



watsnu

Species and Communities Branch newsletter for species and ecological communities conservation
June 2012 Volume 18, Issue 1

Volunteer surveys for *Caladenia cristata*

By Andrew Brown

As part of the Adopt an Orchid project a dedicated group of volunteers from the West Australian Native Orchid Study and Conservation Group (WANOSCG) undertook comprehensive monitoring and surveys over a two-month period in 2011 to ascertain the current conservation status of the priority 1 (P1) species *Caladenia cristata*. The aims of the project were to:

- locate and survey known populations of the target orchid
- learn about its preferred habitat
- locate new populations
- identify actual and potential threats
- suggest conservation measures.

The species was first collected in September 1895 and named in 1923 from specimens collected the same year. A further collection was made in 1932 after which the species was not seen again until rediscovered in the Miling area in September 1986.

Following its rediscovery the species was listed as threatened flora but as substantial new populations were found near Three Springs in September 1991, it was subsequently down-listed to P1.

The orchid occurs in mostly small areas of remnant vegetation on gradual slopes and sandy rises encircling saline lakes and flats. Historically eight populations were known but, with the exception of those in the Three Springs area, most were small and rising salinity has decimated much of their habitat. Even the area of the Three Springs population has reduced dramatically in recent years.

As it was not known how many of these populations were still surviving, previously known sites between Coorow and Miling were visited by volunteers in August and September 2011. During these surveys all known habitat and some nearby areas of similar habitat were searched.

The species was located at three of the six previously known sites searched and a total of 932 flowering plants found. This sounds like a lot but 867 of them were in the one location with 38 and 27 found at the other two. No plants were located at three sites and it was noted that the habitat in these areas was highly degraded.

Two populations on private property were not surveyed in 2011 but with permission of the landholder it is hoped that these will be looked at in 2012.

Significantly, a new population of 35 flowering plants was located near Damboring.

Threats noted for current populations include rising salinity, grazing by rabbits and goats, weeds, degraded habitat and small population size.

Some 80 person hours were spent doing the surveys, a monumental effort conducted by volunteers at their own time and expense.

For more information contact Andrew on (08) 9334 0122 or email andrew.brown@dec.wa.gov.au.

Inside this issue

Volunteer surveys for *Caladenia cristata*.....1

The colours of rakali: fur for thought.....2

Claypans listed.....2 to 3

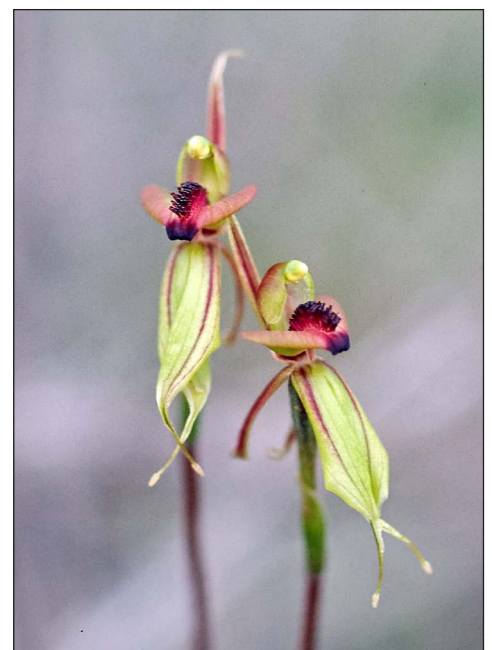
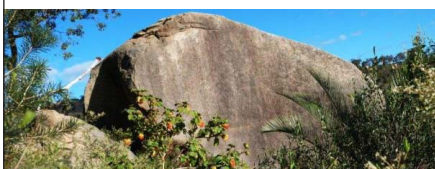
Protecting claypans with covenants.....3

University students assist conservation.....4

Protecting the habitat of the rare native wild rose.....4

Symposium to discuss stromatolite conservation.....5

Recent changes to WA threatened species lists.....6 to 7



Above and left *Caladenia cristata*.

