread of this effective agent.



Map showing flea beetle release sites and subsequent population establishment

## Collection and redistribution

The Weed Management Branch has identified priority infestations and will work with land managers to enable the movement of this beetle across and between properties.

The site characteristics that sustain beetle populations have been identified by post release surveys. Ideal release site characteristics include: mimosa that is not inundated for more than five months; edges of large stands greater than one hectare; on floodplains rather than drier upland areas.

With continued and combined effort between land managers and the Weed Management

Branch it is hoped that this beetle will quickly become widespread and that the significant damage we are seeing at localised sites will become more extensive.

Collecting the beetles from the field is an easy task, with the right equipment. Where beetles are in high numbers they can be knocked off the mimosa branch with a gloved hand and then funnelled into a jar. At a good site 1000 beetles can be caught in an hour. To transport the beetles the jar needs to be kept cool but not cold. The beetles are easy to release, just tip the beetles from the jar onto a mimosa leaf at the new site.



Mimosa flea beetles can be collected in a funnel attached to a jar

Mimosa flea beetles collected in a jar

Release is as easy as emptying the jar onto a mimosa leaf

## Mimosa

*Mimosa pigra* (mimosa) is a declared weed in the Northern Territory and now occupies approximately 140 000 hectares of floodplains across 15 catchments. Mimosa can grow up to six metres tall and can compete with native plants to form dense, impenetrable stands.

It is no longer feasible to eradicate this weed where large infestations occur. In these situations integrated management methods should be used. Biocontrol is one of the management options that can be used to reduce the impact of large infestations.



A mimosa stand in Australia



A mimosa stand in Mexico. Plants are less successful due to constant attack from insects and pathogens. Photo courtesy of CSIRO

## Monitoring

Surveys of the mimosa flea beetle are used to monitor where the populations are successfully established and having an impact. Collection funnels can be used to determine if there are beetles at a site. A measure of the population density can be found by knocking set number (for

example 40) of mimosa tips over the funnel. The population density gives a good indication of how the beetles are going at a site.

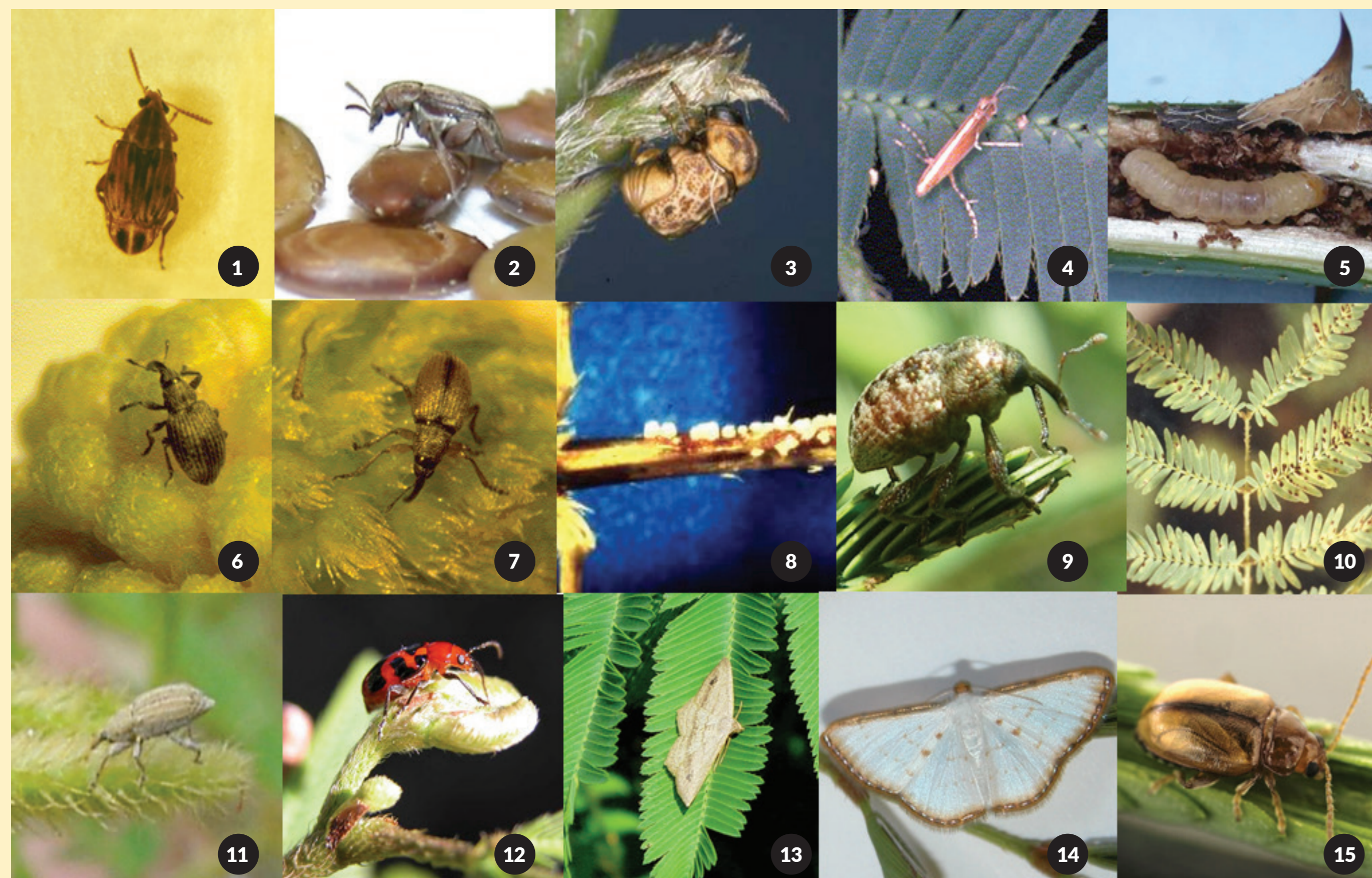
If there are no beetles present, the site can be noted for a future release.

