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Western ground parrot recovery project update

by Mike Barth

In July 2006, project staff set up a base camp in the Fitzgerald River National Park near a known sub-population of the critically endangered western ground parrot (*Pezoporus wallicus flaviventris*) with the aim of documenting the breeding biology of this elusive south coast endemic.

The last recorded nest was in 1913 by F Whitlock who collected three eggs from a nest near Denmark. Apparently, this bird was just as elusive then as it is now and Whitlock states in *Emu* Volume XIII, 1914: "I found it a very difficult bird to study, and the task of finding its nest and eggs trying in the extreme to one's patience. It is absolutely the most silent and unobtrusive bird I have yet encountered in Western Australia." Little did Whitlock know how right he was.

In our search for a nest we have monitored two pairs of birds on a daily basis trying to decipher the nest location based on their calling activities. This involved getting up an hour and a half before sunrise to go out and listen to their piercing calls in the pre-dawn darkness and again in the fading light of



dusk after the sun had set.

Ground parrots rarely call during daylight hours, so that's the time to look for nests. The nest Whitlock found was described as "a slight hollow scratched out by the parents and lined with dry grasses" and was under a small shrub he described as a "dwarf *Hakea*". Our study area is extremely dense heath with scattered mallee and is one of the most diverse plant landscapes in Australia. You

Above The Western ground parrot (*Pezoporus wallicus flaviventris*).
Photo – Brent Barrett

can count up to 70 species of plants in 10 square metres. Most of the shrubs are spiny, prickly affairs that require leather gloves if you intend to go poking around in and under them.

To date, we still have not located a nest. But it's not to say nothing has been learned. Quite the contrary, because we have drastically increased our knowledge of this cryptic parrot. We were able to record hundreds of ground parrot calls for bioacoustics analysis and are convinced that the females have a distinct call which has helped to identify them from the males. We learned that the male feeds the female every evening at a location away from the nest during the incubation phase and were able to get video footage of this event. One particular male has become used to our presence in the area and allowed us to follow and video his behaviour during his daily routine of feeding and resting. And finally, we were able to document a fledged chick and photograph it as confirmation that breeding was successful. Nest or not, the pieces of the western ground parrot puzzle are beginning to fall into place and the information gained will aid in the management and recovery of this amazing bird!

For further information contact Mike Barth on (08) 9842 4519 or email michael.barth@dec.wa.gov.au

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Banksia verticillata: Regenerating a population through fire and seeding

by Nikki Rouse

Volunteers at the Walpole Herbarium are working with Department of Environment and Conservation (DEC) staff to help regenerate a dying population of a rare *Banksia* species.

Growing on granite outcrops around the Walpole and Albany areas, *Banksia verticillata* (otherwise known as granite banksia) is a tall shrub or small tree 1.6-5 m high that produces distinctive yellow-orange cones when in flower. The species is currently listed as declared rare flora, partly due to its habitat specificity and the threat of fire and dieback.

The trees' adaptability is remarkable as it survives on the summit of granite outcrops in areas with very little soil. This is possible due to its large tap root which establishes in crevices and takes advantage of natural water gaining areas.

One *Banksia verticillata* population occurs in an area known as 'Woolbales' (named after the woolbale shaped outcrops throughout the area), about 20 km west of the Walpole town site. The population contains a large number of plants that had been steadily declining in health over the last decade as a result of senescence. A prescribed burn was implemented as a mechanism to assist in regenerating the population.

The burn was successfully achieved with a mosaic of burnt and unburnt patches amongst the granite complex. About half to two-thirds of the *B. verticillata* population

Right A healthy adult Albany banksia (*Banksia verticillata*) tree, unburnt by the prescribed burn.

Far right An Albany banksia seedling, from natural regeneration at Woolbales.

Photos – Nikki Rouse



was burnt, with a number of mature plants remaining unburnt. This allowed the limited seed that was held in the canopy to be released into the fertile ash bed and begin regenerating the population.

Surveys of the population determined that there was minimal seed available in the canopy due to the senescing status of the population. DEC staff and volunteers collected seed prior to the burn and used this seed to supplement natural regeneration following the burn.

Using local staff and volunteers, about 750 seeds were planted out over three weeks in areas which had evidence of long dead plants and little natural seed to regenerate naturally. Seeds were planted in water gaining areas that receive run off from the granite surface and also in areas with cracks and faults in the rock.

Each seed location was marked to assess whether germination was from natural sources, or from the seed planted.

