Save our Flora

AN ONLINE INDEPENDENT NATIONAL PROJECT

CONSERVATION THROUGH CULTIVATION

Contact: saveourflora@gmail.com
Website: https://saveourflora.weebly.com

Project launched on 14th November 2013

Maria Hitchcock Administrator
Bulletin Editor

Membership
Individuals: 189
Groups: 21
International 3

Membership is free.

Please encourage others to join.

Quarterly Bulletins are sent by email only. Feel free to pass them on.

New members will receive the latest e-Bulletin only. Earlier Bulletins can be accessed online. (See box)

This is an informal interactive sharing group. We welcome your emails, articles and offers of seed and cuttings at any time.

Your privacy is respected and assured with this group. You may **unsubscribe** at any time.

Diuris basaltica
Image: Banjorah

In this issue:

Unsure if you have any rare or endangered plants? Check them out on the EPBC list

http://www.environment.gov.au/cgi-bin/sprat/public/publicthreatenedlist.pl?wanted=flora

Save our Flora

Maria writes:

It's another year - everyone is back at work and at school and keeping busy. I spent some time in January travelling first to King Island on a botanical tour and then to the ANPSA Australian Plants Conference in Hobart.

Back in 1999 I did a major Correa collecting trip around Tasmania following the footsteps of some of the early collectors - one thing that struck me was the lack of coastal protection. Cattle were allowed to graze right to the beach which resulted in major degradation of the landscape and possible extinction of coastal species from those areas.

I was surprised to see that the same thing was prevalent on King Island. There are a few reserves to protect local species and a few environmentally conscious locals were working hard to preserve some significant remnants. I find it hard to believe that there is no legislation preserving beachfronts from grazing. Perhaps I'm wrong and there is something in place although it wasn't evident. Someone might be able to enlighten me. One industry that seems to be taking off is golf and in a strange way this might help the fringes of coastal scrub remaining between the golf courses and the water. I'd love a discussion about this. Flinders Island on the other hand being drier and less productive has large reserves which are conserved.

One of our Hobart side trips was to the top of Mt Wellington - the weather was fine that day - I have been up there when it was snowing. The pressure of tourism on the mountain was very noticeable. I suspect that there are many parts of Tasmania that are under pressure and the authorities are having trouble keeping up with the infrastructure required such as boardwalks, tracks and facilities.

After arriving in Hobart I went on a day trip to Bruny Island where we visited the Inala Jurassic Garden and Nature Museum. Dr Tonia Cochran started the venture. She moved to Inala on Bruny Island in 1988 which is still home as well as Inala headquarters. Her passion for protecting and preserving wild places and the flora and fauna within natural landscapes is demonstrated in her involvement in threatened species management, and has led her to place a conservation covenant on her 1,500 acre property at Inala, which is home to all 12 Tasmanian endemic bird species and a refuge for several threatened species. Here she has developed a garden featuring many Gondwana species which are planted together to show their relationships. If you have a chance to visit it's worth it.

Maria

Native Plant Propagators

Are you an expert native plant propagator?
Would you be interested in propagating for ex-situ plantings of rare and threatened flora?
I am compiling a register of propagators with contact details to send to Botanic Gardens.

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Save our Flora

PowerPoint Presentation
Ready to go!
30 slides approx 30 mins. talk
If you are interested in obtaining this presentation please email me
I can send it in an email (4.3MB) or as a CD
Send me a C5 stamped addressed envelope
Attach 2 stamps

Do you have a contact at a local school? Why not ask them to join Save our Flora as a group member
More and more schools are establishing Endangered Species Gardens featuring rare plants from their local environment.

Save our Flora

From the members:

Marilyn Honeybun sent this link for anyone interested in growing Australian native Finger Limes.
https://www.dpi.nsw.gov.au/__data/assets/pdf_file/0016/320272/growing-australian-native-finger-limes.pdf

Ruth Crosson (Gladstone)

Hakea trineura Image R. Crosson

This threatened Hakea (V) gets lots of flowers in these harsh conditions. So far it has survived the council mowers and whipper snippers. I collected this seed from Canoona about 1982 when Col Cornford took some of us there to view it and managed to germinate it. It was planted in a grass park on top of the ridge on Radar Hill Gladstone. Conditions are nothing like Canoona. It gets sun all day - is totally exposed to wind and relies on rainfall.

Hakea trineura Image R. Crosson

Friends of Mount Billy Conservation Park

http://sacommunity.org/org/195570-Friends_of_Mount_Billy_Conservation_Park

Mt. Billy is a park of 199 hectares, situated on the Hindmarsh Tiers Road approximately 10 kms from Victor Harbor towards Myponga. It was proclaimed a park when the land was transferred from SA Water to DEWNR in 1999 and originally served as the adjacent catchment of the Hindmarsh Valley Reservoir which prior to its decommissioning was part of the supply chain of water supply to Victor Harbor.

Hindmarsh Tiers Road Hindmarsh Tiers, SA 5202
Ph. 08 8554 7203 Mob. 0401 993 836
http://www.friendsofparkssa.org.au/members-directory/friends-of-mt-billy

Diuris basaltica
Small Golden Moths Orchid

National Recovery Plan for the Small Golden Moths Orchid (Diuris basaltica)

http://www.environment.gov.au/system/files/resources/24e70d76-62f1-4d12-aed6-0b9895256351/files/diuris-basaltica.pdf

The Small Golden Moths Orchid (*Diuris basaltica)* is a small, yellow deciduous terrestrial orchid endemic to Victoria. Previously locally common in a limited area of the basalt plains to the west of Melbourne, the species has suffered a catastrophic decline in range and abundance, and now survives in just three wild populations containing about 400 plants (almost all plants occur in just one population), with about 200 plants in cultivation.

Major threats include disturbance to and destruction of plants and habitat, grazing, weed invasion and altered fire regimes. *Diuris basaltica* is listed as Endangered under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and Threatened under the Victorian *Flora and Fauna Guarantee Act 1988* (FFG Act).