Photos – Andrew Brown

The colours of rakali: fur for thought

By Karen Bettink



Rakali or native water rat (*Hydromys chrysogaster*) is a widely distributed native species present in wetlands and waterbodies in every Australian state. While now a protected species and priority 4 in WA, in the past they were hunted intensively for their prized soft pelts. There were previously 14 subtaxa recognised; largely distinguished by morphological differences and particularly fur colour. However, at present they are only recognised by the one scientific name.

'*Hydromys*' literally translates to 'water mouse' and '*chrysogaster*' means 'orange or golden-bellied'. These rich golden-bellied forms are seen in South Australia and the eastern states and are in stark contrast with WA animals which have pale silver-grey underside fur. Researcher Penny Olsen observed that the more richly coloured the underside of the animal the more aggressive they were, and linked this to territorialism where animals were in high abundance. Genetic differences and

purported low abundance of animals in WA may be reasons we do not see the golden forms.

Variation in the length of the characteristic white tail tip is also an interesting issue; eastern states animals seemingly have up to five times proportionally longer tips than their western counterparts. If this is the case, it may also be related to abundance and territory. Analysis of museum specimens and further survey will help to uncover if this difference actually exists.

Within WA populations, there also appears to be differences in dorsal or upper-side fur colour across different regions and habitat types. For example, animals in tannin peat-filled wetlands on the Swan Coastal Plain are dark-grey to almost black, compared to pale silver-grey animals found on beaches on north-west coastal sites. This may be a habitat adaptation to avoid predation.

It is hoped that ecological and genetic studies undertaken by The University of



Left Example of orange-bellied colouring, NSW museum.

Top Northwest rakali, grey form.

Above Northwest rakali swimming in a creek.

Photos – Karen Bettink

Western Australia and the Department of Environment and Conservation (DEC) will help determine underlying differences between east and west populations and go some way to explaining the morphologically differences observed.

For more information contact Karen on (08) 9423 2904 or email karen.bettink@dec.wa.gov.au.

Claypans listed

By Jill Pryde

The 'Claypans of the Swan Coastal Plain' threatened ecological community (TEC) was listed under the Australian Government's *Environment Protection and Biodiversity Conservation Act 1999* on 27 March 2012.

The claypans include the four Swan Coastal Plain communities that are listed TECs in Western Australia:

- Herb rich saline shrublands in clay pans ('Community type 7') – ranked vulnerable
- Herb rich shrublands in clay pans ('Community type 8') – ranked vulnerable
- Dense shrublands on clay flats ('Community type 9') – ranked vulnerable
- Shrublands on dry clay flats ('Community type 10a') – ranked endangered.



Above Occurrence of 'shrublands on dry clay flats' community. Photo – Jill Pryde

The Commonwealth-listed claypan community also includes the priority 1 community, 'Claypans with shrubs over herbs'. This community type extends beyond the Swan Coastal Plain with occurrences in Drummond Nature Reserve near Bolgart, near Lancelin and two reserves in the Kojonup area.

The heavy soils of the claypans hold surface water and are wet or under water in the wetter months. The claypans generally occur in low lying areas that have relatively productive agricultural soils and many were cleared and drained soon after settlement. Other areas were mined for clay for brick and tile manufacture.

The clay pans have very high species richness, a number of local endemics and are the most diverse of the Swan Coastal Plain wetlands. They produce a sequence of floral displays for over three months.

Right Occurrence of 'herb rich saline shrublands in clay pans' community. Photo – Val English

Claypans that remained intact were largely located on the Swan Coastal Plain in close proximity to metropolitan Perth. In more recent years large areas have disappeared under urban development and today the plant communities of the claypan wetlands are among the most threatened in WA.

EPBC website link: www.environment.gov.au/cgi-bin/sprat/public/publicshowcommunity.pl?id=121&status=Critically+Endangered.

For more information contact Jill on (08) 9334 0263 or email jill.pryde@dec.wa.gov.au.



Protecting claypans with covenants

By Lei Zhang

In early February 2012, staff from DEC's Species and Communities Branch were invited to visit a property in the Wilga area. The site has high conservation value and the diverse vegetation types provide a habitat for an array of fauna, from the large Gould's monitors to tiny bleating froglets. The landowners recognised its importance and were seeking a long-term option to protect their bushland, in particular, the priority 1 claypan community.