The population was re-surveyed two months after planting to assess germination. It was found that some germination had occurred – particularly on the northern and western slopes, presumably from the additional sunlight and higher soil temperatures.

Frankland District will be monitoring the population closely over the next few years to determine the project's success. Hopefully the intervention will reverse the decline of the population and allow numbers to build to a level that will sustain natural regeneration well into the future!

For further information contact Nikki Rouse on (08) 9840 1027 or email nikki.rouse@dec.wa.gov.au

Project update – Back from the Brink

by Benson Todd

Back from the Brink is a three-year project funded by the Federal and State Governments, administered by the Northern Agricultural Catchment Council (NACC) and implemented by the DEC's Moora District and the Midwest Region.

Throughout its first year Back from the Brink has successfully implemented a number of recovery actions for threatened flora, fauna and ecological communities.

Benson Todd, DEC Flora Conservation Officer at Jurien, said recovery actions included seed collection, weed control, fencing, surveying and monitoring, translocations, research, education and capacity building.

"Recently 240 *Acacia aprica* (blunt wattle) and 17 *Verticordia albida* (white featherflower) seedlings were planted as part of a translocation program to increase the security of these critically endangered flora species," he said.

"Six other threatened flora translocations were monitored and data collected will

be used in the management of these translocations and the implementation of future translocations."

Since the project started, 128 populations of threatened flora have been monitored, gaining important information about their condition. About 60,000 ha have been surveyed for new populations of threatened flora and ecological communities. These surveys have yielded valuable data, including the discovery of previously unrecorded populations and occurrences.

"Threatened flora species for which new populations have been found include *Eucalyptus rhodantha* var. *rhodantha* (rose mallee), *Synaphea quartzitica* (quartz-loving synaphea), *Darwinia chapmaniana* (Chapmans' darwinia), *Calothamnus accedens* (Piawaning clawflower), *Grevillea christineae* (Christine's grevillea), *Beyeria lepidopetala*

(small-petalled beyeria), *Drummondia ericoides* (Moresby Range drummondita), *Eucalyptus beardiana* (Beard's mallee), *E. synandra* (Jingymia mallee) and *Stachystemon nematophorus* (three-flowered stachystemon)", Benson said.



Right Tristan Nunn, a DEC volunteer who assisted with the planting of *Acacia aprica* and *Verticordia albida*. Photo – Benson Todd

Geocrinia frog monitoring in DEC's South West Region

by Tienielle Brown

The season of the great Geocrinia frog hunt is upon us again!

Each year staff from the South West Nature Conservation team venture into the night, ears attuned to the sound of calling males from two species of threatened *Geocrinia* frogs, members of the Myobatrachidae family.

Geocrinia vittellina (orange-bellied frog) is listed as vulnerable and *Geocrinia alba* (white-bellied frog) critically endangered. The distribution of these species is highly restricted and patchy, occurring near the junction of the Leeuwin-Naturaliste Ridge and Blackwood Plateau in the State's south-west.

The range of *G. alba* is about 130 sq km, while *G. vittellina* is only six sq km although estimated to occupy only two hectares of this. Both species live in similar habitat, restricted to dense areas of riparian vegetation in drainage lines although not directly in the main stream zone. The dependence on specific breeding habitat is a limiting factor in the species' distribution, while suitable remaining habitat is also under pressure because of a high number of threatening processes including physical disturbance, alteration of hydrology, vegetation clearing, inappropriate fire events, general decline in water quality and climate change.

Project update – Back from the Brink Continued from page 2

New occurrences of threatened ecological communities include 'Assemblages of Organic Mound Springs of the Three Springs Area' and the 'Ferricrete Floristic Community (Rocky Springs Type)'.

Other Back from the Brink projects include producing educational and promotional materials for the *Threatened species and communities* project. These materials are being designed to increase community knowledge and understanding of threatened species and community management in the Northern Agricultural Region. The activity booklets will be trialled at the upcoming 'Blessing of the Fleet' celebrations in Jurien Bay.

DEC Moora District Office has welcomed Renée Hartley to the Back from the Brink team. Based in Jurien, Renée is responsible for implementing fauna aspects of the project.

For further information contact Renée Hartley on (08) 9652 1911 or email renee.hartley@dec.wa.gov.au



Above A translocation area for the orange-bellied frog (*Geocrinia vittellina*).