Description: The Small Golden Moths Orchid (*Diuris basaltica*) D.L. Jones (also known as the Early Golden Moths) (Family Orchidaceae) is a deciduous, perennial, terrestrial orchid emerging annually from an underground tuber. It has 3–7 linear green leaves in a basal tuft, and an erect green flower stem to 15 cm tall, bearing one or two small, nodding, poorly opening, bright golden yellow to orange-yellow flowers to 20 mm wide. The dorsal sepal is ovate and obliquely erect, sometimes with a slightly recurved apex, while the lateral sepals are linear and obliquely deflexed. The petals have an ovate to ovate-elliptic lamina, are incurved and partially overlapped by the labellum. The labellum is flat, broadly ovate to ovate-elliptic and has a deeply and irregularly lobed labellum callus. The species can grow in densely crowded tufts of up to 30 plants, and flowers in September and October (description from Jones 2006). Very little is known of the biology and ecology of D. basaltica. The leaves emerge in late autumn, following the onset of seasonal rains. Flowering occurs in September. By late spring the leaves have shrivelled, and if pollination has occurred, the seed capsule is ripening. Seed dispersal occurs soon after. The species survives the dry summer and early autumn as a dormant tuber that is replaced annually. Reproduction is from seed and vegetative reproduction through tuber multiplication. The pollinators of D. basaltica are probably native halictid bees (Walker 1997), through simple food deception, where the orchid mimics nearby nectar or pollen-bearing flowers, but offers no food reward of its own. Halictid bees are opportunistic in their foraging activities and can gather pollen and nectar from a wide variety of plant species. Seed capsules have been observed on plants at the Rockbank site (Peter Kiernan ANOS pers. comm. 2010), indicating that the pollinator is present and natural pollination is occurring.

Diuris basaltica Image: Banjorah

Distribution: *Diuris basaltica* is endemic to a small area on the Keilor and Werribee plains immediately to the west of Melbourne, stretching from Sydenham in the north to Lara in the south, a distance of about 50 km, in the Victorian Volcanic Plain IBRA bioregion (sensu DEH 2000) (Figure 1). Within this distribution, the species currently occurs at only three locations, at Laverton, Derrimut and Rockbank. Locations will be kept confidential to protect the orchid. Maps showing the general distribution of *D. basaltica* are available from the Department of Sustainability and Environment.

Habitat: *Diuris basaltica* grows in herb-rich native grasslands dominated by Kangaroo Grass (Themeda triandra) on heavy basalt soils, often with embedded basalt boulders. This vegetation is dominated by 4 a ground layer of tussock-forming perennial grasses, with a wide variety of wildflowers and herbs growing among the tussocks. Other species present include wallaby-grasses *Austrodanthonia* species, spear-grasses *Austrostipa* species, tussock-grasses *Poa* species, *Dianella longifolia, D. revoluta, Tricoryne elatior, Pimelea humilis* and *Dichanthium sericeum subsp.*

sericeum. All sites form part of the 'Natural Temperate Grassland of the Victorian Volcanic Plain', which is a critically endangered ecological community under the EPBC Act, and the 'Western (Basalt) Plains Grasslands Community' which is listed as a threatened ecological community under the FFG Act.

Population Information: *Diuris basaltica* is currently known from just three populations. The largest population occurs on private land at Rockbank and contains about 400 plants. Another population containing only five plants occurs in a small reserve at Derrimut managed by Parks Victoria, and the third population occurs on private land at Laverton and contains just two plants.

Decline and Threats: By the early 1990s, *D. basaltica* had disappeared from all of these sites, and just one population was known, occurring in private land at Altona. This population became extinct in the late 1990s when the site was developed for industry, and it was feared that the species was in fact extinct in the wild, with only a few plants surviving in cultivation. Subsequent surveys discovered small populations of *D. basaltica* growing on the site of the former RAAF base at Laverton, at Derrimut and the largest population on private land at Rockbank, all in Melbourne's outer west. The Laverton site has not been resurveyed since the early 2000s, and it is not known if the species still survives there.

Habitat loss, initially for agriculture and subsequently for expanding urban and industrial development in Melbourne's west, has undoubtedly been the major cause for the catastrophic decline in range and abundance of *D. basaltica*. There has been extensive loss of grasslands and grassy woodlands in south-eastern Australia, such that these are now some of Australia's most threatened ecosystems (Kirkpatrick et al. 1995).

There is a high risk of extinction of remaining populations due to the small population size at the two remaining sites, and the highly disjunct distribution of the species. It is possible that some ecological functions such as conditions for the maintenance of pollinator and fungal activity have been adversely affected at these remnant sites. Remaining populations of *D. basaltica* are at risk from a variety of current and potential threats, including:

Disturbance/destruction: Disturbance to or destruction of plants and/or habitat is a major threat to *D. basaltica*. The Laverton site is on private land destined for urban development. The Rockbank site, also on private land, is under increasing threat due to uncontrolled off-road vehicle access to the property, which is a consequence of expanding residential development and greatly increased vehicle traffic in the area.

Grazing/predation: Grazing of plants by European Rabbit, Brown Hare and invertebrates is a threat at all sites.

Weed invasion: All populations are at risk of weed invasion, especially by introduced grasses such as *Nasella* species.

Altered fire regimes: *Diuris basaltica* probably requires periodic fire to reduce accumulation of grasses, especially Kangaroo Grass, which otherwise may suppress growth and/or flowering if grass swards become too dense. Although current sites remain relatively open, the total exclusion of fire risks the sites being eventually becoming crowded out by Kangaroo Grass. However, burning during severe or prolonged drought conditions risks poor post-fire regeneration.

Recovery Information

Existing Conservation Measures: A number of measures have been undertaken for the conservation of *D. basaltica* including:

* Salvage of 25 plants from the Altona site prior to its destruction, for cultivation and propagation. Currently about 200 plants are in cultivation by Zoos Victoria and the Native Orchid Growers Network of the Australasian Native Orchid Society (Victorian group), which provides a source of plants for introduction into secure sites in the wild.

