

SA Veg. on the Edge

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The joint threatened plant newsletter of the Threatened Species Network (SA), DEH (SA), and Threatened Plant Action Group (SA).

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Acacia enterocarpa

Recovering Threatened Flora on Yorke Peninsula

Native vegetation habitats have been decimated on Yorke Peninsula, with an estimated 94% of vegetation cleared¹. Remnancy for the central section of the peninsula, such as Muloowurtie and Maitland, is perilously low with less than 3% and 1% native vegetation respectively.

Despite past habitat destruction many threatened plant populations hang on in the region, surviving in small remnants or along roadsides. Recovery actions are being implemented to respond to the highly parlous state of these often small and isolated populations and to ensure their regeneration and ongoing survival.

The Threatened Plant Action Group, South Australian Department for Environment and Heritage, Australian Plant Society/COOTS and the Native Orchid Society of SA have been working together on Yorke Peninsula since 1997 to protect and recover nationally and state threatened plant species.

Over the last 18 months, project funding from the Threatened Species Network has made it possible to continue and expand this work and to undertake many more urgently needed recovery actions.

The nine species included in this project are listed below.

Common Name (National Conservation Status – EPBC Act)

<i>Jumping jack wattle</i>	(Endangered)
<i>Neat wattle</i>	(Vulnerable)
<i>Winter spider-orchid</i>	(Vulnerable)
<i>Ghost spider-orchid</i>	(Critically endangered)
<i>Large-club spider-orchid</i>	(Endangered)
<i>Hop-bush</i>	(Endangered)
<i>Osborn's eyebright</i>	(Endangered)
<i>Silver leaved daisy-bush</i>	(Vulnerable)
<i>Limestone phebalium</i>	(State Conservation Status – Endangered)

On-ground recovery actions have been implemented at a number of priority sites between Kulpara and Wallaroo in the north to Brentwood and Stansbury in the south. Project sites include Muloowurtie Conservation Reserve, Agery Reserve and roadside vegetation near Ardrossan and Port Vincent.



Workshop participants inspect habitat restoration work at Muloowurtie Reserve. (Photo: Wendy Stubbs)

Work undertaken has included:

- construction of stock-proof fencing to protect threatened plants and their habitats from grazing
- managing invasion by bridal creeper, boxthorn and other serious environmental weeds, to reduce competition and prevent displacement
- control of feral herbivores such as snails and rabbits
- population surveys to improve knowledge of species distribution and abundance, and
- preparation of site action plans to guide the management of threatened plant sites.

Additional occurrences of nationally threatened species such as Silver-daisy bush (*Olearia pannosa ssp. pannosa*), Neat wattle (*Acacia rheticarpa*), Large-club spider-orchid (*Caladenia macroclavia*) and Ghost spider-orchid (*Caladenia intuta*) were discovered along sections of roadside and on private property surveyed as part of the project. Negotiations are in progress with relevant authorities to install Significant Roadside Vegetation Markers for enhancing protection of all roadside populations.

Community workshops and working bees were held in spring 2005 at Pine Point and nearby Muloowurtie Conservation Reserve to raise public awareness of threatened plant species, to provide training in appropriate management techniques and to foster local participation in their recovery. The workshops included presentations and discussion on aspects of threatened flora conservation as well as a site visit for demonstrations of field techniques being used to restore

and manage areas of critical habitat.

Ongoing liaison has been maintained with private landholders and other local stakeholders on key management issues, such as habitat protection, threat abatement and appropriate revegetation to improve the condition and increase the extent of habitats. This communication is essential in conveying recovery objectives and to build community support and capacity for protecting and managing threatened plant habitats on the peninsula.



Planted Neat wattle (*Acacia rhotinocarpa*) on revegetated land adjoining Muloowurtie Reserve. (Photo: Wendy Stubbs)

For example, a recent public meeting convened at Brentwood led to a working bee with local community members at the Brentwood cemetery, where a 20 strong workforce removed significant amounts of boxthorn from natural woodland at the site and on adjoining land. Negotiations are now underway with an adjoining landholder to fence off an area of contiguous remnant vegetation, effectively doubling the available habitat at this site. Another workshop is being organised for an interested community group at Port Julia.

Media articles have been produced in the Yorke Peninsula Country Times to publicise community workshops and field days, to increase local awareness of the species and habitats, and to promote community participation in threatened flora recovery.

The project also contributes to broader conservation programs in the region by increasing the area of both public and private land being actively managed for conservation and through upscaling threat abatement efforts for Bridal creeper (*Asparagus asparagoides*), a Weed of National Significance (WONS), and rabbits, a key threatening process listed under Commonwealth legislation.

This project continues to produce many positive and highly tangible outcomes, including the protection of critical habitat for nationally threatened species on private land, improved habitat condition through the management of threatening processes and further biological information on the location, size and dynamics of species' populations.