Photo – Tienielle Brown

Right A male orange-bellied frog (*Geocrinia vittellina*). Photo – Kim Williams

Below right A white-bellied frog (*Geocrinia alba*) tadpole. Photo – Marion Anstis

Originally discovered in 1983, *G. alba* and *G. vittellina* annual monitoring has been conducted during breeding season to monitor population numbers and conduct surveys at sites containing potential habitat with the hope of locating new populations. Both species share a completely terrestrial biology with males chorusing from small burrows hidden under a mass of soil, moss and litter from September to November each year. Eggs, which number 10-12 per clutch, hatch and develop within the burrow with no free swimming or feeding stages, leaving the burrow at metamorphosis and reaching breeding maturity within two-three years. Both orange-bellied and white-bellied frogs reach a maximum size of about 25 mm.

Conservation efforts coordinated through the Geocrinia Recovery Team, in operation since 1992, have seen some major advances in the protection of the species. Land purchases have seen 1570 ha of white-bellied frogs' habitat added to the already protected Blackwood National Park. Continued liaison with landholders has resulted in construction of about 13 km of fencing to protect riparian habitat from stock impacts for populations of the *G. alba*. A successful introduction of *G. vittellina* egg masses was conducted in 2000 with continued monitoring indicating an increasing number of calling males with nine males recorded in 2005.

A further 34 egg masses were translocated last year in an effort to increase the populations chance of persisting.



Each year during the peak of the breeding season, teams of two navigate their way through thick creek lines to collect data on the number of calling males at each site using GPS equipment and headlamps.

Various techniques are used including point counts, transects and linear transects to detect any decline trends for the species. Teams listen for the males mating call, a series of nine-15 'clicks' or pulses from the *G. vittellina* and 11-18 pulses from *G. alba*, to estimate the number of breeding males. This information can then be extrapolated to give an estimate of the whole population, as female to male ratios are assumed to be 1:1. The data collected from each site allows us to gain a better understanding of patterns and trends within populations, and determine whether management practices are having a positive impact.

For further information contact Tienielle Brown on (08) 9725 5909 or email tienielle.brown@dec.wa.gov.au



Biodiversity Conservation Initiative – millions of dollars for projects benefiting threatened species and ecological communities

by Melanie Harding

Western Australia is world renowned for its biodiversity. Unfortunately many species are facing extinction because of threatening processes such as habitat change, feral animals and weeds, *Phytophthora* dieback, inappropriate fire regimes, and clearing. A major Biodiversity Conservation Initiative (BCI) has allocated new funding of \$8.25 million in 2006/07 and \$4.5 million in 2007/08 to be delivered through DEC to address these issues.

A series of project themes and a number of specific priority projects have been identified, reflecting Government and DEC priorities including pest animal and weed control, dieback management, biological survey, research and taxonomy, conservation of threatened species and ecological communities, and continuing the State's cane toad initiative.

Under the threatened species and ecological communities theme, nearly \$2.7 million has been funded across 21 projects including:

- recovery actions to protect Yanchep Caves and Lake Richmond threatened ecological communities;
- the translocation and establishment of new populations of six critically endangered flora species;
- the conservation of threatened native orchids in the south-west;
- research into determining the cause of woylie decline in the south-west;
- a review of the conservation status of the chuditch and woylie;
- the preparation of interim recovery plans for seven critically endangered flora species;
- the conservation of threatened species on a private property biodiversity hotspot;
- the preparation of a recovery plan for three species of threatened burrowing crayfish;
- the conservation of threatened species on Bernier and Dorre Islands, Shark Bay;
- recovery actions for the western swamp tortoise;
- the conservation of critically endangered and high priority flora in the Warren Region;
- the conservation of biodiversity assets of the Nullarbor karst;
- the conservation management of remnant bushland at key Bush Forever sites that contain threatened species and ecological communities; and
- the translocation and establishment of six more Gilbert's potoroos on Bald Island and other urgent recovery actions for this species.

The above projects will deliver significant biodiversity outcomes in a short period of time, by specifically targeting on-ground operations and priority recovery actions for threatened species and communities that require the most urgent attention. Many of the BCI projects are also in partnership with community and NRM groups, local government, private landowners and other government departments.

The *Phytophthora* dieback theme will also be targeting the conservation of threatened species and their habitat through projects such as phosphite application to a number of critically endangered and endangered flora populations and threatened ecological communities within the Albany, Esperance, Busselton and Frankland districts.