* Fencing of two small areas at the Laverton site for protection as part of development conditions, including where *D. basaltica* grows. However, the sites have no legal status, and are at risk from expanding urban development.

* Commitment by the Victorian Government to protect the Rockbank site as part of the offsets for the expanded urban growth boundaries project to accommodate Melbourne's increasing population. Protection will be achieved by either land purchase or binding management agreement with the land owners.

By slashing environment spending, the government is slashing opportunities

Don Driscoll

Professor in Terrestrial Ecology, Deakin University
THE CONVERSATION
December 18, 2017 6.22am AEDT

Australia's native plants and animals are integral to the success of our society. We depend on wildlife to pollinate many of our crops. Most of our cities depend on effective water catchments to provide clean water. And medical scientists are making important breakthroughs in managing disease and health issues based on discoveries in nature.

The mental health benefits of a "dose of nature" are becoming more widely recognised, on top of our own experiences of having fun and enjoying the natural wonders of national parks. Our nature inspires us in all kinds of ways, and you can build major industries around that; the Great Barrier Reef is reportedly worth A$56 billion to the Australian economy.

It is therefore surprising, on one hand, to read the Australian Conservation Foundation and Wilderness Society budget submission that the Australian government has slashed environmental spending by one third since 2013.

On the other hand, I'm not especially surprised because we ecologists have been living through the ongoing attack on the environment every day. We see how cuts to environmental budgets play out.

Our native species and ecosystems are under growing pressure. Australia's 1.6% annual population growth outstrips many other countries. This is compounded by rises in per-capita consumption and greenhouse emissions.

Escalating consumption translates into growing impacts on biodiversity as more land is released for housing and infrastructure, extractive industries such as mining, recreational and industrial fishing expand and agriculture intensifies.

Climate change further interacts with land clearing associated with producing more for a growing and greedier population. Many species are expected to have to shift their range as the environmental conditions they live in move, and if they can't move because there is no habitat to move through, extinctions will result. State of the Environment reports document the extent of the problem.

This Christmas Island Forest Skink was the last known member of her species. Image: Director of National Parks

For example, between 2011 and 2015, there was a 66% increase in the number of critically endangered animals (from 38 in 2011 to 63 in 2015), and a 28% increase in critically endangered plants (112 in 2011; 143 in 2015). By critically endangered, we mean that extinction is a real possibility in the short term for these species. Immediate action is needed if we are to avoid terminating millions of years of independent evolution, as these biological lineages die out.

Given the extraordinary value of biodiversity and the extreme and growing threats, it would make sense to maximise our spending on biodiversity conservation now, to protect our wildlife through this period of peak human.

Key areas for investment include creating an effective national reserve system, at least meeting the arbitrary international goals of 17% of the land and 10% of the sea area.

Funding is needed to manage the reserve system, containing threats and nurturing already threatened species. Meanwhile, outside of reserves where most of the people live and interact with nature, biodiversity needs to be provided for, and threats need to be managed. Biosecurity is a critical area for funding, particularly to more tightly regulate rogue industries, like horticulture.

Horticulture was recently responsible for introducing myrtle rust, a disease that is devastating many gum-tree relatives, in the family Myrtaceae.

Save our Flora

Finally, climate change demands a strong response, both in mitigation and adaptation.

Science and environment work needs funding

I've never seen so many fantastic, skilled, enthusiastic young ecologists struggling to get a job. At a time when ecologists and conservation scientists are needed more than ever to help solve the problems created by the growth economy, funding for ecology is at a low.

Of course, beyond the people, we see conservation programs in desperate need of support that just isn't forthcoming. Christmas Island is a case in point.

The island's reptiles have been devastated by invasive pests, most likely the wolf snake and perhaps the giant centipede. Two endemic species (species that only lived on Christmas Island) are presumed extinct; the last known forest skink died in 2014.

Two other endemic species are extinct in the wild, but small populations of around 1,000 animals are kept in captivity on the island and at Taronga Zoo.

While ideally a population of at least 5,000 would be maintained to minimise loss of genetic diversity, funding is not available to house that many animals. And it's rock-bottom budget accommodation; Lister's geckos are housed in tents because the budget doesn't stretch to building something permanent.

We've also seen important long term research programs defunded. Long-term data provides crucial insights into how our biodiversity responds to decadal changes in weather patterns as well as longer-term changes caused by the greenhouse effect. It is unimaginable that the government have slashed the Terrestrial Ecosystem Research Network's funding so far that well-established long-term data series are now being compromised.

Ultimately, the environmental funding shortfall needs to be fixed. Our livelihoods and well-being depend on it.

Stand up for our Rivers

The Australian Conservation Foundation is partnering with the Lifeblood Alliance to train community leaders to run campaigns and empower their local communities to advocate for a healthy Murray-Darling Basin.

We're looking to farmers, scientists, Traditional Owners, local businesses and leaders in the Basin to hold the long view, stand up to vested interests and make sure our rivers can keep flowing through our vast dry land.

The 2017 River Fellows are emerging as leaders in their communities and leveraging key moments in the campaign to galvanise local support.

We are now calling for the next group of leaders to step up in 2018 and carry this campaign forward.

What will you learn?

During the Rivers Fellowship, you'll learn **practical skills** to impact policy decisions and shape the public conversation on how to look after the rivers in our Basin.

We will skill you up and **support you to run local campaigns** in your area including community organising, media, mobilising tactics, events, lobbying decision makers and mobilising people in your community to come to Canberra to meet with your elected representatives.

Go to:

https://www.acf.org.au/rivers_fellowship_2018?utm_campaign=1801_mdbfellows&utm_medium=email&utm_source=auscon

NSW Draft Biodiversity Conservation Investment Strategy 2017-2037 (Excerpts from document)

www.environment.nsw.gov.au

Conservation efforts on private land play a vital role in protecting biodiversity, improving landscape connectivity and building resilience to climate change. Voluntary efforts by landholders can help to build a protected area system across public and private land which is representative of the ecological diversity that exists in our state.

