

# CONSERVATION

The material on this page has been amended and expanded and now includes some discussion about general conservation and land clearing. It also updates information about legislative changes and some of the projects mentioned in the original 2016 version.

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## 1 INTRODUCTION

Conservation of our native orchid species and their habitat is something to which ANOS Inc. is obliged to give attention. One of the Objects stated in our Constitution is:

“To promote the conservation of Australian and Australasian native orchid species and natural hybrids, and, in particular, to assist in the preservation of those species and natural hybrids in their natural habitat.”

Australia has a higher proportion of orchids than any other temperate region of the world, with over 1,700 species recorded. The majority of these are terrestrial. Yet 25% of global orchid extinctions have occurred on our continent<sup>1</sup>.

The greatest threat to the survival of our native orchids, and all our native wildlife, is us.

“Since European settlement, 13% of Australia’s vegetation has been cleared and converted to other land uses, predominantly agriculture. The extent of loss varies greatly between vegetation types. The greatest real loss of vegetation since European settlement has been in the eucalypt woodlands, which have been reduced by one third, to around 84 million hectares. Each of eucalypt open forests, mallee woodlands and shrublands and other grasslands, herblands, sedgelands and rushlands have suffered a similar proportional loss, from smaller original extents. The greatest proportional losses, to around 60% of their original extent, have been in casuarina forests and woodlands, and low closed forests and tall closed shrublands.”<sup>2</sup>

The vast majority of Australia's native orchids are terrestrial. Where do most of those orchids grow? They grow in mallee woodlands and shrublands and open forests and woodlands.

Australia's epiphytic native orchids occur in the coastal regions in the north of the continent from the Kimberley region of north-east Western Australia across the top of the Northern Territory into Queensland and down the eastern states into Tasmania. They tend to grow in the regions where most of the population lives. They grow on trees and shrubs in various types of forests, often the same forests where terrestrial species grow. They grow in areas humans want to clear of trees in order to grow crops and build roads and houses and schools and shopping centres and entertainment centres and industrial complexes.

## Threatened orchid species

Worldwide, the primary focus of orchid conservation is to protect and preserve those species which are threatened with extinction. This involves identifying and listing the species and the degree to which they are threatened, identifying the processes that are threatening them, and preparing plans stating the actions required to prevent the populations declining further.

## New species recorded

A new *Corybas* species was recently discovered in Western Australia, a new Western Australian *Rhizanthella* (named *Rhizanthella johnstonii*) was found, and a new *Prasophyllum* was discovered in Tasmania.

However, discovering a new species is only the beginning. Once species are discovered and described they need to be studied and monitored. That will be a real challenge for the new *Rhizanthella* since, like its fellow West Australian, *R. gardneri*, this one lives its entire life underground, the tips of its bracts only rarely breaking the surface. Their eastern counterpart, *R. slateri*, has flowering heads which may extend up to 2 cm above the ground yet even those are difficult to find, even when you know where they are.

## 2 HABITAT DESTRUCTION

Orchid species do not exist in isolation, they have complex relationships with other living things as well as specific needs in respect of soil and climate, and they present particular challenges for conservation<sup>3</sup>. Habitat destruction is one of the main threats to the survival of orchid species. Conserving the orchids' habitats is a priority, and that includes conserving the orchids' pollinators and the pollinators' food sources and nesting sites and larval host species, and every other link in the chain. It also involves conserving the mycorrhizal fungi the orchids' seeds need in order to germinate and at other stages of their life cycle. In the case of saprophytic orchids it includes conserving the plants that those orchids get their carbohydrate from through the saprophytic fungi. These complex relationships are not fully understood.

"To conserve orchids effectively, we will need to understand their biology, and this will require further research into areas including pollination, mycorrhizal associations, population genetics and demographics. However, due to the large number of species involved, species-by-species approaches will only be feasible for those species identified as the highest priorities (due, e.g., to phylogenetic distinction, extreme rarity or narrow destruction) or at the greatest risk, and we will need to complement these with broader-scale approaches".<sup>4</sup>

That is a quote from the conclusions in a recent article by Dr Michael Fay, Chair of the IUCN Species Survival Commission's Orchid Specialist Group. Dr Fay went on to note that the broader scale approaches required include habitat conservation, conservation planning for groups of related species or species affected by similar threats or growing in the same area, increased monitoring, and also control of harvest to ensure it is legal and sustainable. He concluded:

"Without such combined approaches, we will not be able to ensure the survival of these charismatic species into the future".

### 3 LAND CLEARING

Land clearing, particularly broad-scale land clearing, has become a significant environmental and political issue once again, and is pitting conservationists against farmers and graziers and state governments and timber getters up and down the country, from Cape York down to New South Wales and on to Gippsland and Tasmania and across to Western Australia and up to the Northern Territory.

The clearing of our native forests often involves clear felling rather than selective logging, and then burning the "waste timber" deemed unsuitable for processing, in preparation for replacing the forest with plantations. Even when the plundered forest is left to regenerate, what grows back is different, but protection of the integrity and essence of the original forests is not the loggers' aim.

#### Queensland

The election of the pro-development Newman government in Queensland in March 2012 by a landslide win in 78 of 89 seats in the State's unicameral parliament led to a period of political decision-making focused on promoting mining and agricultural development over environmental considerations. Broad-scale land-clearing increased again after the decline that followed the changes made during the Beattie years. Under Campbell Newman's government, land clearing laws were weakened and approvals given for clearing of vast tracts of land, including for clearing many hectares of trees so that land previously used for grazing could go under the plough and be used for cropping.

This coincided with the Abbott government's proposals for the development of northern Australia as an "economic powerhouse". Those plans included building roads and infrastructure to support an increasing population, and management of water catchments to facilitate the creation of a northern food bowl. The CSIRO conducted research into the suitability for irrigated agriculture of land in various catchments including the Flinders, Gilbert and Mitchell catchments in Queensland, as well as in Western Australia and the Northern Territory. The White Paper on Developing Northern Australia Overview<sup>5</sup> notes that preliminary analyses of land suitability and water capture and storage options in Queensland's Mitchell Resource Assessment Area alone indicated the ability to support a further 60,000 – 80,000 ha of irrigated agriculture. In an interview with the *Australian Financial Review* in March 2016, Dr Peter Stone, the author of CSIRO's work on the development of northern Australia, said that the opportunities for profitable agribusiness in the region are vast and could be considerably larger still with improvements in dam infrastructure and water allocation. He stated<sup>6</sup>:

"I can tell you how much untapped potential is there – we have identified 1.5 million hectares of potential irrigated agricultural land – but for that resource to be made available there must be regulatory decisions made that actually make that resource base available for developers."