The 2006/07 delivery of the BCI is a unique opportunity for DEC to undertake significant conservation projects that it has not previously been able to do, and therefore will provide a major boost to its efforts to conserve biodiversity assets. (See in this issue *Biodiversity Conservation Initiative project at Hi Vallee*).

Melanie Harding is the BCI Threatened Species and Ecological Communities Theme Coordinator and can be contacted on (08) 9334 0472 or email melanie.harding@dec.wa.gov.au.



Above *Verticordia rutilastra*, the priority species that has been surveyed as part of the BCI project on the remnant on Hi Vallee farm. Photo – Kathy Himbeck

Biodiversity Conservation Initiative project at Hi Vallee

by Kathy Himbeck

A 350 ha patch of remnant vegetation on Hi Vallee farm, near Badgingarra, has long been considered a biodiversity hotspot by property owners Don and Joy Williams.

It's a sentiment echoed by visiting botanists and locals alike. This amazing area of vegetation is home to five species of declared rare flora (DRF) and on last count 33 species of priority flora.

The true measure of this hotspot is currently being investigated through an exciting project funded by DEC's Biodiversity Conservation Initiative (BCI) (See in this issue *Biodiversity Conservation Initiative – millions of dollars for projects benefiting threatened species and ecological communities*).

The project is called 'Ecological Assessment of a High Biodiversity Hotspot on Private Property'. It will generate a management plan for future protection of threatened species and will investigate threats such as dieback, weeds and fire to enhance and protect the threatened species contained within this hotspot.

Over a two-year period, surveys will be carried out to gain important information about the distribution and size of declared rare and priority flora populations while implementing a number of recovery actions.

The project also involves extensive fauna surveys using pitfall traps, Elliott traps, bird surveys, raking of leaf litter (in order to collect additional fauna such as invertebrates and reptiles not collected in other traps) and invertebrate collections. Very few fauna surveys have been conducted in the area so it will be exciting to see what will be revealed in such a biologically diverse remnant.

In time a Biodiversity Management Plan will be developed and implemented, a focus of which will address fire management issues by defining appropriate fire management prescriptions compatible with conservation, ecosystem service and asset protection objectives.

Conservation Officer, Kathy Himbeck, from DEC's Moora District Office at Jurien, has started flora surveys with exciting results such as range extensions of some of the species including *Petrophile nivea* (P1), *Dryandra catoglypta* (P2), *Synaphea endothrix* (P2) and *Verticordia rutilastra* (P3). Work has also started on installing pitfall traps for the upcoming fauna surveys.

For further information contact Kathy Himbeck on (08) 9652 1911 or email kathy.himbeck@dec.wa.gov.au

Installation and monitoring of nesting boxes for threatened black cockatoos in Serpentine-Jarrahdale and Murray

by Glen Byleveld

The recovery of black cockatoo species in the Peel-Harvey region is the focus of a project the Serpentine-Jarrahdale Land Conservation District Committee (LCDC) is coordinating through the SJ Landcare centre.

Funded by Lotterywest, the project aims to increase the number of the Baudin's black-cockatoo, Carnaby's black-cockatoo and Forest red-tailed black-cockatoo by providing additional and alternative nesting sites. The project will complement work completed by the Water Corporation's Cockatoo Care Project, the WA Museum and Birds Australia.

The decline of Baudin's black-cockatoo, Carnaby's black-cockatoo and Forest red-tailed cockatoos has been a major concern for scientists, naturalists and the wider community for the past 20 years. The key factors in their decline are the disappearance of suitable nesting sites, through competition for fewer hollows with other species, such as the galah and European honey bee (See in this issue *Feral Bee Control Strategy*), the destruction of potential nesting trees, especially marri (*Corymbia calophylla*), and fires during the breeding season.

The Serpentine-Jarrahdale LCDC, with advice from the WA Museum (Department of Ornithology) and Birds Australia, have designed and created an



artificial nest box for use by black cockatoos. Thirty nest boxes will be constructed from polypiping recycled from mining operations.

Currently 18 artificial nest boxes have been installed. The nest boxes are located at sites of known black cockatoo activity identified by WA Museum research in the Shires of Serpentine-Jarrahdale and Murray, and include private landholdings,

Left A nest box installation in Serpentine. Photo – Ken Okamitsu

Below left 'Design a sign' competition winner's sign on display at Serpentine Falls National Park. Photo – Francesca Jones

State forest, and the North Dandalup Primary School.