To encourage and support conservation efforts on private land, the NSW Government has established the Biodiversity Conservation Trust to deliver a comprehensive private land conservation program. This program is underpinned by government investment of $240 million over five years, with $70 million in ongoing annual funding, subject to performance reviews. This investment will support sustainable farming enterprises and provide opportunities for landholders to diversify their income sources by receiving financial support to protect and manage areas of high environmental value on their properties.

This strategy will guide the Biodiversity Conservation Trust to deliver the government's investment in private land conservation to areas where it will have the greatest conservation benefits. Made under the *Biodiversity Conservation Act 2016*, it aims to optimise biodiversity outcomes at bioregional and state scales and sets the NSW Government's priorities in private land conservation over the next 20 years, from 2017 to 2037.

The strategy identifies priority investment areas that will be the primary focus of government investment in private land conservation. Priority investment areas have been identified on the basis of conservation values and threats to those values in parts of the state that have not met the national 'representativeness' target. Priority investment areas are identified on a subregional basis on a state-wide map in five orders of priority (see Figure 5).

Areas of outstanding biodiversity value, as declared by the Minister for the Environment under the *Biodiversity Conservation Act 2016*, will be automatically prioritised for investment under this strategy. These represent special areas containing irreplaceable biodiversity, such as sites critical for reducing the risk of species extinction.

5-year targets:

By 2022, private land conservation agreements will protect examples of 30 NSW Landscapes* that are either not represented within, or are inadequately protected in, the protected area system in 2017.

By 2022, diversified incomes streams will improve the financial sustainability of participating landholders relative to similar local businesses.

20-year targets:

By 2037, private land conservation agreements will protect examples of 90 NSW Landscapes* which are either not represented within, or are inadequately protected in, the protected area system in 2022.

By 2037, diversified income and investment streams will improve the financial sustainability of regional and rural communities.

What is private land conservation?

In this strategy, private land conservation is defined as:

'Landholders who enter into voluntary agreements to protect and manage their properties (or parts of their properties) for biodiversity conservation outcomes. This may include land that is privately owned and managed as well as Crown Land, which is managed both publicly and privately, such as Travelling Stock Reserves'.

Private land conservation agreements

Three types of private land conservation agreements are established under Part 5 of the *Biodiversity Conservation Act 2016*.

1. **Biodiversity stewardship agreements** – permanent agreements that generate biodiversity credits that may be sold to provide a potential upfront financial return and annual payments to cover the cost of management actions.

2. **Conservation agreements** – permanent or time-bound agreements that will be eligible for stewardship payments.

3. **Wildlife refuge agreements** – entry level agreements that provide a less restrictive option and can be terminated at any time, or converted into higher forms of agreements.

All existing private land conservation agreements that were entered into under previous legislation will remain in place and will continue to operate as if the previous legislation was still in place. There will be opportunities for landholders to convert existing agreements into one of the new types of agreement, however they are under no obligation to do so.

The Biodiversity Conservation Trust

The Biodiversity Conservation Trust is responsible for delivering the government's investment in private land conservation in line with the priorities and principles identified in this strategy.

The Trust administers a statewide private land conservation program focused on supporting landholders who commit to protect and manage high value biodiversity on their properties under voluntary agreements. It may use the government's investment to accelerate participation in the program by offering financial support to landholders – especially in the parts of the state prioritised by this strategy. Further information about the private land conservation program is available on the Biodiversity Conservation Trust website (www.bct.nsw.gov.au)

The Biodiversity Conservation Trust also plays a key role in the delivery of the NSW Biodiversity Offsets Scheme. It is responsible for sourcing biodiversity offsets on behalf of development proponents when they choose to meet an offset obligation by paying into the Biodiversity Conservation Fund.

This will make it easier for proponents to comply with the Biodiversity Offsets Scheme and will enable a more strategic approach to securing offsets across New South Wales. Further information about the Biodiversity Offsets Scheme is available on the Office of Environment and Heritage website (www.environment.nsw.gov.au/biodiversity/ offsetsschem.htm)

While the expenditure of funds generated through the Biodiversity Offsets Scheme will be principally governed by legislated offset trading rules, which specify the geographic location and types of any required offset (with some variations allowed), investment for private land conservation will be guided by the priorities set out in this strategy.

By managing public funding for private land conservation and private offsetting funds from developers, the Trust will be able to deliver strategic benefits, such as establishing larger and more viable protected areas.

Wollomi Pine seed germination

In the previous Bulletin (19) I reported on my Wollomi Pine which had set seed and which I had sown and pre-treated with refrigeration. I'm now pleased to report that the first two seedlings emerged after about 35 days.

Wollomi pine seedlings in punnet of seed raising mix - note discarded seed cases. They ahve now been potted on and are doing well. Image: M. Hitchcock

I've recently learned that the female cones have a short receptive period - you need to feel if they are sticky. Cut off some male catkins, put them in a paper bag and tie it over the female cone. Then shake it to release pollen onto the cone. With luck some of the ovaries will develop fertile seeds. If you have another method please let me know and we'll share it.

Save our Flora

Natural Resources Management (NRM)

Recovery effort for a threatened eucalypt gets a dramatic boost

https://www.nrmsouth.org.au/recovery-effort-threatened-eucalypt-gets-dramatic-boost/ 20/12/2017

Contributed by Friends of the Royal National Park

In early September, NRM South received funding from the Australian Government's Threatened Species Recovery Fund for a multi-partner project to save Tasmania's endemic, and endangered, Morrisby's gum (*Eucalyptus morrisbyi)*. Morrisby's gums have an extremely restricted distribution, and are only known in the wild from two locations in south-eastern Tasmania. The largest population at Calverts Hill Nature Reserve has seen a dramatic and rapid decline, with less than 99% of the 2,000 adult trees surviving and none producing seed. Project partners including the Tasmanian Parks and Wildlife Service, DPIPWE's Threatened Species Section and many other submitted a grant application to create safe havens for the species that would protect juveniles and adult trees at Calverts Hill from browsing pressure, wildfire and competition from weeds, along with re-vegetation works and increasing the genetic diversity of seed bank material.