After further discussion, the landowners decided to seek a covenant with DEC's Nature Conservation Covenant Program, ensuring the site's protection and management in perpetuity; a feature that the landowners were particularly interested in.

The perched claypan, together with the riparian vegetation, covers about seven hectares. This area consists of

dense shrublands of robin redbreast bush (*Melaleuca lateritia*) over herbs and grasses and riparian vegetation of open flooded gum (*Eucalyptus rudis*)/paper bark (*Melaleuca preissiana*) woodland, with scattered stands of jarrah (*E. marginata*) and marri (*Corymbia calophylla*) which appears to be the remnants of a jarrah-marri woodland.

When inundated, local fauna make use of the water source, but as the wetland dries, the vegetation becomes exposed, and opportunistic western grey kangaroos and western brush wallabies are often found grazing on fresh shoots. However, in recent years, over grazing has become a significant challenge for this site. Fortunately, with discussion with the covenant staff, opportunities to fence off the claypan

community were made available. This will help reduce grazing by kangaroos, as well as help prevent rabbits and stock from accessing the bushland over time and enable it to slowly recover.

Other management issues include inappropriate fire regimes, introduced animals including foxes, rabbits and feral cats, and weed incursion from the paddocks. As part of the program, landowners are offered financial and management assistance to deal with such issues and other threatening processes that may impact the conservation values of this site. Stewardship visits will also assist in protecting the site.

For more information contact Lei on (08) 9334 0570 or email lei.zhang@dec.wa.gov.au.



Above *Melaleuca lateritia* is dominant throughout the claypan. **Above right** A bleating froglet (*Crinia pseudinsignifera*) on the outskirts of the claypan vegetation. Photos – Lei Zhang

University students assist conservation

By Jill Pryde

DEC and the Curtin University School of Environmental Biology are mutually benefitting from a work experience program that provides third year students placements within Species and Communities Branch to undertake projects. The program has been undertaken with the branch's threatened ecological community (TEC) specialist group for five years.

Every January third year students are offered a combination of voluntary and paid work to complete a project. Work placement with the TEC-specialist group usually involves writing a recovery plan that is then used to guide on-ground conservation management. The projects use and enhance the students' skills in the areas of research, report writing, word processing, problem solving, and use of databases and geographic information

systems. Depending on the location of the TEC for which plans are to be developed, some field survey may also be involved.

Students have been involved in the preparation of new and updated plans for the following Swan Coastal Plain TECs:

- *Corymbia calophylla* – *Xanthorrhoea preissii* woodlands and shrublands
- *Corymbia calophylla* – *Kingia australis* woodlands on heavy soils
- Shrublands on dry clay flats
- *Banksia attenuata* and/or *Eucalyptus marginata* woodlands of the eastern side of the Swan Coastal Plain
- *Callitris preissii* (or *Melaleuca lanceolata*) forests and woodlands.

For more information contact Jill on (08) 9334 0263 or email jill.pryde@dec.wa.gov.au.



Above A work experience student and DEC staff member surveying an occurrence of 'herb rich shrublands in claypans'. Photo – Val English

Protecting the habitat of the rare native wild rose

By Cathy Page and Kate Brown



Top DEC staff applying the chemical 2,2-DPA to the trial plots. Photo – Shannon Dixon

Above *Diplolaena andrewsii*. Photo – Fred and Jean Hort

Diplolaena andrewsii or native wild rose, a small shrub to a metre high with sparsely to densely stellate (hairy) leaves, is named for the bright red flowers it produces from July through to October. Only known from two populations, it occurs on loam and clay soils of granite outcrops and hillsides in marri and wandoo woodlands along the Darling Scarp.

A habitat restoration plan for the species, funded through the state Natural Resource Management program, was completed by DEC's Urban Nature in January 2011. As part of this project, all known populations of *Diplolaena andrewsii* were mapped, individuals counted, fire history of populations assessed and priority weeds identified and mapped.

The restoration plan identified two weed species as being of greatest concern, the geophytes *Watsonia* (*Watsonia* spp.) and *freesia* (*Freesia alba* x *leichtlinii*). Both are recognised as regionally significant weeds

because of their invasiveness, widespread distribution and ecological impact. *Watsonia* forms dense stands that are known to effectively displace understorey species and both are likely to be favoured by frequent fire.