Nesting activity will be monitored by landholders, school students and community volunteers. The results of this monitoring will assist in increasing knowledge of black cockatoo breeding activities on the Swan Coastal Plain and will raise awareness in the community about threats to species of black cockatoo and actions that can be undertaken to reduce these threats.

A 'Design-a-Sign' competition was run with participating schools. The winning sign (pictured) has been erected at the entrance to the Serpentine Falls National Park to raise community awareness of the threats to black cockatoos.

If you would like to become involved in the project, as part of a monitoring group or as a potential nest box host, contact the Serpentine-Jarrahdale Community Landcare Centre on (08) 9526 0012.

For further information contact Glen Byleveld, Natural Resource Management Officer on (08) 9526 0012, 0419 912 845 or email glen@landcaresj.com.au

Grand spider orchid surveys 2006

by Vanessa Clarke

The focus of the 2006 grand spider orchid (*Caladenia huegelii*) surveys was to survey areas of potential habitat on secure tenure such as nature reserves, local government reserves and national parks.

Many of these reserves were in the Mandurah area and the call for volunteers was advertised in local newspapers. This resulted in much interest from Mandurah locals who either wanted to participate in surveys, or to advise of where they had seen orchid populations. Additionally, FloraBase featured the grand spider orchid as its 'Plant of the Month' to raise awareness.

This resulted in more than 60 volunteers participating in the surveys — Mandurah locals, volunteers from the WA Native Orchid Study Group, Conservation Volunteers Australia and 13 DEC staff who either coordinated survey days or participated in the surveys. The effort by volunteers and DEC staff resulted in extensions to known populations of the grand spider orchid; reports of new populations, some of which are still to be confirmed; two new populations of another rare orchid species, glossy-leaved hammer orchid (*Drakaea elastica*), being reported and surveyed; a property owner allowing her property to be a new site for Kings Park and Botanic Gardens orchid researchers to look at a range of *Drakaea* species; and more information about the areas in which this orchid does, and does not occur.

For further information contact Vanessa Clarke on (08) 9423 2907 or email vanessa.clarke@dec.wa.gov.au



Above Survey volunteers at Kooljerrenup Nature Reserve. Photo – Nicole Willers



Rescuing threatened wheatbelt orchids

by Andrew Brown

This Lotterywest funded project, which was approved in October 2006 with initial funding of \$220,000 over two years, is a collaboration between the WA Native Orchid Study and Conservation Group (the proponent), the Friends of Kings Park, wheatbelt landcare groups, the University of WA, the Botanic Gardens and Parks Authority and DEC. If successful, it's likely that a further two years of funding will be made available.

The principal objective is to recover highly threatened wheatbelt orchids by obtaining knowledge of their biology and ecology and threatening processes that are affecting them, and then undertake actions to improve survival and reproduction, propagating and out-planting orchids to natural habitats, measuring orchid survival and reproduction and providing training to community groups and conservation workers. This project also aims to promote collaboration between urban and rural community groups, government agencies and universities, as well as increasing public awareness of rare flora and threats to biodiversity.



Eight of the nine orchids are ranked as critically endangered with four of these (*Caladenia graniticola*, *Caladenia melanema*, *Caladenia williamsiae* and *Drakaea isolata*) selected for urgent study as they are believed to have the greatest risk of extinction. Three of these orchids are known from single locations.

Left *Caladenia williamsiae*.
Photo Andrew Brown

The other species to be studied are *Caladenia bryceana* subsp. *bryceana*, *Caladenia drakeoides*, *Caladenia elegans*, *Pterostylis* sp. *Northampton* and *Rhizanthella gardneri*.

The main threats to these orchids include the scarcity and fragmentation of suitable remaining habitat, and habitat decline due to weeds, feral animals, salinity and drought. Remedial actions are urgently required, but cannot proceed without research to understand the biology and ecology of the orchids and the greatest threats to each of them. Once this information has been gathered solutions to these threats can be developed.

A steering committee has been established and a project coordinator is to be appointed soon. It is likely that the project will commence in full in 2007.

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

Feral bee control strategy

by Jacqueline Hay

DEC is developing a feral bee control strategy to reduce feral bee populations where they negatively impact on native fauna and flora.

European honey bees (*Apis mellifera*) were introduced to Australia soon after European settlement in the 1820s for honey production and to help pollinate plants and crops. However, because of the natural ability of honey bees to swarm or abscond, unmanaged feral colonies are now widespread and exist in almost every part of the State receiving reliable rainfall.