Following the announcement of the successful funding application, NRM South was contacted by a landholder who was involved with recovery efforts for Morrisby's gum in the 1990s, and who had planted a seed orchard on their property from the Calverts Hill site seed. The site selection for this planting was ideal – a marginal piece of land for agriculture, but perfect for growing eucalypts. The family have been looking after and enjoying the site ever since, and as a result it now holds hundreds of healthy adult trees, many of which are producing seed.This is a game changer for the recovery project as, prior to this discovery, only a few stressed, un-reproductive trees and a small seed collection in the

Eucalyptus morrisbyi Image: Threatened Species Link

Tasmanian Seed Conservation Centre (TSSC) remained of the Calverts Hill provenance. The health and maturity of the established seed orchard has put us at least 15 years ahead in our recovery plan for this species. The project plan has now been adapted to incorporate collection of this new seed stock for seed banking and restoration purposes.

In what was the first of three collections for this planting, a team including staff from NRM South, the Royal Tasmanian Botanical Gardens and pakana Services spent a day in late November collecting seed, marking trees and collecting data at the new site. This seed has now been processed with the majority of it deposited in the TSSC and a selection sown in the Understorey Network nursery for revegetation in 2018.

The trees in this planting will also be analysed by our partners at the University of Tasmania (UTAS) so that an accurate estimate of genetic diversity can be used to inform future seed banking and restoration plantings. We know of over 30 more plantings of the species and our UTAS partners will be getting in touch with landholders over the next year to collect samples and undertake health assessment to further inform recovery efforts for the species. Things are looking up for Morrisby's gum!

Save our Flora

Coorong wetlands bird numbers at record low as algae spreads

ABC News 21/1/18 By Tom Fedorowytsch
http://www.abc.net.au/news/2018-01-21/coorong-wetlands-bird-numbers-low-algae-spreading/9345814

Ecologist David Paton has been counting bird numbers annually since 1985 in the lagoons and wetlands that make up the Coorong system in South Australia, and his latest count concerns him.

His summer survey has confirmed a finding the Murray-Darling Basin Authority came up with last year — that international migratory shorebird numbers in the Coorong and Lower Lakes at the mouth of the Murray are at their lowest recorded levels. The Associate Professor from the University of Adelaide said dense algae had made it difficult for shorebirds and for the vegetation they normally fed on to grow.

"Filamentous green algae has never been here except for the last few years," Dr Paton said.

Black-winged stilts, sharp-tailed sandpipers and red-capped plovers are among species which migrate many thousands of kilometres from China, Korea and Japan to their summer home in Australian wetlands. The Coorong is an internationally recognised Ramsar site, which legally obliges Australia to maintain the habitat. It is five years since the introduction of the Murray-Darling Basin Plan, which is aimed to overcoming decades of mismanagement and reduced water flows down the Murray.

"China and Japan and Republic of Korea would be horrified to think that Australia is just ignoring these international agreements that we've signed with them saying we'll look after the habitats of these shorebirds," Dr Paton said.

"This might not be able to be removed now and it's a great shame. We have these so-called pieces of legislation and both state and federal governments ignore it when it comes to looking after an asset that's this important for migratory shorebirds."

Dr Paton is also pointing the finger at the South East Flows Restoration Project, funded with $60 million of state and federal money, which is channelling drainage water from farms into the southern Coorong.

SA Environment Department head of River Murray operations Andrew Beal said scientific evidence discounted Dr Paton's theory which blamed nutrients from the drains.

"Recent findings by the Adelaide University have concluded that there's a net export of nutrients by introducing that water — it has both a diluting and exporting effect, which in the total scheme of things is a positive thing," Mr Beal said. 'The project was importantly keeping Coorong salinity levels in check and boosting the system when flows from the Murray became too low.

"It will never go back to its original pristine condition, but I think we can have a very healthy Coorong and Lower Lakes, albeit it's going to take time because the condition that the system was in at the end of the millennium drought was severely degraded, Mr Beal said.

The Murray-Darling Basin Authority told the ABC tthe Basin Plan was never going to deliver overnight results, but it remained confident conditions would improve in the Coorong in the years ahead.

"It will take time to turn around long-term trends like this, but the Basin Plan remains our best chance of securing a sustainable future for the Murray-Darling Basin's diverse flora and fauna," an authority spokesperson said.

"By 2019, we are aiming to see populations of key shorebird species maintained." Dr Paton will return to count the birds again next year.

"If there's no way of removing this algae from the system and no way of fixing that water level then I think we seriously have to think about alternative ways in which we can serve our obligation, our international obligation, to migratory shorebirds that come to this country [and] depend on this place for their summer."

AgriFutures Horizon Scholarships

Supporting the next generation of leaders.

About

In partnership with industry sponsors, the AgriFutures Horizon Scholarship is an initiative supporting students enrolled in full time study at an Australian university by providing:

- a bursary of $5000 per year for the first two years of your degree
- professional development workshops
- annual industry work placements aligned with the scholar's areas of interest and their sponsor's industry
- opportunities to network and gain knowledge at a range of industry events

The 2018 AgriFutures Horizon Scholarship brochure contains further information on recent changes to the program, and the benefits students receive.

Eligibility

To be eligible for the Horizon Scholarship, students must be an Australian citizen or permanent resident enrolled full-time in their first year of an agriculture-related degree at an Australian university with a maximum two-year gap between high school and tertiary study.

IN ADDITION, in 2018 there are three additional and unique scholarships on offer, targeting students in their **final two years of study within a financial services discipline with a keen interest in agriculture**. This scholarship is known as the 2018 AgriFutures Horizon Scholarship, sponsored by Westpac. The application process and benefits remain the same for this scholarship.