As part of the implementation of the restoration plan, in September 2011 Urban Nature and Perth Hills District, trialed the use of the chemical 2,2-DPA to control *Watsonia* spp. where it was invading populations of *Diplolaena andrewsii* in John Forrest National Park. The chemical has been found to be effective on *Watsonia* with minimal off-target damage to native species. Eight five-by-five-metre plots, four treatments and four controls were established. As well as percentage cover of *Watsonia*, the number of *D. andrewsii* plants within each plot and the approximate age and health of each plant was recorded prior to treatment. The objective of this trial was to assess the impact of 2,2-DPA on *D. andrewsii* and to monitor recruitment of *D. andrewsii* seedlings following *Watsonia* control. Monitoring eight weeks following treatment indicated 2,2-DPA had not impacted on *D. andrewsii*. However these results and any recruitment of this rare species will need to be confirmed in winter 2012.

The results of the trials will guide management across the remaining populations of the native wild rose, hopefully resulting in restoration of their associated native plant communities.

For more information contact Cathy on 0429 080 542 or email catherine.page@dec.wa.gov.au.

Symposium to discuss stromatolite conservation

By Val English

WA contains an extensive variety of living structures formed by microbes, that are generally termed 'microbialites'. These include the world-renowned stromatolites in Shark Bay, and the well-known thrombolites in Lake Clifton near Mandurah and in Lake Richmond in Rockingham. There is, however, an extensive range of lesser-known and much less studied and understood living microbialites in WA.

A symposium about major conservation issues with microbialites in WA's south-west is to be hosted by DEC on 29 and 30 October 2012 at the WA Conservation Science Centre. Speakers will include a variety of international and local experts. Dr Ken McNamara from Cambridge University and Dr Kath Grey from Geological Survey of WA will provide background information about fossil and living forms of microbialites throughout the state, and Professor Pam Reid from Miami University will discuss some international examples of microbialite conservation.

Issues regarding WA's living microbialites will be presented by a series of

speakers including Dr Philip Playford who will talk about the excitement surrounding his discovery of the Shark Bay stromatolites in 1956. The question of how water quality can affect the microbial species that form the 'soup' that shapes the microbialite structures will be discussed through a series of local case studies.

The participants, selected for their specific expertise, will discuss a series of questions regarding knowledge gaps and how these might be addressed, on the second day. The symposium will culminate in a field trip to view and discuss issues with management of the microbialites in Lake Richmond and Lake Walyungup, Rockingham.

The goal of the symposium is to determine the major knowledge gaps that can hinder conservation management of WA's microbial assemblages, and how some of these issues may be addressed through collaborative research programs.

For more information contact Val on (08) 9334 0409 or email val.english@dec.wa.gov.au.



Above Microbialites in Lake Walyungup. Photo – Philip Geach **Top** Sampling microbialites in Lake Walyungup. Photo – Gemma Grigg

Recent changes to WA threatened species lists

By Melanie Smith

The *Wildlife Conservation Act 1950* provides for taxa (species, subspecies and varieties) of native flora and fauna to be specially protected because they are under identifiable threat of extinction, are rare, or otherwise in need of special protection. Such specially protected wildlife (fauna and flora) is considered to be 'threatened'. The WA Minister for Environment recently approved changes to

the list of threatened species that were recommended at the 2011 Threatened Species Scientific Committee (TSSC) meeting. The new lists were published on 23 February 2012 and can be viewed on DEC's listing of threatened species and ecological communities webpage along with the following summary of changes in the tables below (www.dec.wa.gov.au/content/view/full/852/2010/).