Feral bees are of little value for commercial honey production, and represent a considerable risk to the commercial apiculture industry in the event of the introduction into WA of new exotic diseases and parasites that affect honeybees. Although, feral bees and managed bees are the same species, feral bees are generally darker in colour, are often more aggressive and have a tendency to swarm more than managed bees.

Feral bees compete with native birds, mammals and invertebrates for floral resources (nectar and pollen). They also disrupt natural pollination and seed set processes, aid in the spread and establishment of introduced weeds and take over hollows in trees, evicting native birds and mammals that are dependant on those hollows for shelter or nests. Of particular concern is that the bees take over the nests of threatened black cockatoos, including the red-tailed black cockatoo (*Calyptorhynchus banksii naso*), Carnaby's black cockatoo (*Calyptorhynchus latirostris*) and Baudin's black cockatoo (*Calyptorhynchus baudinii*) (See in this issue *Installation and monitoring of nesting boxes for threatened black cockatoos in Serpentine-Jarrahdale and Murray*).



Left A feral bee (*Apis mellifera*) on marri (*Corymbia calophylla*).

Below A feral bee (*Apis mellifera*) on *Regelia inops*.

Photos – Jacqueline Hay

Control on a hive by hive basis is considered costly and time consuming but new research from New Zealand has uncovered a way to tackle the problem using a series of bait stations that contain sugar syrup and pesticide, which the bees take up and deliver back to their hive.

The WA research will investigate:

- the most effective method to attract bees to the baits;
- the risks to non-target native species (vertebrate and invertebrate);
- distances travelled by feral bees to a bait station;
- how long it will take to kill feral bee hives in a specific area; and
- how often hives or areas will need to be treated to keep them free from feral bees.

All efforts will be made to develop a safe and efficient feral bee control strategy suitable for WA. DEC will endeavour to reduce feral bee numbers without affecting the beekeeping industry.

If you would like to report the location of a feral beehive on public land in a park or reserve, contact Jacqueline Hay on (08) 9334 0103 or email jacqueline.hay@dec.wa.gov.au. A GPS coordinate would be great; however, specific details of the location would suffice.



Aligning the Western Australian and national threatened species lists

by Dr Ken Atkins

In August 2006 the first set of changes were made to the list of nationally threatened species under the EPBC Act as an outcome of the Species Alignment Project being undertaken between Species and Communities Branch and the Commonwealth Department of Environment and Heritage (see 'Alignment of State and commonwealth Species List' WATSNU July 2006).

The changes were:

- 10 species (eight flora and two fauna) have been listed as threatened;
- 19 species (18 endemic plant species and the western subspecies of the thick-billed grasswren), no longer considered nationally threatened, have been delisted; and
- eight flora species have been transferred from the extinct category to appropriate threatened categories because of recent rediscoveries.

It is anticipated that more alignment of the species lists will occur over the coming year as further changes are approved by the Commonwealth. Timing of approved changes will depend on the progress of nominations through the Commonwealth Threatened Species Scientific Committee, the public comment period as required under the EPBC Act, and final approval by the Commonwealth Minister for the Environment.

The changes to the EPBC Act are listed below.