But it is not only to grow irrigated crops that grazing land has been cleared for agriculture. The weakened land clearing laws under the Newman Government assisted landowners who wanted to expand their activities and experiment with growing crops such as feed sorghum, sunflower, chickpeas and upland rice and cotton. In order to do that they had to clear land, and the state government approved applications. Thousands of hectares of forest were felled and trial crops were planted. Trial crops of sorghum, rice, mungbeans, guar, sunnhemp, wheat, chickpea and canola have been grown at Fairview Station, Laura.

In 2015-2016 about 395,000 hectares of woody vegetation were cleared in Queensland, the most for over a decade and a 33% increase on the previous year. The Great Barrier Reef (GBR) catchments had a total woody vegetation clearing rate of 158 000 ha/year. This represented a 45% increase from the previous year, and represented 40% of total statewide woody vegetation clearing for 2015–16<sup>7</sup>.

However, on 31 January 2015 the Newman Government was voted out and Labor was able to form a minority government. A second election in 2017 gave Labor a slim majority which enabled it to pass legislation increasing controls on land clearing, which should reduce the clearing rate... at least until the next change of government.

In its final days, the Newman regime had given a number of controversial land-clearing permits to Cape York landowners, some of which involved land around rivers which flow into the Great Barrier Reef, and the consequences of some of those decisions remain unresolved. The fate of some 2,000 hectares of eucalyptus forest and melaleuca swamplands on Kingvale Station, and that of the endangered species which live there, such as the Golden Shouldered Parrot (Endangered in Queensland and nationally), the Red Goshawk (Endangered in Queensland and Vulnerable nationally) lies in the hands of Federal Environment Minister Josh Frydenberg who is yet to announce his final ruling on the proposal. Kingvale Station is located on land that has a river system which flows directly into Princess Charlotte Bay - an area known for *Dendrobium bigibbum* var. *superbum*. A draft report by the Environment Department recommended approval, but then Prime Minister Malcolm Turnbull made a \$444 million grant to protect the Great Barrier Reef. It will be interesting to see what Mr Frydenberg does about Kingvale.

**(Update 5.11.18:** We have had a change of Prime Minister and Environment Minister since these notes were written in August. The decision now rests with the new Environment Minister, Melissa Price, who was to make a decision by 31 October. However, the Environment Council of Central Queensland, represented by the Environmental Defenders Office of NSW ('NSW EDO'), has commenced proceedings in the Federal Court to challenge the decision of the Minister to assess the environmental impacts of the proposed clearing using the least rigorous assessment method available: 'assessment on referral information'. The challenge is made on the basis it was unlawful to assess the proposal by that method in the circumstances. The Minister is permitted to use that method only if satisfied the proposal meets a number of stringent criteria outlined in the relevant legislation, and the Environment Council of Queensland will argue that those criteria are not met by the proposal. The matter is listed for mention in the Federal Court at Sydney on 27 November 2018: *Environment Council of Central Queensland v. Minister for the Environment & Anor*. Progress about this case, and other work the NSW EDO does, can be followed on their web site: [www.edonsw.org.au](http://www.edonsw.org.au).)

## **New South Wales, Victoria, Tasmania, Western Australia – Regional Forest Agreements**

Each of these states has Regional Forest Agreements (“RFAs”). RFAs are 20 year agreements between state governments and the Federal government that allow for the logging of native forests on public land. They provide an exemption to Federal environmental laws and hand over environmental regulation of logging to state governments, and the environment protection laws vary from state to state.

There are ten RFAs: five in Victoria, three in NSW, and one each in Tasmania and Western Australia. The RFAs were negotiated between 1997 and 2001 and are all expiring soon or have expired.

In August last year, the Tasmanian RFA was extended for another two decades. The NSW agreements will expire next year and are the subject of some heated discussions and submissions at the moment. The three Victorian RFAs which have expired have been extended for short terms to bring them in line with the other two which expire in March 2020, and that state’s environment minister has said that there will be extensive consultation with scientific bodies, industry and the community to modernise the state’s RFA framework. The Western Australian RFA expires in May next year.

There were major flaws in the RFA system. One of its main purposes was to create certainty of supply to the timber industry, however the estimates of available timber soon proved to have been unrealistically high and unsustainable. This has led to the state governments – i.e. the taxpayer – having to compensate timber companies to the tune of millions of dollars and buy back timber allocation contracts for sawlogs the states were unable to provide because those trees do not exist. In one example in NSW in 2014, Minister for Primary Industries, Katrina Hodgkinson, announced the decision to pay Boral \$8.55 million to buy back timber allocations. Similar compensation is being paid in other states.

The inability to meet these contractual obligations due to inflated estimates has led to measures being taken to increase the timber resources available. Proposals for new RFAs in NSW involve increasing the land available for logging, e.g. by remapping high conservation areas and reducing stream buffer areas. Similar situations apply in other states.

## ***New South Wales***

Forestry operations under the RFAs are exempt from State planning laws and the need for environmental impact statements and the requirements of State threatened species legislation, and the Federal *Environment Protection and Biodiversity Conservation Act 1999* do not apply. The concept of Ecologically Sustainable Forest Management (ESFM), incorporating the principles of Ecologically Sustainable Development, was to underpin logging to ensure that logging did not result in negative impacts on forest ecosystems, but conservationists argue that these principles are not being applied.

There are currently obligations to carry out surveys for threatened species such as koalas, and to mark up habitat trees, etc., but only the relevant Ministers have the power to enforce compliance and punish breaches. The RFAs removed public oversight of logging by excluding third parties such as conservation organisations from having the right bring civil actions to challenge the application of the RFAs in court. The proposed new Integrated Forestry Operations Approvals would see increased logging intensity on the North Coast and remove or reduce protections and the need for surveys for threatened species, including koalas. For details of the proposed changes, see Proposed Threatened Species Logging Rules download available on North East Forest Alliance website<sup>8</sup>.