## Biocontrol of Mimosa

The Weed Management Branch of the Department of Land Resource Management implements, monitors and evaluates the Mimosa Biocontrol Program. The Program has been going since 1989 releasing a total of 15 agent species.

### Agent names:

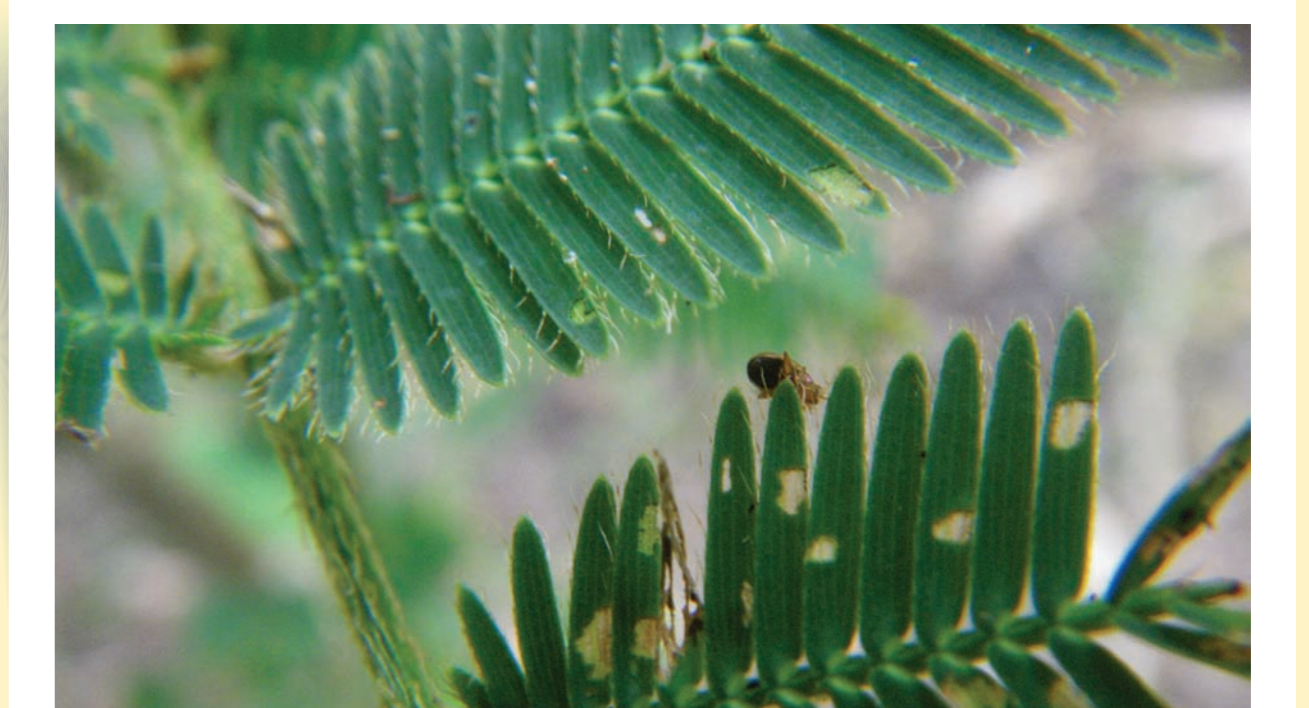
- |  |                                      |                                     |
|--|--------------------------------------|-------------------------------------|
| 1. <i>Acanthoscelides puniceus</i>       | 6. <i>Coelocephalopion aculeatum</i> | 11. <i>Sibinia fastigiata</i>       |
| 2. <i>Acanthoscelides quadridentatus</i> | 7. <i>Coelocephalopion pigrae</i>    | 12. <i>Malacorhinus irregularis</i> |
| 3. <i>Chlamisus mimosae</i>              | 8. <i>Phloeospora mimosae-pigrae</i> | 13. <i>Macaria pallidata</i>        |
| 4. <i>Neurostrotta gunniella</i>         | 9. <i>Chalcodermus serripes</i>      | 14. <i>Leuciris fimbriaria</i>      |
| 5. <i>Carmenta mimosa</i>                | 10. <i>Diabole cubensis</i>          | 15. <i>Nesaecripida infuscata</i>   |



The fifteen biocontrol agents released to manage mimosa



The number of flea beetles on this leaf shows a healthy population density at this site



Damage to leaves made by the mimosa flea beetle



Pronounced damage to leaves made by the mimosa flea beetle



Seedlings in the foreground have been defoliated by the mimosa flea beetles as they emerge from the soil as adults

## Acknowledgements

We would like to thank the many landholders who have participated and allowed access for the ongoing monitoring of the biological control program of mimosa. The Bulgul Land and Sea Rangers permitted access to land and assisted with field surveys on the Finnis River coastal floodplain. The Yantjarwu Rangers and Malak Malak Rangers permitted access to the Daly River sites. The assistance of Territory Natural Resource Management in providing funding for the Weed Management Branch field expeditions, under the project, 'Enhancing Biocontrol of Mimosa', is also gratefully acknowledged. CSIRO has been involved with the mimosa biological control program since it first began and their involvement is continually appreciated.



[www.lrm.nt.gov.au/weeds](http://www.lrm.nt.gov.au/weeds)