| | Species |
|--|---|
| Listed as Endangered | <i>Acacia chapmanii</i> subsp. <i>australis</i> (a shrub) <i>Caladenia williamsiae</i> (Williams' spider orchid) |
| Listed as Critically Endangered | <i>Acacia cochlocarpa</i> subsp. <i>velutinosa</i> (velvety spiral pod wattle) <i>Acacia unguicula</i> (a shrub) <i>Brachyscias verecundus</i> (ironstone brachyscias) <i>Calectasia cyanea</i> (blue tinsel lily) <i>Cherax tenuimanus</i> (hairy marron) <i>Daviesia glossosema</i> (maroon-flowered daviesia) <i>Galaxias truttaceus hesperius</i> (western trout minnow) <i>Muehlenbeckia horrida</i> subsp. <i>abditata</i> (remote thorny lignum) |
| Transferred from Extinct to Vulnerable | <i>Eremophila vernicosa</i> Chinnock ms (resinous poverty bush) <i>Gastrolobium lehmannii</i> (Cranbrook pea) <i>Stachystemon nematophorus</i> (three-flowered stachystemon) |
| Transferred from Extinct to Endangered | <i>Frankenia parvula</i> (short-leaved frankenia) <i>Ptilotus fasciculatus</i> (Fitzgerald's mulla-mulla) |
| Transferred from Extinct to Critically Endangered | <i>Gyrostemon reticulatus</i> (net-veined gyrostemon) <i>Haloragis platycarpa</i> (broad-fruited haloragis) <i>Hydatella leptogyne</i> (few-flowered hydatella) |
| Delisted (removed from the list) | <i>Acacia semicircularis</i> (Wongan wattle) <i>Adenanthos x cunninghamii</i> (Albany woollybush) <i>Amytornis textilis textilis</i> (thick-billed grasswren (western subspecies)) <i>Anigozanthos humilis</i> subsp. <i>chrysanthus</i> (golden catspaw) <i>Bentleya spinescens</i> (spiny bentleya) <i>Caladenia arrecta</i> (reaching spider orchid) <i>Chordifex chaunocoleus</i> (heath rush) <i>Corybas limpidus</i> (crystal helmet orchid) <i>Daviesia spiralis</i> (spiral-leaved daviesia) <i>Eremophila micro theca</i> (heath-like eremophila) <i>Eucalyptus x bennettiae</i> (Bennett's mallee) <i>Eucalyptus graniticola</i> Brooker and Hopper ms (scarp road mallee) <i>Eucalyptus rhodantha</i> var. <i>x petiolaris</i> (stalked rose mallee) <i>Hemiandra</i> sp. <i>Watheroo</i> (S.Hancocks 4) (colourful snakebush) <i>Kunzea pauciflora</i> (Mt Melville kunzea) <i>Lechenaultia pulvinaris</i> (cushion leschenaultia) <i>Pimelea rara</i> (summer pimelea) <i>Triodia bromoides</i> (a spinifex) <i>Verticordia harveyi</i> (autumn featherflower) |

For further information contact Dr Ken Atkins on (08) 9334 0425 or email ken.atkins@dec.wa.gov.au



New flora species and other interesting discoveries

by Jenna Brooker

As a volunteer and occasional employee in the environmental arena it is enormously gratifying to be part of the network that unravels the mysteries of WA flora.

This story is long and convoluted, and illustrates the value of networks and community cooperation. It all started with Diels who collected *Ptilotus helichrysoides* in the Yerina Springs Road area early in the 19th century. The species was not seen again for more than 100 years. Then DEC's Greg Keighery recorded it from the Goldfields, and in 2005 Rob Davis (identification botanist at the WA Herbarium) found it again in the Yerina Springs area. By coincidence, Bayden Smith and Simon Brannigan (of Greening Australia's Environmental Services Unit) recorded it during a survey undertaken on behalf of Northern Agriculture Catchments Council (NACC) and DEC, as part of the Hidden Treasures Project.

Late in 2005, Greening Australia's River Recovery Project Manager, Margi Weir, was working on the Hutt River, familiarising herself with the Yerina Springs area and photographed an unfamiliar plant, possibly a species of Asteraceae. She emailed her photograph to contacts at Greening Australia and Kings Park. The reply came back that it was possibly a member of the genus *Ozothamnus*, but in searching *FloraBase* the only records were of a species in the Eastern Goldfields many hundreds of kilometres to the south-east.

In November 2005, as Biodiversity Support Officer for Northern Agriculture Catchments Council (NACC)/Greening Australia, I visited the site with Margi. We found a very dead *Ptilotus* sp., possibly *helichrysoides*, shredded on the firebreak. We also found and collected the possible *Ozothamnus* sp. for herbarium identification and explored the site more extensively. The site is a south facing breakaway extending 200m to 300m west from the road, on Cockatea Shale, a sedimentary shale ferruginised by ground water. A *Leucopogon* sp. was locally common and, knowing Mike Hislop's special interest in the genus, we also collected it.

The specimens were submitted to the WA Herbarium for vouchering together with all the Geraldton Regional Herbarium's collections of that year, several of which had been undertaken in conjunction with Greening Australia.

The methodical identification process was followed by WA Herbarium staff and their volunteers and the specimens finally



Above *Leucopogon* sp. Yallabatharra.
Photo – Magi Wier

reached Mike Hislop and Rob Davis – botanists based at the WA Herbarium – in June 2006. Rob phoned to say the *Ozothamnus* sp. was probably a new species and, as Mike had managed a trip to Yerina Springs to find the *Leucopogon* species in bud, Rob asked (as it appeared to be a new species) whether we could possibly visit the site again soon as it would probably be in flower.

