Science for Saving Species

Research findings factsheet

Project 1.2.1.7

Threatened Species Recovery Hub

National Environmental Science Programme

Trialling the effectiveness of replanting the Endangered Yass daisy under different grazing regimes

In brief

Box gum grassy woodlands are a Critically Endangered ecological community that provides essential habitat for the threatened Yass daisy and other small herbs and grasses.

This project is determining how to best restore the Yass daisy within the box gum woodland community. We have been trialling the effectiveness of direct replanting Yass daisy tubestock in woodlands on private property under different livestock grazing management types.

The initial establishment of plants has been successful, and the plants will continue to be monitored for the next two years. Once more results come to hand, analyses will be conducted to assess which factors contributed to the successful reintroductions of this species. These findings will inform reintroduction strategies for this and other threatened plant species.

Background

Land clearing has resulted in the loss of approximately 85% of the Critically Endangered box gum grassy woodland community in eastern Australia. A large proportion of remaining woodlands is on private property, and these woodlands are often highly degraded due to a range of ongoing threats such as over-grazing, environmental weeds, feral animals and altered fire regimes. This woodland community can be home to a range of vegetation species such as white box (*Eucalyptus albens*), yellow box (*E. melliodora*), and Blakely's red gum (*E. blakelyi*), together with a diverse understorey of grasses and herbs.

A number of threatened flora species rely on this habitat, including the Yass daisy (*Ammobium craspedioides*) and the button wrinklewort (*Rutidosis leptorhynchoides*). In the wild, the Yass daisy only occurs in fragmented populations within the South Western Slopes and South Eastern Highlands bioregions of New South Wales, with most populations within the Yass district.

We currently lack knowledge on effective methods for returning lost threatened plants to box gum woodlands, or methods for including threatened plant species in large-scale revegetation and restoration projects. Techniques are particularly lacking for ground-cover plants like flowering herbs, including the Yass daisy. This research builds on previous work which successfully established the herbs, variable plantain (*Plantago varia*), bulbine lily (*Bulbine bulbosa*) and the yam daisy (*Microseris lanceolate*) in woodland habitat.

RIGHT: An established Yass daisy plant in flower. Image: Dan Florance

Australian National University

Greening Australia

Aims of the research

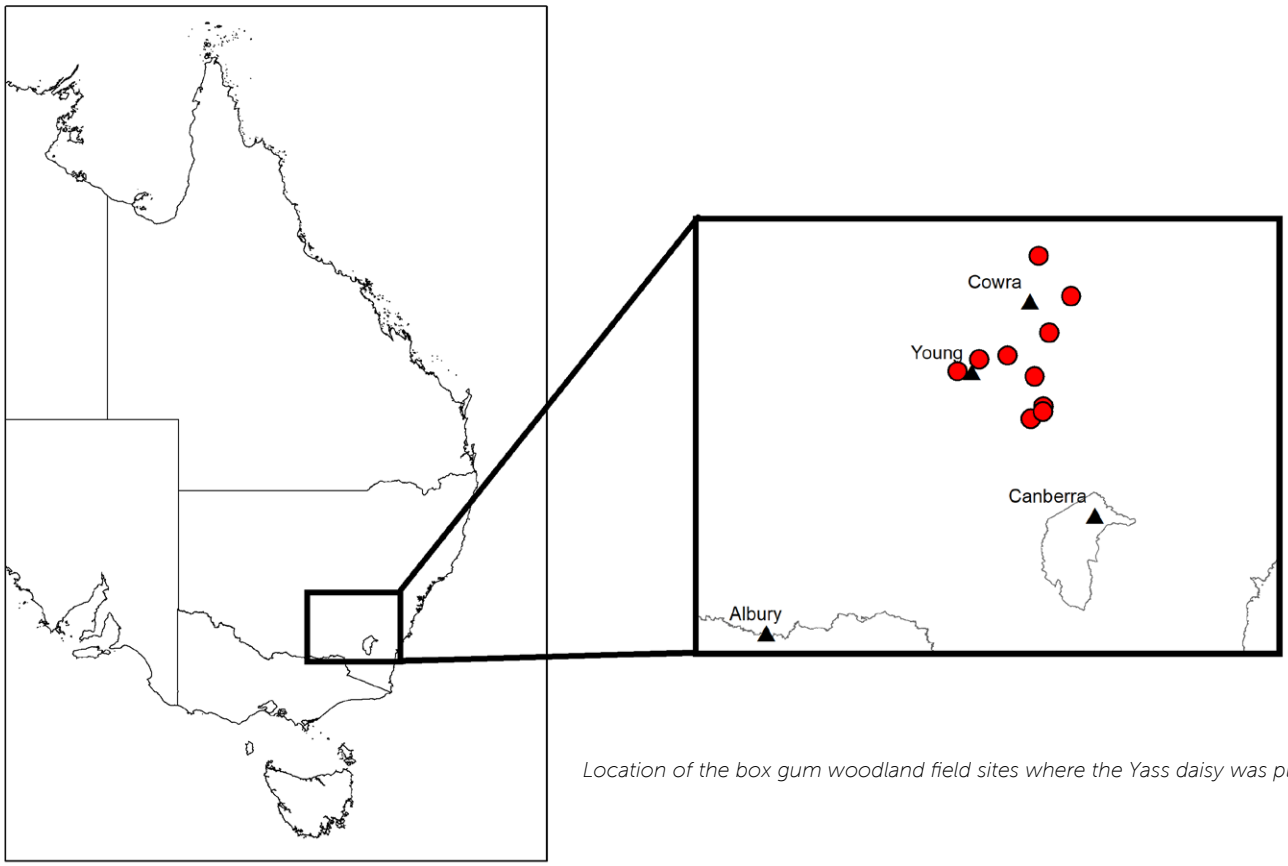
This project aims to experimentally trial techniques for reintroduction of Yass daisy tubestock into box gum grassy woodlands under three different livestock grazing regimes in either shaded or exposed sites.