As landscape conservation planning will clearly take time to implement, this project is essential for maintaining key regional biodiversity assets in the interim. Habitat protection

and management are still the most urgently required measures for in-situ recovery of threatened flora as most remaining habitat patches are small, linear or subject to ongoing threats such as livestock grazing, weed invasion and other anthropogenic disturbances.



Ghost spider-orchid (*Arachnorchis intuta*). (Photo: Tim Jury)

In partnership with collaborating organisations such as the Department for Environment and Heritage, the Threatened Plant Action Group continues to take a leading role in providing critical on-ground support for regional conservation programs on Yorke Peninsula, including threatened flora recovery and native vegetation protection, as well as broader habitat restoration and biodiversity conservation initiatives. We look forward to continuing this successful project.

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Acknowledgements

Joe Quarmby, Jean Turner, Vicki-Jo Russell, Jeff Reid and Tim Reynolds for their key roles in the project, funding assistance and ongoing support. Yvonne Steed is recognized for her work in developing this project as are the contributions of all participating landholders.

The Yorke Peninsula threatened flora recovery project is a regional, multi-species initiative developed by: the Threatened Plant Action Group; Nature Conservation Society of South Australia; the South Australian Department for Environment & Heritage; and the Department for Transport, Energy, and Infrastructure. Project supporters include: private landholders; the District Council of Yorke Peninsula; Australian Plant Society/COOTS; Native Orchid Society of South Australia, National Trust of SA; and Trees for Life. Past project funding has been received from: the Threatened Species Network (WWF-Australia); Department for Transport, Energy and Infrastructure; the Northern and Yorke Agricultural District Integrated Natural Resource Management Committee; and the Natural Heritage Trust.

References

¹ Wigan, A & Malcolm, I (1989) *Report to Yorke Peninsula roadside vegetation steering group on Roadside vegetation management plans for Yorke Peninsula.*

The Corunna daisy in profile

In this issue of *Veg. on the Edge* we will briefly profile the petite *Brachycome Muellerii* or as it is more affectionately known ...the Corunna daisy. The Corunna daisy is a small ground hugging (or prostrate) annual plant which when in flower can grow to a height of 20cm. The Corunna daisy develops a rosette of light green basal leaves which can grow up to 12cm long and up to 2cm wide. The leaf pattern to some extent resembles a fern frond with the leaf edge being cut more than half way into the middle of the leaf. The flowers can be white to mauve and develop on a long peduncle (or stem) in the late winter and early spring.



Manfred Jusaitis checks the *Brachycome muelleri* crop for 2005. (Photo: Janet Walton)

The Corunna daisy is an extremely special little plant as it has very specific site requirements. So specific in fact that it is now only located in an area no greater than 3Ha in size. This unique site is located at the base of a south-facing cliff in the Baxter Hills on Corunna Station in the South Australian Arid Lands. This site was found to be well shaded during the winter months by a cliff overhang and the shrubby overstorey vegetation which when combined with the soil type provided sufficient moisture retention in the soil for the seed germination and vegetative development of the Corunna Daisy. Expeditions to similar sites to date have not located other populations of the Corunna daisy.

The species was once more widespread, with specimens from around Paskeville being recorded in 1888 and near Gawler being recorded in 1851. Unfortunately no further records have been located and the species is now presumed to be extinct in these areas due to land clearance activities (Briggs & Leigh 1995).

The small size of the population makes it vulnerable to localised catastrophic events resulting in soil disturbance, for example fire or prolonged drought. Weed invasion and trampling by animals are also impacts which are likely to be detrimental to the survival of the Corunna daisy. Fortunately the French family undertake regular feral goat and kangaroo culls and they have also been involved in fencing the area to prevent livestock access. Research conducted by Manfred Jusaitis, Lesley Polomka and Birgitte Sorensen, in consultation with the French family, has resulted in the establishment of another translocated population in similar terrain on Corunna station. Seeds were sown directly into marked quadrats during June 1997. These sites, whilst not as prolific as the original site, are still producing viable seed today.

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Reference: Jusaitis.M., Polomka,L. & Sorensen.B. (2003). *Habitat specificity, seed germination & experimental translocation of the endangered herb Brachycome muelleri (Asteraceae)*. Biological Conservation **116**(2004) pp.251-266

Recovery of 12 nationally threatened orchids in the Lofty Block Region of SA

Since 1998, the Lofty Block Threatened Orchid Recovery Project has been implementing on-ground recovery actions for threatened orchids in the Lofty Block Region of SA. The project is managed by the Department for Environment and Heritage (DEH), in partnership with the Threatened Plant Action Group (TPAG) and the Native Orchid Society of SA (NOSSA).