Threatened orchid species affected by the RFAs in the northern part of NSW are *Diuris flavescens*, *Genoplesium insigne* and *Thelymitra* sp. 'Adorata', (all listed as Critically Endangered in NSW); *Dendrobium melalucaphilum*, *Oberonia complanata*, *Corybas dowlingii*, *Diuris disposita*, *Diuris pedunculata*, *Pterostylis gibbosa*, *Caladenia tessellata*, *Chiloglottis anaticeps*, *Diuris arenaria*, *Diuris byronensis* and *Genoplesium baueri* (all listed as Endangered); *Bulbophyllum globuliforme*, *Chiloglottis platyptera*, *Cryptostylis hunteriana*, *Diuris praecox*, *Diuris venosa*, *Oberonia titania*, *Pterostylis cucullata*, *Pterostylis elegans*, *Rhizanthella slateri* and *Sarcochilus weinthalii*, (all listed as Vulnerable). In the southern part of the state: *Genoplesium plumosum*, *Prasophyllum canaliculatum*, *Prasophyllum fuscum*, *Prasophyllum* sp. Majors Creek, *Pterostylis ventricosa*, *Pterostylis vernalis* and *Thelymitra atronitida* (Critically Endangered); *Caladenia tessellata*, *Calochilus pulchellus*, *Diuris aequalis*, *Diuris ochroma*, *Diuris pedunculata*, *Prasophyllum affine* and *Pterostylis gibbosa* (Endangered); *Cryptostylis hunteriana* and *Genoplesium vernalis* (Vulnerable).

## Victoria

The Code of Practice for Timber Production requires forestry operations to comply with Action Statements which are in place in respect of threatened species, but if no action statement has been prepared – which is the case in respect of more than 50% of threatened species – there may be no legal requirement to prevent harm when logging. Further, Action Statements,

“vary in quality, detail, clarity and effectiveness in protecting species. In *MyEnvironment Inc v VicForests*, the Supreme Court of Victoria accepted that the Action Statement prepared for the Leadbeater’s Possum, the species at the centre of the case, was open to interpretation<sup>9</sup>.”

The Greater Glider has been listed as Endangered, but there is still no action statement in respect of that species and therefore the Victorian Government is under no obligation to take it into account when planning logging. Government-owned VicForests is presently carrying out an experiment to see how logging the Greater Glider’s habitat in East Gippsland at different intensities will affect the gliders that live in the trees. When asked if gliders that survived the initial logging would die when VicForests burnt the leftover wood, the company's manager of biodiversity conservation, Tim McBride, said: ‘Yep, that's a very likely outcome’. Professor David Lindenmayer, an expert on greater gliders, has described the experiment as ‘the terrestrial equivalent of so-called “scientific whaling”’<sup>10</sup>.

## Tasmania

The Commonwealth status of the Swift Parrot was raised from Endangered to Critically Endangered in December 2017. These small parrots breed in Tasmania during spring and summer, migrating in the autumn and winter months to south-eastern Australia from Victoria and the eastern parts of South Australia to south-east Queensland. In NSW it mostly occurs on the coast and south west slopes. Following winter they return to Tasmania where they breed from September to January, nesting in old trees with hollows and feeding in forests dominated by Tasmanian Blue Gum, *Eucalyptus globulus*.

There are only 2,000 Swift Parrots remaining in the wild, yet the Tasmanian Government intends to continue to allow clear-felling of the trees where they are known to nest. In a media release in June 2017<sup>11</sup>, BirdLife Tasmania said the Tasmanian Government had signalled its intention to seek renewal of Tasmanian RFA and to accelerate deforestation throughout the state, including the resumption of logging of Swift Parrot breeding habitat on Bruny Island. The release quoted Convenor, Dr Eric Woehler:

“Research indicates that the population of Swift Parrots could decrease by as much as 94% within 16 years as a direct result of forestry activities if they are not stopped immediately” ....“It is imperative that the Tasmanian RFA is not renewed, so that the Commonwealth Government can intervene when necessary to protect all species threatened by forestry operations in Tasmania. If logging is allowed to resume on Bruny Island, it will spell the death knell for the Swift Parrot.”

The Hodgman government currently plans to destroy 20 km of the bird’s critical habitat to build a dam<sup>12</sup>. Dam building is exempt from *Tasmania’s Threatened Species Protection Act 1995*. The Federal Government is powerless to intervene even if it wanted to.

## Western Australia

The same issues described in the other RFA states occur in the west. They are set out succinctly in a January 2017 submission by the WA Forest Alliance on progress with the implementation of the RFA for the South-West Forest Region of Western Australia<sup>13</sup>. The submission stated that the RFA should not be renewed, for three main reasons:

- They do not adequately provide for ecologically sustainable forest management.
- They are not implemented properly. The State has not complied with its obligations and the Commonwealth has not been ensuring that it does.
- They are not legally enforceable by third parties with the result that the forests are falling through the cracks in environmental protection.

The submission also stated that:

- Logging of native forests is environmentally unsustainable and unnecessary as there is currently enough plantation timber to meet industry needs.
- A very small percentage of the wood from native forest logs becomes sawn timber.
- WA native forests are being logged at a loss to taxpayers.

On 15.2.18, the status of Baudin’s Black Cockatoo – a species endemic to south-west WA – was raised from Vulnerable to Endangered under the EPBC Act. The conservation advice<sup>14</sup> tells us that the species nests in the hollows of mature eucalypts, which may be from 200-500 years old before the hollows are large enough for the birds to use. Old growth jarrah-marri forest with suitable hollows now only occur in unconnected stands. Nest hollow shortage is a principal threat to Baudin’s cockatoo. Primary threatening processes resulting in nest hollow shortages include land clearing practices for agriculture, forestry and mining.

Jarrah trees up to 400 years old have been cut down in the Challar Forest, which is an ancient karri and jarrah forest north of Walpole, and forms a link between two parts of the Walpole Wilderness Area. The new *Corybas* species discovered early this year was found in the Walpole Wilderness Area.

## Ancient trees

Some of the trees that are being cut down for logging operations in Gippsland and in Tasmania are over 500 years old. To put that in perspective, consider that when those trees were seedlings in 1518:

Henry VIII was king of England, was still married to Catherine of Aragon, and still a Catholic;  
William Shakespeare would not be born for another 46 years;

It would be nearly 90 years before any European explorer set foot in Australia;  
The paint was barely dry on the Mona Lisa;  
The Aztecs and Incas were still untouched by the Spanish conquistadors;  
The dodo was still happily living on Mauritius and would be safe from Dutch sailors, and the rats and other animals that came with them on their ships, for another 80 years.

In that context the statement<sup>15</sup> made in Parliament by Australia's Assistant Minister for Agriculture and Water Resources, Senator Anne Ruston, in February this year during debate on the Greens' bill to repeal the RFAs, that:

"If you were going to go out and invent the absolutely perfect product – as the big man who invented trees in the first place did – you would invent a tree.