What we did

The project is trialling and testing techniques for restoring the Yass daisy within box gum grassy woodlands. The research is being conducted in the regions managed by the Central Tablelands Local Land Services, Riverina Local Land Services and South East Local Land Services, in an area within 100 km of Cowra, New South Wales (See Figure 1.)

The research team collaborated with Greening Australia to develop best practice methods for propagating the Yass daisy in a nursery environment. Greening Australia successfully propagated the daisy and provided us with numerous tubestock. The tubestock were hand-planted into previously established grazed and ungrazed plots on 10 farms.

The farms each have differing land-use and grazing histories. Six different kinds of sites were established on each farm, three forms of livestock grazing management – grazing exclusion; grazing excluded in spring and summer; and business as usual grazing (with continuous set stock grazing or rotational grazing) – and whether the sites were shaded or exposed. Grazing is being excluded in spring and summer for one of the treatments, as this is when the daisy flowers and sets seed. All plots are being regularly monitored to gauge plant establishment success and survival. The data will then be analysed in response to the six different experimental treatments at the completion of the trial.



Location of the box gum woodland field sites where the Yass daisy was planted.

Interim findings

The Yass daisies were successfully propagated and the tubestock was planted at all the sites in the winter of 2019. We had to initially water the plants and fence the sites to exclude grazing animals due to an extended drought which continued through to the spring–summer of 2019. This was necessary to ensure successful plant establishment and subsequent survival. Unfortunately, access to the field sites was limited due to fire risks in the summer of 2019–20 and then due to COVID-19 restrictions in 2020.

We surveyed all sites over the winter–spring period of 2020. We found plant survival to be reasonable, and the woodland habitat showed good post-drought recovery. (See Figure 2.) This enabled us to remove the fences. The field surveys also revealed that some seed from the planted daisies had germinated in 2020.

We will monitor the sites again over the winter–spring period of 2021, when the plants begin to emerge from dormancy. We will be able to give a preliminary assessment on the success of this trail in late spring 2021 as more results come to hand.

This research is ongoing and the sites will become part of a broader study investigating livestock grazing impacts on woodland flora. The sites will be monitored annually until at least 2023.

BELOW: Yass daisy plants growing in protected enclosures Image: Dan Florance

Swift parrot chicks. Image: Dejan Stojanovic

A meadow of Yass daisy. Image: Bindi Vanzella

Future work

This project aims to identify best-practice approaches for establishing threatened forbs in agricultural landscapes. This will have direct application for establishing a broad suite of threatened ground-cover species from box gum grassy woodlands and derived native grassland vegetation communities.

The work will build on, and feed into, work already underway through the Australian Network for Plant Conservation to develop guidelines for threatened plant translocations. It will also provide Greening Australia with information to help improve future on-ground establishment of threatened ground cover species in the woodlands.

The project will contribute significantly to the body of knowledge about the effects of grazing and other threatening processes on woodland flora.

Further Information

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