The critically endangered *Caladenia macroclavia*. (Photo: Joe Quarmby)

The project is currently managing the recovery of 12 nationally threatened orchid species, namely:

- Caladenia argocalla* (White Beauty Spider-orchid)
- C. behrii* (Pink-lipped Spider-orchid)
- C. gladiolata* (Bayonet Spider-orchid)
- C. sp. 'Brentwood'* (Ghost Spider-orchid)
- C. macroclavia* (Large-club Spider-orchid)
- C. rigida* (White Spider-orchid)
- C. woolcockiorum* (Woolcock's Spider-orchid)
- C. xantholeuca* (Flinders Ranges Spider-orchid)
- Pterostylis bryophila* (Hindmarsh Valley Greenhood)
- P. cucullata* (Leafy Greenhood)
- P. despectans* (Lowly Greenhood)
- P. sp. 'Halbury'* (Halbury Greenhood)

To date the project has achieved the following broad outcomes:

- Recovery Plans have been written for eight species, and a draft multi-species recovery plan covering all of the 12 species listed above is about to be released for public comment.
- Surveys of potential habitat have been undertaken, resulting in the discovery of an additional 30 populations.

- Population monitoring has been undertaken for all 12 species, covering 93 populations. This has resulted in an increase of known population size for many of the species (eg. *Caladenia argocalla* has increased from 490 flowering plants in 1999, to 4,500 flowering plants in 2005).
- Monitoring the life history stages of plants (eg. leaves, buds, flowers, pollination, seed capsules, etc.) has been undertaken for all species.
- Habitat restoration/weed control programs have been undertaken at 35 sites.
- Fences have been erected around 10 populations to protect them from stock grazing and other herbivores (eg. kangaroo, rabbits, hares, deer etc.).
- Cages have been placed around plants in 10 populations to protect them against herbivory.
- Flowers have been hand-pollinated in 35 populations to ensure seed set and increase recruitment.
- Seed has been collected for all 12 species and is being stored at the Seed Conservation Centre.
- Mycorrhizal fungi have been isolated from the stem tissue of six species for *ex-situ* seed germination and cultivation.
- A disturbance trial has been established in Mount Remarkable National Park to determine the response of *Caladenia gladiolata* to fire, soil disturbance and vegetation clearance.
- Thirteen community groups contribute over 3,000 hours per year to on-ground recovery actions (eg. surveys, monitoring, weed control, fencing, caging, hand pollination, seed collection etc.).

While the project has already made significant progress towards the recovery of each of the 12 species there is still much to be done to ensure their long-term survival. Many populations are declining or are at high risk of extinction due to small population size, lack of seed set and recruitment, weed invasion, and other threats.



Volunteers controlling Montpellier Broom in *Pterostylis cucullata* habitat, Belair National Park. (Photo: Joe Quarmby)

There is urgent need for further habitat protection (eg. Heritage Agreements, roadside markers, fencing, Management Agreements etc.), restoration of key critical

habitat (eg. weed control, rabbit control, removal of stock etc.), and actions to promote natural recruitment (eg. hand pollination, seed re-introduction, soil disturbance, slashing, prescribed burns etc.). There is also need for further surveys of potential habitat and ongoing monitoring of populations.

Much of the success of the project to date has been due to the contribution and commitment of community groups and volunteers. Thankyou to everyone involved.

For more information regarding the Lofty Block Threatened Orchid Project please contact:

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Spiny Daisy on the move

The Spiny Daisy (*Acanthocladium dockeri*) is a critically endangered plant which currently only occurs at four sites, all located in the Mid North of SA. However, this is set to change on World Environment Day (5th June 2006) when a number of Spiny Daisy plants move into a new home.



Spiny Daisy Bush (*Acanthocladium dockeri*) (Photo: Amber Clarke)

Regular readers of *Veg. on the Edge* may already be aware of the intriguing history of the Spiny Daisy, starting with its first collection in 1860 from central western New South Wales during the Burke and Wills expedition. A second collection was made in 1910 from the South Australian Riverland. The Spiny Daisy was then not seen for almost 90 years and was presumed to be extinct until 1999 when it was identified growing on a roadside near Laura. Over the next few years three additional populations were found in the Mid North, bringing the total of known populations to four (three just east of Laura and one outside Hart).

The Spiny Daisy Recovery Team was formed shortly after the species' rediscovery. The team is currently working with the Department for Environment and Heritage and the Northern and Yorke Natural Resource Management Board to protect this critically endangered species. A recovery

plan for the Spiny Daisy (Robertson & Clarke 2006) is currently being finalised. This plan demonstrates the need for translocation as a high priority recovery action.