**I'm sure that trees were put on this earth in the very first instance because they were able to be cut down**, because they would grow again and because they would provide a resource for myriad different things – not just for possums and for people to go and look at for a tourism adventure, which, Senator Rice would have you believe, is the only purpose for a tree to be in existence." (Emphasis added)

is breathtaking.

## Other land clearing issues in RFA States

As well as the logging carried out under the RFAs, clearing is undertaken for other government-sanctioned or led purposes, including mining and the building of infrastructure. Each state government also has legislation which controls the way private landholders can clear their land, and those landholders must comply with their jurisdiction's environmental protection legislation and take account of the presence of threatened species and threatened ecological communities.

### *New South Wales*

The NSW Coalition government has indicated it is determined to press forward with the land clearing regime provided for in its Biodiversity Conservation legislation package passed in 2016 which introduced a controversial new scheme for regulating biodiversity and vegetation clearing. The Nature Conservation Council of NSW ("NCC") brought a legal challenge to the *Land Management (Native Vegetation) Code 2017* on the basis that the Minister for Primary Industries failed to obtain the consent of the Minister for the Environment prior to making the code, and also that both Ministers failed to consider certain principles of ecologically sustainable development. Both steps were mandatory preconditions to the lawful exercise of the power to make the Code. Prior to the hearing, the Ministers conceded the first ground and the proceedings were dismissed by consent and the code was declared invalid, but this left the second ground unagitated before the Land and Environment Court and therefore undetermined.

The same day that the Code was declared invalid, the government remade it in an identical form and it came into effect on 10 March 2018. The NCC has lodged another application to challenge the validity of the Code, on the basis of documents received under freedom of information laws which indicate an "apparent failure...of the Minister for the Environment to lawfully discharge her duty to consider the Code's impacts to biodiversity"<sup>16</sup>. These proceedings are pending in the Land and Environment Court.

## The Northern Territory



Clearing for urban, rural and industrial development and sand mining in the Darwin area is a significant threat to a number of species including terrestrial orchids such as *Habenaria rumphii*, listed as Endangered in the Territory. Clearing for mining is a significant activity on Groote Island and on the Gove Peninsula, and clearing for agriculture and horticulture is a threat in the Top End and anywhere that has fertile soils. Epiphytic orchids such as *Thrixspermum congestum* – listed as Vulnerable in the NT – are at risk of dessication if adequate buffers are not provided for in clearing operations causing the opening of the canopy<sup>17</sup>.

There is a landmark test case pending in the Northern Territory Supreme Court challenging the validity of the decision-making process applied in determining the application for a permit to clear more than 20,000 hectares of native vegetation for cattle pasture at Maryfield Station, 200km south of Katherine. The permit was granted in 2017. The proceedings allege that the NT Environment Protection Authority (EPA) and the NT Pastoral Land Board (PLB) failed to take into account principles of ecologically sustainable development and climate change.

## South Australia

Clearance of native vegetation in SA has stabilised and remaining native vegetation is protected by legislation. Less tractable agricultural land often remains largely intact, while land close to settlements or with predictable water availability and fertile soils has been heavily cleared in the past<sup>18</sup>.

## Competing priorities

With state governments seemingly committed to trying to meet unrealistic timber quotas under the RFAs rather than to protecting Endangered and Vulnerable animal species such as the Swift Parrot, the Red Goshawk, the Spotted-Tail Quoll, the Greater Glider, Leadbeater's Possum (Victoria's faunal emblem), and even the iconic koala, the prospects for achieving priority for orchid species – which you cannot eat or sell overseas for large profits – seem slim.

Prime Minister Turnbull has indicated interest in renewing attempts to amend the *Environmental Protection and Biodiversity Conservation Act 1999* to remove the rights given by Section 487. That section allows environmental groups and other third parties to commence legal proceedings to seek judicial review of decisions made by the government in relation to the Act – such as in respect of the Adani Coal Mine project.

## 4 ILLEGAL COLLECTION

Illegal collection of native orchids is one of the main threats to their continued survival in the wild. Vast numbers have been stripped from the bush in years past, and as a direct result of this activity some of our most popular species are now Endangered or Vulnerable:

- *Dendrobium antennatum* – Endangered
- *Dendrobium bigibbum* – Vulnerable
- *Dendrobium johannis* - Vulnerable
- *Dendrobium melaleucaphilum* – Endangered
- *Sarcochilus dilatatus* - Endangered
- *Sarcochilus fitzgeraldii* – Endangered Qld, Vulnerable NSW
- *Sarcochilus hartmannii* – Vulnerable
- *Sarcochilus hirticalcar* – Vulnerable.

All native orchid species, whether or not listed as threatened, are now protected in every Australian state and territory. Each state and territory has legislation which makes this clear and which prescribes penalties for breaches of these laws, and some of the penalties are very severe. Each jurisdiction's rules are slightly different, and it is wise for people to become acquainted with the laws that apply where they live. But, in general, unless you have a permit or licence to take them, or have the benefit of an exclusion under the relevant legislation, it is illegal to take orchids from the wild. And this includes picking up windfall plants from the ground, or taking them from a fallen log. You need to leave them where they are; if wallabies eat them, so be it.

There are many legal sources of Australian native orchids, so the law against taking from the wild is not burdensome.

## **5 THE ROLE OF ANOS INC. AND ITS MEMBERS**

ANOS Inc. is an umbrella organisation for the work that is being done by local ANOS groups. It is important for the ANOS Inc. conservation officer to be aware of the conservation issues across Australasia and their likely impact on native orchids, but that requires input from members. Local issues should initially be reported to the local ANOS group's conservation officer at first instance, and then on to the national conservation officer for attention if appropriate.

All ANOS members should try to be aware of proposed private and government development in their local region. Notices appear in local and national newspapers regarding these developments and also on the websites of state and Federal governments. Within the list of developments seeking approval will be documents relating to an Environmental Impact Statement or a Species Impact Statement. These documents are for public comment and members should read them, as local orchid knowledge is often more detailed than studies by consultants.

If any irregularities are obvious as to the omission of threatened orchids known by locals to occur within a development area, then action should be taken, and the national conservation officer should be notified. It is important that ANOS Council is aware of the issues and we may be able to provide assistance.

Apart from taking action about those issues, ANOS members can be involved at other levels, and many are doing that: some on a small scale, and others on a well-organised larger scale in conjunction with university researchers and government organisations.