Suitable degrees include, but are not limited to:

- Agricultural Science
- Rural Science
- Livestock/Animal Science
- Veterinary Science
- Agribusiness
- Plant Science
- Agricultural Economics
- Resource Management
- Sustainability
- Food Security
- Agricultural Economics
- Science, Technology, Engineering or Maths (STEM) with major studies and subject selections relevant to, and aligned with, agriculture
- If applying for the Westpac scholarship, suitable degrees included banking or financial planning disciplines

Scholarship recipients will be selected on the basis of their commitment to a career in agriculture, as well as their leadership potential and high school academic record.

Recipients will be required to attend the workshop (held in the first week of July in 2018), and complete two weeks of work placement each year of the scholarship. Reasonable costs associated with these activities are covered by the program.

How to Apply

Applications for the 2018 AgriFutures Horizon Scholarship open on Monday, 8 January 2018.

To apply for the scholarship, students must personally complete the online application form, which will be live on this website from 9.00am Monday, 8 January 2018. Applications close at 5.00pm AEDT, Friday 23 February 2018.

Before beginning the application process, applicants must read the AgriFutures Horizon Scholarship terms and conditions. You are not required to sign this document as part of your application, but please note that by submitting an application, you will be required to agree to these terms as part of the online application.

Please email horizon@agrifutures.com.au for any scholarship queries. Any enquiries should be made personally by the applicant.

Following a review of all written applications, short-listed applicants will participate in a phone interview with representatives from AgriFutures Australia and Horizon Scholarship sponsors, after which the successful applicants will be selected.

Successful students will be notified in May.

ANPC News

Call for Applications for Research Grants from the Australian Flora Foundation.

These grants are for research into the biology and cultivation of the Australian Flora. The Foundation expects to support between two and four projects at $5000 - $15,000 each per year in 2018 with possible extension into 2019. Preliminary applications (2 A4 pages) will be accepted until 15th March 2018. Short listed applicants will be asked to submit a full application. Further details on the grants can be found here. Information about the Foundation, and examples of grants awarded and their outcomes can be found here.

Rare and tiny yellow orchid deprives Albanian community group of $15m windfall - The Age, 24 November 2017

The threatened Small Golden Moths Orchid (*Diuris basaltica*) is found on land in Melbourne's west which the owners wish to sell for housing but is earmarked for a regional park. A spokesman for the planning department said that the land had extremely high environmental values and had been deemed a conservation area in 2010. The property contains a significant quantity of rare native grassland, and supports a variety of threatened native flora, including some of the last remaining specimens of the Small Golden Moths Orchid. Once common in Melbourne's west, the orchids have fallen victim to the city's expansion, which has now restricted them to a wild population of about 400 plants, all found in and around the land in question. Read more.
See a description of the orchid on p. 4

Abseiling botanists go to great heights to identify rare plants - ABC News, 7 December 2017

Botanists from NSW National Parks and Wildlife have recorded some of the rarest plants in the country along an escarpment within the Gondwana Rainforests of Australia World Heritage area on the New South Wales-Queensland Border. Saving Our Species project officer Justin Mallee discovered nearly 1000 rare green Waxberry (*Gaultheria viricarpa*) in the Limpinwood Nature Reserve whilst undertaking a threatened species assessment down a cliff face. The survey also revealed a thriving colony of Lamington eyebright (*Euphrasia bella*). Mr Mallee said the species was last known as a small population of only five plants, recorded in 1982. The aim of the survey was to document the extent of the populations of the threatened plants, assess their habitat condition, and record potential threats. Mr Mallee said the biggest threat was climate change, due to the plants' location in a fragile, high-altitude environment. Read more.

Lord Howe Island Rodent Eradication Project - May to September 2018

Be a part of this exciting global conservation project on one of the most unique and beautiful places in the world. Experience first-hand the eradication and recovery efforts that will save critically endangered plants and animals. Early bird bookings close 2 February so book now!

Details of Conferences coming up
Go to **http://www.anpc.asn.au**

12th Australasian Plant Conservation Conference (APCC12) - 12 to 16 November 2018, Canberra

2018 Australian Mangrove and Saltmarsh Network Conference - Sydney, 17-20 April 2018

6th South Australian Weeds Conference - Adelaide, 2-3 May 2018

21st Australasian Weeds Conference - Manly, Sydney, 9-12 September 2018

SER Australasia Conference 2018 - Brisbane, 25-28 September 2018

Why Buloke woodland species are failing to regenerate

http://www.nespthreatenedspecies.edu.au/news/the-last-stand-for-threatened-buloke-woodlands-understanding-why-threatened-woodland-species-are-fai
Sat, 21 Oct 2017

The Buloke Woodlands of the Riverina and Murray Darling Depression Bioregions is an Endangered Ecological Community. Cleared over much of their original range to open up land for livestock grazing, the largest remaining remnants now lie inside national parks, but these are highly degraded. Park managers hoped that by removing livestock the Woodlands would regenerate naturally but, so far, this has failed to happen. Dr David Duncan and colleagues at the University of Melbourne have taken on the problem. Here he explains their multi-pronged approach.

Buloke Woodlands (also known as pine-buloke woodlands) are a semi-arid woodland community that occurs in the dune swales and former floodplains of 'mallee' landscapes in South Australia, Victoria and NSW. These relatively fertile swathes of country would have been important habitat for mammal species now regionally extinct such as woylie, red-tailed phascogale, bridled-nail-tailed wallaby, and the dingo. The woodlands were important hunting and foraging grounds for indigenous peoples, and evidence of their presence is frequently revealed by shifting sands.

When pastoralists first encountered the woodlands, they saw promising opportunities for livestock grazing. The woodlands were rapidly cleared or 'opened-up' for pastoralism, converted to freehold, and in places later developed for cropping. Cattle were introduced, bringing pasture weeds, and dingoes were exterminated. Eventually, following a review of public land use by the Land Conservation Council (in Victoria), grazing leases were extinguished and three of the largest Buloke Woodland remnants were incorporated into the Mallee National Parks of North Western Victoria.