The Spiny Daisy Recovery Team feel that the translocation of this species is necessary to increase the number of populations, enlarge the area of occupancy and guard against extinction. Genetic studies (see Jusaitis 2005) have shown that all plants at each site are a single clone and thus, in genetic terms, the known worldwide population of the Spiny Daisy consists of just four individuals. While this translocation will not increase the genetic diversity of the species it will provide an *in-situ* back-up of one of the clones. It is vital to have this kind of insurance policy as the loss of any clone would be a major setback to the Spiny Daisy recovery effort and reduce genetic diversity of the species by 25%.

While cuttings from the Spiny Daisy have previously been planted *ex-situ* for display purposes, in locations such as the Arid Lands Botanic Gardens and the Australian National Botanic Gardens, this species has never before been translocated *in-situ*.

The Spiny Daisy Recovery Team is therefore planning to conduct an experimental translocation designed to assess the impacts of various site management techniques on the growth and survival of the Spiny Daisy plants. Groups of Spiny Daisy plants will be subjected to varying combinations of snail baiting, weed control and protection through tree guards.

The team hopes to use information gained from this project to plan other translocations, including potentially combining genotypes at new locations in the field.



Getting the cuttings ready for the translocation. (Photo: Amber Clarke)

Cuttings from the 'Yangya' Spiny Daisy population were collected during spring 2005 and are now growing well in the Mid North Plant Diversity Nursery. These cuttings will remain at the nursery until June 2006 when they will be planted in their new home, a reserve near Gladstone, by members of the Recovery Team and the local community.

It is hoped that the Spiny Daisy translocation will prove to be a significant step in the recovery of this unique species.

References

Jusaitis, M. (2005). Implications of clonality in Spiny Daisy, *SA Veg on the Edge*, 5: 4-5.

Robertson, M.A. (2006). *Recovery Plan for Acanthocladium dockeri (Spiny Daisy)* Department for Environment and Heritage, Clare, South Australia.

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The value of ground truthing

As a part of the Bangham Vegetation Links project in the Upper South East we were required to undertake some survey work to evaluate the biodiversity value of remnant vegetation within the Bangam district as a part of determining where incentive funds should be invested within the region to achieve the greatest conservation outcomes.

The method used was the standard 30 x 30m quad, with a "typical" site/s being selected representing the dominant vegetation type/s, and values determined for species diversity and overall vegetation health and structure.

The Floristic mapping for the area indicated the presence of two vegetation types, these were a Heath (*Banksia ornata/Eucalyptus incrassata*) and a Closed Sedgeland (*Baumea, Leptocarpus*, with *Melaleuca brevifolia* present). The site referred to in this article was relatively small (60 acres) and adjoined scrub on two sides with two dominant soil types - sandy clay and sand.



Peppermint Box Woodland with a small colony of *Melaleuca wilsonnii* scattered throughout. (Photo: Karina Mercer)

Although small, the area was a good example of the mosaic of species being present, but not representing previous impressions. This meant that taking time to ground truth the area proved beneficial in gathering regional vegetation data.



The dominant canopy was Dune Stringybark (*Eucalyptus arenacea*) with solid representations of Peppermint Box (*Eucalyptus odorata*) and Blue Gum (*Eucalyptus leucoxyton* spp *pruinosa*) on the heavier ground. Narrow-leaf Red Mallee (*Eucalyptus leptophylla*) and Pink Gum (*Eucalyptus fasciculosa*) were found on the sandy low slopes.

There was also a small stand of Wimmera Mallee (*Eucalyptus wimmerensis*) and Wilson's Honey-myrtle (*Melaleuca wilsonii*) present which have a regional conservation value, as does the Peppermint Box.

To add a little more variability, a small population of a yet to be identified *Eucalyptus* hybrid (currently in State Herbarium) was also present in one corner of the site. Overall, a very interesting 60 acres.

Again, this is another reminder of where the natural world proves to be unpredictable and where it is important to take the time, get back to basics and go for a walk.

If you do find anything interesting, it is always good to grab a specimen or photograph, record the locality, and take it into the Herbarium where it can be added to data helping to improve our understanding of what we are seeking to protect.



A walk may also uncover signs of fauna activity. (Photo: Karina Mercer)

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Invitation to submit articles

SA Veg. on the Edge is a community newsletter that aims to keep interested groups up to date with the activities of others working for threatened plant species throughout South Australia. I encourage anyone with an interest to submit articles to *SA Veg. on the Edge* on their group's activities, upcoming events and achievements and to canvass support. Graphics complementing articles are also welcome and for clarity should be a minimum of 300dpi.

Thankyou to all the contributors for this issue. Please send material to: TSN, *SA Veg. on the Edge*, c/- SA Conservation Centre, 120 Wakefield St, ADELAIDE SA 5000 or email tsnsa@wwf.org.au.

Regards, Vicki-Jo Russell - State Coordinator.

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