## **6 WHAT ANOS MEMBERS CAN DO, AND ARE DOING**

It is axiomatic that in order to conserve an orchid species, we first need to know it exists. The plants need to be located and identified, and their populations and habitats need to be studied and documented, and the threats to the orchids and their habitats must be identified and assessed. Adequate data needs to be available in order for a listing to be considered and a determination made as to its conservation status made. This work is ongoing because populations of threatened species need to be monitored in order to know whether circumstances change and the species' status needs to be reconsidered.

Some of these tasks require specialist scientific knowledge, but not all. Some ANOS members have acquired a high level of specialist knowledge over the years, but even groups and members that are not involved with organised conservation activities can make a valuable contribution.

Most groups have bushwalks. Bushwalking is not only an enjoyable activity but it can involve locating and recording and monitoring the species that occur in your area, which is valuable information in itself and can lead to preparation of a field guide to those species, which ANOS groups have done in the past. Bushwalking can even result in the finding of new species or re-discovering species that were thought to be extinct.

One Victorian species that had been listed as extinct because it had not been seen since 1926 was rediscovered by two orchid enthusiasts – Hans and Christa Korth - in September 2009. This is *Caladenia pumila* (the Dwarf Spider-orchid). Only two plants were found, however those two plants have been given very special attention and have their own comprehensive Action Statement prepared under the *Flora and Fauna Guarantee Act 1988* (Vic.). In November 2011, the species' *Commonwealth Environment Protection and Biodiversity Conservation Act* status was changed from Extinct to Critically Endangered. The species has a team of scientists and volunteers working on observing and caring for the plants in the wild and attempting to pollinate them so additional plants may be reintroduced in future. The volunteers include members of ANOS Victorian Group, in particular Neil Anderton. **UPDATE:** An off-site population has been established and the first flower bud appeared in 2017<sup>19</sup>.

*Diuris fragrantissima* (The Sunshine Diuris) is a species that is Endangered because of changed land-use patterns. It was once common in its range. In 2001, only three plants remained in the wild.<sup>20</sup> There had been previous attempts to reintroduce the species. About 89 plants were planted out in the early 1980s but it is believed they died out by 2001<sup>21</sup>. The species can be propagated successfully but difficulties arise when the plants are reintroduced to their natural habitat. It appears that the orchid grows in association with a narrow taxonomic range of mycorrhizal fungi, and reintroductions are unlikely to succeed unless the right fungi are present at the reintroduction site. The Australian Orchid Foundation is assisting with funding for a number of projects for the DEWLP & Royal Botanic Gardens in respect of *Diuris fragrantissima*, to produce 3,000 plants for reintroduction, and also two further projects for La Trobe University in respect of the mycorrhizal fungi upon which the *Diuris* relies.

Habitat destruction for agriculture, industrial and urban development is the major cause of the decline of this species to virtual extinction, and the two remaining areas that the species occurs in are small, highly fragmented and degraded. The species has many other threats in addition to habitat loss, including the introduced House Mouse, which is thought to have chomped its way through large numbers of this pretty orchid's tubers. It is also threatened by introduced slugs and snails<sup>22</sup>.

In order for orchid species to be reintroduced, it is vital that we be able to grow them in cultivation. Important work in respect of developing and improving propagation methods for terrestrial orchids is being carried out by the Royal Botanic Gardens, Victoria<sup>23</sup>.

## ANOS Victoria Group

ANOS Victoria Group members are actively involved in many conservation activities, and provide volunteer assistance to various bodies including the Royal Botanic Gardens Victoria, the State government, and Parks Victoria. They perform site maintenance and monitoring and other tasks associated with the various species they are observing, and also ongoing work with the species which are the subject of reintroduction projects the Group is involved with. A detailed account of their conservation work can be found in an article by Neil Anderton in the September 2016 issue of *The Orchadian*.

*Diuris fragrantissima* is one example. Maintenance of the current sites, maintaining a population in cultivation and reintroduction of cultivated plants to the wild are important elements of the recovery plan to increase the chances of the species surviving and becoming self-sustaining in the long term. The project is well-documented and information about it can readily be found by internet search. It is a huge and time consuming project and will require long term commitment and attention, and it is not the only species with which the Group is involved.

ANOS Victorian Group has also been involved in the campaign to have feral horses removed from the Alpine regions where they are doing extensive damage to the environment, including to orchid species such as *Prasophyllum niphopedium* (Marsh Leek Orchid), which is restricted to the Alpine areas of Victoria though possibly extending into NSW, and listed as Endangered in Victoria. ANOS Victoria Group members monitored damage, took photographs and made submissions. The Victorian Government's commitment to remove as many as 1,200 horses during the initial three year *Feral Horse Strategic Action Plan* was announced in June 2018. However, at about the same time, the NSW Coalition government voted to extend protection to the brumbies, which potentially undermines Victoria's efforts to reduce their numbers since there is no horse-proof fence along the border.

There are four threatened ecological communities and up to 63 threatened species within Kosciuszko National Park. Threatened species include the now Critically Endangered Southern Corroboree Frog, listed as Endangered in NSW, and Critically Endangered under the EPBC Act and on the IUCN Red List. The EPBC listing advice states that "In NSW trampling by feral horses (*Equus equus*) has caused extensive damage to some breeding sites"<sup>24</sup> There is some irony in the fact that the elevation to Critically Endangered under the EPBC Act in 2013 occurred partly on the basis of information provided by the NSW government!

## ANOS Geelong

Geelong Group members regularly hold field trips and are actively engaged in conservation activities such as field trips searching for *Caladenia pumila*, and maintenance work at *Diuris fragrantissima* and *Diuris basaltica* sites.

## ANOS Kabi Group

Kabi Group has a keen group of orchid amblers who hold monthly field trips.

In 2017 the group was instrumental in protecting a population of *Acianthus amplexicaulis* which was threatened by the activities of the local council. In April it came to the attention of the Group's conservation officer that one of the trails in D'Aguilar National Park was about to be cleared by development work to change the course of the existing trail and provide a wider, smoother, disability-access track. Kabi Group members contacted the Council and, following site visits and discussions, the planned track position was moved and the orchid population protected.