FAUNA	Common name	Scientific name	Status 17 August 2010	Status 17 February 2012
Additions	Vesk's plant louse	<i>Acizzia veski</i>	None	VU D2
	Millipede	<i>Atelomastix anancita</i>	None	VU D2
	Millipede	<i>Atelomastix breanni</i>	None	VU D2
	Millipede	<i>Atelomastix culleni</i>	None	VU D2
	Toolbrunup atelomastix millipede	<i>Atelomastix danksi</i>	None	VU D2
	Recherche atelomastix millipede	<i>Atelomastix dendritica</i>	None	VU D2
	Millipede	<i>Atelomastix flavognatha</i>	None	VU D2
	Millipede	<i>Atelomastix grandis</i>	None	VU D2
	Millipede	<i>Atelomastix julianeae</i>	None	VU D2
	Millipede	<i>Atelomastix lengae</i>	None	VU D2
	Millipede	<i>Atelomastix longbottomi</i>	None	VU D2
	Millipede	<i>Atelomastix melindae</i>	None	VU D2
	Wedge Hill atelomastix millipede	<i>Atelomastix poustiei</i>	None	VU D2
	Millipede	<i>Atelomastix priona</i>	None	VU D2
	Millipede	<i>Atelomastix sarahae</i>	None	VU D2
	Striped atelomastix millipede	<i>Atelomastix tigrina</i>	None	VU D2
	Bluff Knoll atelomastix millipede	<i>Atelomastix tumula</i>	None	VU D2
	Fairy tern	<i>Sterna nereis nereis</i>	None	VU C1
	Short-nosed sea snake	<i>Aipysurus apraefrontalis</i>	None	CR A2ac;B2ab(iii,v)
	Leaf-scaled sea snake	<i>Aipysurus foliosquama</i>	None	CR A2ac
	Skink	<i>Lerista neviniae</i>	P1	VU D2
Pakooma, brush-tailed rabbit-rat	<i>Conilurus penicillatus penicillatus</i>	None	VU A4c	
Djintamoonga, black-footed tree-rat	<i>Mesembriomys gouldii gouldii</i>	P4	VU A4c	
Golden-backed tree-rat	<i>Mesembriomys macrurus</i>	P4	VU A4	

Deletions	None			
Changes to IUCN category/criteria	Graceful sun-moth	<i>Synemon gratiosa</i>	Endangered B1 and B2(a) (b)(i, ii, iii, iv)	Vulnerable A3(b)
Nomenclature changes:	Previous name	Current name	Notes	
Scientific name changes	<i>Pezoporus wallicus flaviventris</i>	<i>Pezoporus flaviventris</i>	Murphy S.A., Joseph, L., Burbidge, A.H., and Austin, J. (2011) A cryptic and critically endangered species revealed by mitochondrial DNA analyses: the Western Ground Parrot. <i>Conservation Genetics</i> 12:595–600.	
	<i>Neopasiphe simplicior</i>	<i>Neopasiphae simplicior</i>	Correction of spelling of 'Neopasiphe' to 'Neopasiphae'	
	<i>Egernia pulchra longicauda</i>	<i>Liopholis pulchra longicauda</i>	Gardner M. G., Hugall A. F., Donnellan S. C., Hutchinson M. N. and Foster R. (2008) Molecular systematics of social skinks: phylogeny and taxonomy of the Egernia group (Reptile: Scincidae). <i>Zoological Journal of the Linnean Society</i> . Vol 154: 781–794.	
Common name changes	Muir's corella or western long-billed corella	Muir's corella	Amended to be consistent with the names endorsed by the WA Museum	
	Forest red-tailed black-cockatoo	Forest red-tailed black-cockatoo	Amended to be consistent with the names endorsed by the WA Museum	
	Baudin's lack-cockatoo	Baudin's Cockatoo	Amended to be consistent with the names endorsed by the WA Museum	
	Carnaby's black-cockatoo	Carnaby's cockatoo	Amended to be consistent with the names endorsed by the WA Museum	
	Yellow-bellied frog	Orange-bellied frog	Amended to be consistent with the names endorsed by the WA Museum	
	Lewin's water rail	Lewin's rail	Amended to be consistent with the names endorsed by the WA Museum	