The hope was that these large remnants would regenerate, but unfortunately, this has not been the case. Rabbits and kangaroos took advantage of increased grassy pick, goats made use of artificial

Allocasuarina luehmannii (Buloke, Bull Oak)
Image: Woolshed Thurgoona Landcare

water sources, and combined with the absence of dingoes a rapid increase in herbivore numbers resulted. Unfortunately, these changes perpetuated the damaging grazing pressure that the Government had sought to remove.

Parks Victoria aims to promote the natural regeneration of woodland species by managing and monitoring total grazing pressure – the combined impact of native kangaroos and introduced herbivores (primarily rabbits and goats). The exercise marks Parks Victoria's longest continuous park management intervention. This management model, informed and adjusted over time (and with the help of considerable local knowledge and research partnerships), reflects the assumption that if grazing pressure is kept under control then recruitment events will naturally occur. However, although numbers of rabbits and kangaroos have been maintained at around or below target levels for extended periods, the Buloke Woodlands Community has not bounced back.

The Buloke Woodlands Community is experiencing a regeneration crisis. The remaining populations of the dominant tree species, buloke (*Allocasuarina luehmannii*), for which the community is named; belah (*Casuarina pauper*); and slender cypress pine (*Callitris gracilis*) are aging, and there are few seedlings and saplings coming up to take their place. Concern about the future of the community increases with each passing year in which no recruitment of canopy species occurs.

A typical remnant stand of buloke in Wyperfeld NP where seedlings have not appeared in over 50 years. Wooden stakes mark experimentally placed saplings. Photo: Ami Bennett

Unfortunately, it is not the only problem the Buloke Woodlands Community faces; the more palatable shrub and herb species were greatly reduced during the period of pastoralism, and most woodland patches have only a fraction of the native understorey species once present. Missing are important species such as wattles and peas, once common in this community, and the mammals mentioned earlier. Nonetheless, the recruitment of canopy species is fundamental to preserving the structure of the community, and a breakthrough is urgently required to ensure that we are not witnessing the Woodlands' last stand.

Previous research has identified information gaps that need to be filled if managers are to adaptively address the problem, which is where the TSR Hub comes in. Our researchers are undertaking a set of projects to target these knowledge gaps. Here are the key questions we are tackling:

Under what circumstances do seedlings survive to become reproductively mature adults?

In the absence of natural regeneration of the missing tree and shrub elements of the Buloke Woodlands Community, Parks Victoria has undertaken extensive revegetation through direct seeding and replanting of buloke, belah, slender cypress pine, and several species of *Hakea* and *Acacia* amongst others. Past revegetation efforts have had limited success. Consequently, the prognosis for the current plantings is uncertain.

Emily Baldwin, currently undertaking her Masters research, is modelling seedling survival using monitoring data from revegetation projects. Emily's work asks: what level of grazing pressure can seedlings tolerate? Can seedling survival be improved by management interventions such as protective seedling guards?

Dr Ami Bennett is leading a complementary, field experiment focused on hand-planted buloke seedlings. Buloke is the most perplexing case of recruitment failure in the Buloke Woodland Community because the species does recruit readily in other parts of the country. Ami's experiment is testing how herbivore exclusion treatments and landscape position influence the survival of buloke seedlings.

Can native herbivore feeding patterns be forecast from remotely-sensed data?

PhD student Linda Riquelme is looking at how satellite imagery can be used to estimate grass biomass to help Park managers refine their kangaroo management strategy.

One of Park Victoria's most heavily scrutinised management actions is the control of western grey kangaroo populations by culling. Western greys are thought to be the primary native grazer responsible for regeneration failure in this community. Kangaroo numbers are controlled (as are introduced herbivores) so that native seedlings may survive and reach reproductive maturity.

Buloke and pine seedlings are not the favourite food of kangaroos. However, it is believed that when the amount of native grass drops, kangaroos switch to other food sources, like seedlings of buloke, pine, shrubs and forbs. Therefore, managers need to be able to forecast how much grassy forage is available to better target kangaroo control to times when the risk of over-grazing is high.

Putting the pieces together

Each of the above studies targets a particular knowledge gap. Filling these gaps will benefit the management of the Buloke Woodlands Community into the future by providing an evidence base upon which more targeted and cost-effective management decisions can be made.

My job will be to combine new insights from these studies with existing knowledge from previous work to simulate management action and consequence scenarios for the Buloke Woodlands. The models I produce will help identify management priorities in the coming years.

Enhancing regeneration of buloke woodland species has proved a more difficult challenge than I ever imagined. Through targeted field trials, addressing knowledge gaps, and synthesising decades of disconnected work, we hope to contribute to a reversal of the fortunes of the Buloke Woodlands Community.

For further information
david.duncan@unimelb.edu.au

Key messages

- Despite formal protection, the Buloke Woodlands Community is not regenerating
- To help managers, we need to know when and where herbivore grazing pressure threatens seedling survival
- Our approach combines field experiment, field survey, remote sensing and scenario modelling

Further Reading:
http://www.nespthreatenedspecies.edu.au/news/welcome-to-the-community

Some Facebook comments:

David Peacock The University of Adelaide
Look at Bird et al. (2002) for an experiment showing Allocasuarina rabbit tolerance is only 0.5 rabbits/ha. Buloke likely very similar.

Jonathan Starks
I suspect soil health decline is an important factor. The soil biology is no longer functioning properly, resulting in tree health decline and conditions no longer suitable for germination. Combined with intense grazing pressure, weed competition, lower seed set and possibly higher levels of seed consumption by birds/ants/other insects, it's all adding up.

Sylvia Felicity Ann Haworth
Plant wattles and native peas around the surviving trees; plant the seedlings with a wattle as a 'companion'. Is this being tried?

Do you have any ideas?

Send me your ideas or perhaps experiences that we can add to the next Bulletin (Ed.)

Save our Flora

Seed and Cuttings Exchange

Please send all requests directly to the person making the offer or the group email saveourflora@gmail.com
Please follow the correct protocols for requests of seed or cuttings. These are detailed on the next page. Please note that some species are in very short supply and cutting material may be limited.