## NOSSA

NOSSA members are also actively engaged in numerous conservation projects such as surveys and monitoring threatened orchids and a program for the propagation and reintroduction of various species. In 2012 they were invited to care for and propagate rescued plants of *Diuris behrii* - a species said to have suffered one of the most significant declines of any orchid species in that state - from a mining lease in the Mt Lofty Ranges with a view to producing additional plants for annual reintroduction of plants to the property from which they came. A comprehensive plan was put into

action which included tracking each clone and any seed/daughter tubers produced. By August 2015 there were 609 plants with 75 original mother plants, and a total of 285 daughter plants were returned to the site over 2014, 2015 and 2016.

A program to propagate plants of *Pterostylis arenicola* was also commenced in 2012, collecting and germinating seed from the only population on the Adelaide Plains. *P. arenicola* is a species endemic to South Australia and listed as Vulnerable nationally and in South Australia. Some success was achieved and those plants will be used for seed production and for reintroduction.

Information about these and other activities NOSSA members are engaged in is available on their web site, which also contains a wealth of other information and photographs: <https://nossa.org.au/>

### **Wild Orchid Watch**

NOSSA members initiated a project called Wild Orchid Watch, “a major citizen science initiative using digital technologies”<sup>25</sup>. It is managed by the University of Adelaide and received grant funding from the Australian Government through its citizen science grant program. It is intended that the program will be an online service which will allow users access to tools for identifying orchid species and sharing information on orchids and their habitats, and maintenance of records of populations of orchids in the wild. The database is to be available for access by different types of users, for different purposes. It is intended that it will be publicly released in 2020.

For more information about Wild Orchid Watch and opportunities to be involved, visit its web site: [www.wildorchidwatch.org](http://www.wildorchidwatch.org).

## **7 WHAT OTHER LIKE-MINDED ORGANISATIONS ARE DOING**

### **WANOSCG**

The Western Australian Native Orchid Study and Conservation Group is aptly named. It holds regular organised field trips to study and survey orchids, and relocate populations when they are threatened by development. The Group has numerous conservation projects underway. Members continue to report matters of concern and provide support to the Group’s conservation officer. The Group constantly monitors clearing notices and makes submissions when orchid populations are threatened by planned clearing, and they monitor clearing activities.

One member identified a large population of about 800 plants of the fascinating *Drakaea elastica* (Glossy Hammer-orchid). The Group funded a grant to obtain steel cages to be installed to protect the plants from rabbits and kangaroos. *Drakaea elastica* is listed as Endangered under the Commonwealth’s EPBC Act and Critically Endangered in WA and is an extraordinary orchid, and the subject of an article of mine in *The Orchadian* in March 2017.

WANOSCG is also involved with a project for off-site propagation of *Thelymitra variegata* (Queen of Sheba) under the initiative of Dr Kingsley Dixon.

### **The ADORP Project**

WANOSCG is collaborating with the W.A. Department of Biodiversity, Conservation and Attractions (“DBCA”) in the Adopt an Orchid Project (ADORP), details of which are contained in an article by Andrew Brown in the March 2018 issue of *The Orchadian* (and also available to download<sup>26</sup>).

The project involves assisting DBCA obtain population, threat and survey information for the various priority species, of which there are about 66, and which are ranked in five categories. They are species which are rare or threatened but cannot be declared as threatened until proper assessments have been undertaken. Members adopt a species or group of species to work with, and WANOSCG co-ordinators, in co-operation with DBCA staff, manage small groups of volunteers who collect information for their adopted species as a source of data to assist Parks and Wildlife to better understand the orchids' conservation status in order that further recovery actions may be taken as appropriate.

## Australian Network for Plant Conservation

In 2014, the Australian Network for Plant Conservation (ANPC) established an Orchid Conservation Program in partnership with the Royal Botanic Gardens, Melbourne, with the aim of saving South East Australia's unique and threatened orchids.

'The resulting program is now the largest of its type in the world. With our partner organisations we have undertaken over 50 reintroductions of over 20 species of endangered native orchids across Victoria, New South Wales and South Australia'<sup>27</sup>.

There is also a project to conserve *Caladenia hastata* (Melblom's Spider Orchid). The species is currently listed as Endangered under the EPBC Act. This project has private funding and the Royal Botanic Gardens Victoria and the ANU are also partnered in the project. Its aim is to reintroduce the species to three sites in far south-west of Victoria, with a long term aim of reducing its listing to Vulnerable.

For more information about the work being carried out under the collaboration, visit the ANPC web site: <http://www.anpc.asn.au/orchids> and the Royal Botanic Gardens, Melbourne, web site <https://www.rbg.vic.gov.au/science/projects/orchid-conservation>.

ANPC is working with Parks Victoria to undertake weed control to support the National Recovery Plan for *Thelymitra epipactoides* (Metallic Sun-Orchid) and *Caladenia lowanensis* (Wimmera Spider-Orchid), both species listed as Endangered nationally and in Victoria:  
[http://www.anpc.asn.au/Orchid\\_Conservation\\_Program/Communities\\_for\\_Nature](http://www.anpc.asn.au/Orchid_Conservation_Program/Communities_for_Nature)

## Threatened Plants Tasmania

This is not an orchid-specific organisation but its volunteers include orchid enthusiasts and TPT members regularly carry out orchid population surveying and monitoring activities, for example with *Prasophyllum abblittiorum*. In 2012 the Abblit family discovered a distinctive new species of *Prasophyllum*. Over the next few years TPT members assisted with surveys and collecting data and discovered a second population about 7km from the original find. The new species was described in late 2017.

## 8 THE IUCN RED LIST

The stated goal of the IUCN Red List of Threatened Species is to provide information and analyses on the status, trends and threats to species in order to inform and catalyse action for biodiversity conservation.<sup>28</sup>

The Red List Categories and Criteria are comprehensive and can be found here:  
[http://www.iucnredlist.org/static/categories\\_criteria\\_3\\_1](http://www.iucnredlist.org/static/categories_criteria_3_1)

The Red List categories are:

- Extinct
- Extinct in the Wild
- Critically Endangered
- Endangered
- Vulnerable
- Near Threatened
- Least Concern
- Data Deficient
- Not evaluated

At the present time only 34 Australian native orchid species are on the IUCN Red List. Of those, 29 have been assessed as Least Concern.

Three of the other five species have been assessed as being Critically Endangered and having decreasing populations: *Corybas dienemus* (Windswept Helmet Orchid, endemic to Macquarie Island), *Diuris byronensis* (Byron Bay Donkey Orchid, endemic to the vicinity of Byron Bay in northeast NSW), and *Prasophyllum favonium* (Western Leek Orchid, endemic to Tasmania). The other two are *Caladenia dundasiae* (Patricia's Spider Orchid or Dundas Spider Orchid, endemic to a small region around Watheroo, WA) and *Cheirostylis notialis* (the Southern Fleshy Jewel Orchid, endemic to southeastern Queensland and northeastern New South Wales) - both assessed as Vulnerable.