FLORA	Scientific name	Status 17 August 2010	Current status at 17 February 2012	Region
Additions	<i>Acacia leptoneura</i>	Priority 1	CR B1ab(iii)+ 2ab(iii); D	Wheatbelt
	<i>Acrotriche orbicularis</i>	Priority 1	VU D2	South Coast
	<i>Atriplex</i> sp. Yeelirrie Station (L. Trotter & A Douglas LCH 25025)	Priority 1	VU D2	Goldfields
	<i>Caladenia luteola</i>	Priority 1	CR B1ab(iii,v) +2 ab(iii,v); C2a(i)	Wheatbelt
	<i>Caladenia</i> sp. Quindanning (K. Smith & P. Johns 231)	None	CR B1ab(ii,iii,iv,v) + 2ab(ii,iii,iv,v)	Swan
	<i>Conospermum caeruleum</i> subsp. <i>contortum</i>	Priority 1	Presumed extinct	South West
	<i>Conospermum galeatum</i>	Priority 1	CR A2a; B1ab(iii,iv)+2ab(iii,iv);C2a(ii);D	Wheatbelt
Deletions	<i>Epiblema grandiflorum</i> var. <i>cyaneum</i> ms	CR A4a; B1ab(v)+ B2ab(v); D	None – Delisted	Swan
	<i>Marianthus mollis</i>	VU D1+2	Priority 4	South Coast
	<i>Stylidium merrallii</i>	VU D2	Priority 4	Wheatbelt
Changes to IUCN category/criteria	<i>Banksia serratuloides</i> subsp. <i>perissa</i>	EN B2ab(ii)	CR B1ab (iii,v)+ 2ab (iii,v)	Midwest
	<i>Darwinia collina</i>	EN A2c	CR A3ce; ab(iii,iv,v)+2ab(iii,iv,v)	South Coast
	<i>Typhonium</i> sp. Kununurra (A.N. Start ANS 1467)	EN D	VU B2 ab (ii,iii)	Kimberley
Nomenclature changes	Previous name	New name	Publication/notes	Region
	<i>Meziella trifida</i>	<i>Myriophyllum trifidum</i>	Published in Systematic Botany 35:1 pp. 121-139 (2010)	Warren
	<i>Petrophile latericola</i> ms	<i>Petrophile latericola</i>	Formally published in West Australian Naturalist 27(2):103-105, Figs 1,2 (2010)	South West
	<i>Pterostylis</i> sp. Northampton (SD Hopper 3349)	<i>Pterostylis sinuata</i>	Formally published in Australian Systematic Botany. 23:262 (2010)	Midwest

The annual review of threatened wildlife listings by the TSSC occurred early May 2012 and recommendations are being prepared for approval. Nominations to add taxa to, or delete taxa from, the current Declared Rare Flora and Specially Protected Fauna lists should be submitted to the TSSC (tssc@dec.wa.gov.au) by the end of January 2013.

For further information including application forms and guidelines visit DEC's website (*Call for public nominations for listing (and delisting) of threatened plants and animals* at www.dec.wa.gov.au/content/view/252/2011/) or contact DEC's Species and Communities Branch on 9334 0455.

Recovery plans approved

Four new interim recovery plans for threatened flora in DEC's Warren Region and an updated plan for Cameron's Cave troglobitic community at Exmouth have recently been endorsed by DEC's Director of Nature Conservation.

No.	Title	Prepared by	DEC District/Region involved
320	<i>Andersonia annelsii</i>	Jo Smith, Ian Wilson, Robyn Luu, Andrew Brown	Donnelly, Warren
321	<i>Grevillea acropogon</i>	Jo Smith, Ian Wilson, Cassidy Newland, Andrew Brown	Donnelly, Warren
322	Webb's moss, <i>Rhacocarpus rehmannianus</i> subsp. <i>webbianus</i>	Cassidy Newland, Andrew Brown, Dr Niels Klazenga, Robyn Luu	Donnelly, Frankland, Warren
323	Hay River featherflower / scruffy verticordia, <i>Verticordia apecta</i>	Nikki Rouse, Karlene Bain, Roger Hearn, Andrew Brown, Cassidy Newland, Robyn Luu	Frankland, Warren
324	Camerons Cave troglobitic community, Camerons Cave millipede and Camerons Cave pseudoscorpion	Valerie English	Exmouth, Pilbara

The plans are available on the DEC website site at www.dec.wa.gov.au/index.php?option=com_content&task=view&id=869&Itemid=2008.



Department of
Environment and Conservation



Editors: Gemma Grigg and Jill Pryde
Species and Communities Branch
Department of Environment and Conservation
Western Australia
Locked Bag 104, Bentley Delivery Centre, Bentley WA 6983
Email: gemma.grigg@dec.wa.gov.au or jill.pryde@dec.wa.gov.au