Maria Hitchcock
16 Hitchcock Lane Armidale NSW 2350
Correa eburnea
Correa calycina
Callistemon pungens
Grevillea wilkinsonii
Zieria adenodonta
Zieria prostrata
Zieria floydii
I also sell some species through my online nursery coolnatives.com.au

Arthur Baker
55 Moran ST Gatton Qld 4343
Gardenia psidiodes
Grevillea quadricauda
Grevillea glossadenia
Eucryphia wilkiei
Graptophyllum ilicifolium
Xanthostemon formosus
Phaius tancarvilleae
Plectranthus nitidus
Zieria prostrata
Grevillea mollis?
Eremophila nivea
Dodonaea rupicola
Xanthostemon arenaris
X verticulutus/seeds or cuttings
Kunzea flavescens
K graniticola
Callistemon pearsonii
Callistemon flavovirens{seeds}
Melaleuca irbyana
Lilaeopsis brisbanica {Water plant}
Hernandia bivalis
Spathoglottis pauliniae {Tropical ground orchid}
Rhododendron Lachiae

Charles Farrugia (email saveourflora@gmail.com)
Eremophila denticulata ssp trisulcata
Eremophila denticulata ssp denticulata
Eremophila nivea (blue form)
Eremophila nivea (white form) - limited.
Eremophila vernicosa – extremely limited

Russell (email saveourflora@gmail.com)
Boronia clavata

Denise & Graeme Krake
752 Warrigal Range Rd. Brogo NSW 2550
Seed of
Hakea dohertyi
Hakea ochroptera
Hakea longiflora
Grevillea maccutcheonii

Geoff & Gwynne Clarke
Grevillea humifusa - cuttings
Angophora robur - seed
Dodonaea crucifolia - cuttings or seed
This was named a couple of years ago by Ian Telford who came down from Armidale to look over our block. Many people were calling it *Dodonaea hirsuta*, but it is not very hairy and has no hairs at all on the fruits. It also grows in a nearby flora reserve. If people would like to try this I can make it available when the material is ready. I have grown it successfully from cuttings, but it does not live long after planting out. It also produces seed and I can collect that after the next flowering (spring fruits). It grows happily around the block, popping up from seed here and there, produces plenty of seed, but it is not long lived even when self sown. Fruits are showy reds.

Bob O'Neill
7 Hillsmeade Drive, Narre Warren South, Vic. 3805
I want to increase our range of Lechenaultias and Correa pulchellas. Can anyone help us out? Both of these groups of plants are doing well for us at Narre Warren South, Vic. I would be delighted to offer cuttings from our range to interested people. Some plants may be available to people who are able to come to our home address.

Paul Kennedy (Leader ANPSA Hakea SG) (email saveourflora@gmail.com)
I have seed of *Hakea dohertyi* and a large plant of *Hakea ochroptera* from which cutting material could be taken. I also have a plant of *Callistemon megalongensis* which has not flowered yet, but cutting material would be available in autumn. The seed originally came from the Melaleuca Study Group seed bank many years ago.

Do you have any EPBC plants growing in your garden with sufficient foliage to share cuttings with our members? Let me know and I'll print it here. It would be easier if we can add your address so that members can contact you directly. Please make sure you follow the protocols on the back page. (Ed)

Save our Flora

Requesting and sending seed by post

Please follow these simple steps.

Make a request

1. Send your request by email first. It will be forwarded to the grower so you can request seed and ask for the address.
2.Send your request enclosing a self-addressed envelope with two 60c stamps attached. Post the envelope.

Send seed

1. When you receive an envelope with a seed request, package up the required seed which includes the name, provenance (if known) and date of collection. Add any tips on germinating the seed and post.

Receiving seed

1. Seed should be stored in paper (small manilla seed packets are best but any cheap envelopes will do) and kept in a cool dark place. Some people use those small paper lolly bags and staple them at the top. Add mothballs if you like. This will prevent insect attack. I save moisture absorbers from medicine bottles and add them to my seed drawer to ensure the seeds do not rot.

Seed life varies according to species. Acacias will last for many years while Flannel Flower needs to be really fresh. Old seed may not germinate and needs to be thrown out. Test some of your seed periodically. It's worth asking seed suppliers for the age of certain species of seed before purchasing.

Requesting and sending cuttings by post

Please follow these simple steps.

Make a request

1. Send your request by email first. It will be forwarded to the grower so you can request cuttings and ask for the address.
2. Purchase an Express Post small satchel for $10.55. it will hold up to 500 gms.
3. Self address your satchel and place it in an envelope with your cuttings request. Add a label/s with the name of the species and sender. Pencil is best for writing on labels.
4. Post the envelope.

Send cuttings

1. When you receive an envelope with a satchel inside, cut about 6 stems of the requested species. The best time to do this is early morning. Store cuttings in the crisper part of the fridge until they are ready to be posted.
2. Wrap the cuttings in damp newspaper and place them in a cliplok plastic bag. Make sure you label each parcel with the names of the species and sender. Squeeze air out of the bag and fasten top.
3. Put the bag in the satchel and post.

Receiving cuttings

1. As soon as you receive your cuttings put the unopened plastic bag in the crisper part of the fridge until you are ready to prepare them.

Group Members

ANPSA Groups
APS Melton Bacchus Marsh Vic
SGAP Ipswich Qld
SGAP Sunshine Coast and Hinterland Qld
APS Echuca Moama Vic
Crommelin Native Arboretum NSW
Swan Reserve Garden Vic

Botanic Gardens and Reserves
Hunter Regional BG NSW
Tamworth Regional BG NSW
Lindum Park Flora and Fauna Res.
Burrendong Arboretum Wellington

Nurseries
Bilby Blooms Binnaway NSW
Cool Natives Armidale NSW
Mole Station Tenterfield NSW
Forest Heart Eco-Nursery SE Qld

Seed Suppliers
Victorian Native Seeds

Study Groups
Acacia SG
Correa SG
Epacris SG
Garden Design SG
Grevillea SG
Hakea SG
Waratah & Flannel Flower SG