It should be noted that Red List assessments consider the abundance of a species globally, not just in Australia or in a particular state or territory. Thus, *Vanda hindsii*, which is listed as Vulnerable nationally and in Queensland, is Least Concern in the Red List. A significant factor noted in the assessment was that although it is highly localised in Queensland, it is reported to be widespread and common throughout Papua New Guinea. Similarly, *Sarcochilus falcatus*, which is listed as Endangered under the Victorian Advisory List, and listed under the *Flora and Fauna Guarantee Act 1988*, but which is noted in the Red List assessment as being most common *Sarcochilus* species of Australia, is listed as Least Concern on the Red List.

The Red List can be searched here: <http://www.iucnredlist.org/search>

## 9 AUSTRALIAN LEGISLATION

The Commonwealth Government and each of the states and territories have legislation which deals with conservation of biodiversity and the listing of threatened species, and which provide for assessment of nominations by a Scientific Committee and for the preparation of action plans or recovery plans in respect of the listed species.

Each of the pieces of Commonwealth and state or territory legislation in Australia uses at least some of the IUCN Red List categories, though the definitions and criteria vary, sometimes significantly.

All the relevant legislation is accessible on the internet, and some of the government departments have comprehensive and very useful sites.

- The relevant Commonwealth legislation is the *Environment and Biodiversity Conservation Act 1999*, administered by the Department of the Environment and Energy.  
<https://www.environment.gov.au>

- The ACT has the *Nature Conservation Act 2014*, administered by the Environment, Planning and Sustainable Development Directorate. <http://www.environment.act.gov.au/>
- The Northern Territory has the *Territory Parks and Wildlife Conservation Act*, administered by the Department of Environment and Natural Resources. <https://denr.nt.gov.au>
- Queensland has the *Nature Conservation Act 1992*, administered by the Department of Environment and Heritage Protection. <https://www.ehp.qld.gov.au>
- New South Wales now has the *Biodiversity Conservation Act 2016*, administered by the Office of Environment & Heritage. <http://www.environment.nsw.gov.au/>
- Victoria has the *Flora and Fauna Guarantee Act 1998*, administered by the Department of Environment, Land, Water and Planning. The Department also has a separate system of Advisory Lists of threatened species. <http://environment.vic.gov.au/conserving-threatened-species/threatened-species-advisory-lists>
- Tasmania has the Threatened Species Protection Act 1995, administered by the Department of Primary Industries, Parks, Water and Environment. <http://dpiuwe.tas.gov.au/>
- South Australia has the *National Parks and Wildlife Act 1972*, administered by the Department of Environment and Water. <http://www.environment.sa.gov.au/Home>
- Western Australia still has the *Wildlife Conservation Act 1950* but it is gradually being replaced by the *Biodiversity Conservation Act 2016*. (Yes, it has the same name as the NSW Act.) The legislation is administered by the Department of Biodiversity, Conservation and Attractions. <https://www.dpaw.wa.gov.au/>

## 10 AUSTRALIAN NATIVE SPECIES LISTED AS THREATENED

Approximately 750 Australian native orchid species are currently listed either on the IUCN Red List or one of the Australian threatened species lists. (A schedule of all species included in the various lists is under preparation.)

## 11 THREATENING PROCESSES

The threats to our remaining orchid populations vary from region to region, and from species to species. The range of threats is broad and can include:

- Clearing of forests for urban development, road-building or agricultural purposes, and by government-sanctioned commercial activities
- Grazing
- Overcollection by orchid enthusiasts
- Alteration of habitat by salination
- Altered fire regimes
- Encroachment of weed species
- Spread of disease such as *Phytophthora* which affect other plants in the vegetation communities the orchids require to thrive
- Feral animals such as rabbits, pigs and goats, which eat or disturb the plants
- Activities which affect the populations of pollinating insects

## 12 INTERNATIONAL INITIATIVES

### The IUCN SSC OSG

The Orchid Specialist Group (OSG) of the Species Survival Commission (SSC) of the International Union for Conservation of Nature (IUCN) is an international network of professional and non-



professional volunteers who are committed to the conservation and sustainable utilisation of orchid species and their habitats.

The OSG was established in 1984. Its stated mission is to assist in international efforts to conserve plant diversity, by providing technical support and encouragement for the development and execution of programmes to study, document, save, restore and manage orchids and their habitats widely. The OSC has regular newsletters which are linked on its web site:

<https://www.iucn.org/species/ssc-specialist-groups/about/ssc-specialist-groups-and-red-list-authorities-directory-7> \_Look out for the October 2018 newsletter which should be available on the web site soon.

The text of the final form of the Resolution decided upon in the final session of the 6<sup>th</sup> International Orchid Conservation Congress (“Orchid Conservation – Bridging the Gap Between Science and Practice”) held in Hong Kong on May 2016, as posted by Michael Fay, the current Chair of the IUCN SSC Orchid Specialist Group, on the OSG Facebook page, is as follows:

### “Resolutions

Orchids are a flagship plant group with a high profile in human culture. They are known from all vegetated continents on earth but their occurrence reflects patterns in the global distribution of biodiversity and their intricate ecological associations, particularly with pollinators and mycorrhizal fungi, reflect sensitive ecosystem processes. Accordingly, orchids are indicators of ecosystem and climate health. Many orchids and their associated biota have been exposed to a variety of threats as a direct consequence of human-driven global change, with almost half of the ca. 27,000 known species now potentially at risk of extinction. Delegates of the IOCC support all efforts to research and mitigate these threats and secure environments on which orchids depend, and are committed to achieving meaningful conservation by recommending that:

1. The creation of orchid enhanced habitats is a priority for ecological restoration.
2. Enhanced *in situ* orchid protection requires the creation of orchid reserves. These will benefit a wide array of other species and biological communities and can be financed through various public and private sources.
3. The international and domestic unsustainable wild plant trade is widely recognised by governments and civil society as a major threat to the persistence of many orchid species, and that its curtailment requires concerted government monitoring and enforcement, while strengthening pathways for sustainable legal trade.
4. The propagation and cultivation of threatened orchids by small and local orchid enterprises should be supported for the sustainable production of orchids used in horticulture, medicine and food, in ways that ensure wild populations are not negatively impacted.
5. Orchid cultivation should be licensed and audited by government or other government-approved body through a national (or international) accreditation scheme that specifies adequate safeguards to ensure best practice. Propagated orchids should be traceable and distinguishable from wild orchids so as to minimise the risk of laundering wild plants.
6. National, regional and international networks should be established and strengthened for promoting *in situ* and *ex situ* orchid conservation.
7. The next generation of orchid taxonomists, ecologists and conservationists is nurtured through improved training, education, publicity and awareness-raising programmes.
8. Members shall strengthen the work of OSG by:
  - Facilitating and conducting national and global Red Listing of orchids, and contributing to the Sampled Red List Index (SRLI);

- Monitoring and reporting on the illegal trade in orchids to national enforcement agencies and to TRAFFIC;
- Reviving Orchid Conservation International as a vehicle for web-based education and channelling funding to orchid conservation programmes, along the lines of Birdlife International;
- Embracing social media and other web-based interactive tools as dynamic and effective means of stimulating communication, raising awareness and building networks;
- Using citizen science as an effective means of motivating individuals and amateur groups to record orchid occurrence (e.g. OrchidMap, iNaturalist) and help scale-up the collection of verifiable data;
- Establishing and maintaining a global database of orchid reintroductions (including both successes and failures) and *ex situ* orchid collections that can be accessed and updated by members and which is linked to the IUCN Reintroduction Specialist Group;
- Creating new sub-groups focusing on trade and molecular identification, to reflect important cross-cutting themes and challenges.”

## 13 AUSTRALIAN COMMONWEALTH GOVERNMENT INITIATIVES

### Biodiversity Conservation Strategy 2010-2030

This Strategy was expressed to be a national framework guiding the biodiversity conservation policy and programmes of the Commonwealth, States and Territories. It is also an Action Plan under the United Nations’ Convention on Biological Diversity, to which Australia is a party.

The Strategy provided for a review every five years. The review of the first five years of its operation was conducted by the Australian Government, state and territory governments, and the Australian Local Government Association. The review examined the operation and national implementation of the Strategy since its establishment, its ability to deliver Australia’s international biodiversity-related commitments, and opportunities for improvement. It was found that<sup>29</sup>:

1. The Strategy did not engage, guide, or communicate its objectives to all audiences in a useful way.
2. The Strategy is too focused on preventing the loss of biodiversity in natural terrestrial environments and does not consider biodiversity contributions across all landscapes.
3. The Strategy has not effectively influenced biodiversity conservation activities.
4. Alignment of the Strategy with the Convention on Biological Diversity, and other related international obligations, could be enhanced.

The review recommended that the Strategy be revised, and during 2017 a working group of officials from Australian, state and territory governments, and the Australian Local Government Association worked together to prepare a revised Strategy. A draft entitled *Australia’s Strategy for nature 2018-2030 – Australia’s Biodiversity Conservation Strategy and Action Inventory*, was prepared and can be found at <https://www.environment.gov.au/system/files/consultations/4601b513-c4dc-4bc1-808a-b8cfa0755b3b/files/strategy-nature-draft.pdf>. The final form of the revised strategy is not yet available.

The draft revised Strategy has three goals, underpinned by twelve objectives. The goals are:

- Goal 1 – Connect all Australians with Nature

- Goal 2 – Care for nature in all its diversity
- Goal 3 – Build and share knowledge

The draft strategy concludes with various suggestions as to how to achieve these goals, and lists a number of supporting principles, the first of which is that:

- **Individual actions, both big and small, can make a difference**

which is a useful message for ANOS members to take on board.

## Threatened Species Strategy

In July 2015 the Minister for the Environment released a Threatened Species Strategy, “a plan for how we will prioritise effort and work in partnership with the community and state and territory governments over the next five years”. That Strategy includes the 30 plants by 2020 initiative aimed at improving the trajectories of 30 threatened plants by 2020. Those 30 plants include four orchid species:

- *Oberonia attenuata* (Mossman Fairy Orchid - Queensland)
- *Prasophyllum murfettii* (Fleurieu Leek Orchid – South Australia)
- *Thelymitra cyanipicata* (Blue Top Sun-orchid – South Australia)
- *Drakaea elastica* (Glossy-leafed Hammer-orchid – South-west Western Australia)

Information about the Strategy and each of these orchids can be found at:

<http://www.environment.gov.au/biodiversity/threatened/species/30-plants-by-2020>

## Threatened Species Commissioner

In 2014 the Abbott government appointed a Threatened Species Commissioner, intended to bring a new national focus and effort to secure our threatened flora and fauna. Gregory Andrews was the first Commissioner, and he delivered a first report to the Environment Minister in 2015. The progress report covering the period July 2016 to December 2017 was delivered by the second Commissioner, Dr Sally Box, who was appointed in 2017, but it makes no specific mention of any of the four priority orchid species.

## The Coalition’s Policy to Protect Australia’s Threatened Species and the Threatened Species Recovery Fund

In a document issued in June 2016, shortly before the last Federal election, the Coalition released a statement of its policy to protect Australia’s threatened species<sup>30</sup>. The policy recognised that our high rate of species extinction is unacceptable and is a problem that requires a fresh approach<sup>31</sup>. Amongst other things, it promised that if elected it would establish a Threatened Species Recovery Fund of \$5 million to support community-led work to protect our unique wildlife. Details of projects to which funding has been allocated are available on the Fund’s web page, but none of the funding has been directed to orchid species.

## 14 STATE AND TERRITORY GOVERNMENT INITIATIVES

### New South Wales

## *Saving Our Species*

The NSW government has a program they call **Saving our Species** which is their statewide program aimed at securing threatened plants and animals in the wild in NSW. The government has pledged \$100 million over five years. The program brochure can be downloaded here:

<https://www.environment.nsw.gov.au/topics/animals-and-plants/threatened-species/saving-our-species-program>

The objectives of the program are stated to be:

to maximise the number of threatened species that can survive securely in the wild in NSW  
to control key threats facing our threatened plants and animals.

The program recognises the importance of volunteers and invites community participation.

## *Citizen Science Volunteering*

The Office of Environment and Heritage invites expressions of interest from people who would like to participate in citizen science projects, including survey work associated with saving threatened species, and the **Saving our Species** program. Their web site can be found at

<https://www.environment.nsw.gov.au/research-and-publications/your-research/citizen-science>

Roslyn Capell  
ANOS Inc. Conservation Officer  
19 August 2018 (updated 5.11.18)

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28

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