In July 2006 Cathy Page, the new Conservation Officer at DEC Geraldton District and I (as a volunteer with Geraldton Regional Herbarium) took NACC's two new Biodiversity Support Officers, Chiara Danese and Donna Rayner, on an introductory visit to Yerina Springs Road and met with Margi Weir. The *Leucopogon* sp. was in full flower so population estimates and an adequate specimen collection could be made for the WA Herbarium. A second member of the Epacridaceae was also found and collected along with a specimen of an unfamiliar plant and a *Gastrolobium* sp. Later that day Margi checked out bushland further north along Yerina Springs Road and found the same two members of the Epacridaceae plus a third species. She sent her photographs to Mike.

So what had we found? There were three members of the Epacridaceae family collected and according to Mike the first is an unnamed taxon that he has given the phrase name *Leucopogon* sp. Yallabatharra. The other two are *Astroloma* species not *Leucopogon* species as had been initially

thought, one being *Astroloma* sp. Kalbarri. This reinforces the necessity for good plant material for identification. Mike pointed out that the whole family is under review with 40–50 per cent of them possibly requiring name changes. But what of the *Ozothamnus* specimen? Rob says that it is in all probability a new species that after it is officially described is a possible candidate for the DRF list. According to Mike the mystery plant is a *Dodonaea* species which may be of particular interest. It appears to be related to *D. pinifolia* and *D. caespitosa* or it could be an outlier of *D. divaricata* but the growth habit looks incorrect. Fruit is needed to resolve this.

The *Gastrolobium* turned out to be *G. propinquum* (Priority 1) and there appears to be a large population of it in the area.

For further information contact Cathy Page on (08) 9964 0921 or email catherine.page@dec.wa.gov.au

Flora Management Course becomes nationally recognised

by Val English

DEC's Flora Management Course was first presented in 2003 in Busselton, was run at Jurien in 2004-05, and at Albany in September 2006.

Topics covered include a large variety of issues from conservation of genetic diversity and legislation pertaining to flora conservation, through to management of landscape-scale issues such as hydrological change and dieback disease to achieve protection of flora and ecological communities.

The course is available to all Department staff, with 21 people attending this year.

In 2006, the course was aligned to Unit of Competency 'Monitor Biodiversity' and will contribute to a Certificate IV in Conservation and Land Management. This was made possible by the efforts of DEC's Training Centre in ensuring the course meets the Australian Quality Training Framework Standards for Registered Training Organisations.

Increased time spent on outcome-based field work, and greater focus on taxonomy and monitoring techniques were included in the 2006 course. DEC Albany office staff selected a monitoring site in the Stirling Range that provided a spectacular backdrop for participants to set up detailed baseline monitoring of the numbers, height and reproductive status of serotinous species (plants that hold seed in the canopy and where the fruit requires heat from a fire to open and release the seed) in four plots.

A complete floristic survey of each plot was also undertaken. The South Coast Region and Albany District will use this monitoring data to identify appropriate fire intervals for the plant communities selected. Knowledge of the canopy stored seed reserve will contribute to determining potential recovery of serotinous species, in particular, following any controlled burn undertaken in an area in a specified year. Detailed monitoring information from this work is invaluable for informing management in fire-sensitive plant communities.

The Flora Management Course has been very well subscribed during its four years of operation, and the course continues to evolve based on the feedback received from participants. The course would not be possible without the help of the many DEC staff who agree to provide their valuable time to impart expertise to participants each year, or to provide administrative or other support.

For more information about the Flora Management Course planned for 2007, please contact Val English on (08) 9334 0409 or email val.english@dec.wa.gov.au

Below Participants on the Flora Management Course monitoring in the Stirling Range. Photo – Val English



Above *Conospermum toddii*, Queen Victoria Springs Nature Reserve. Photo – Wendy Thompson

Status check: *Conospermum toddii*

by Wendy Thompson

Conospermum toddii (Victoria Desert smokebush) is a spreading shrub up to two metres tall with long, thread-like leaves and small white flowers.

It is known primarily to occur on yellow sand dunes in and around Queen Victoria Springs Nature Reserve where it has been said that it grows everywhere.

However, as *C. toddii* is currently listed as a declared rare flora (DRF) species in the Goldfields Region, surveys were required to verify this and surveying and population monitoring is underway. In addition to further understanding of the geographic distribution and population dynamics, the region is keen to have the species potentially down-listed from a DRF to a priority species, if the proposed surveys show that the species is not as rare as originally thought.

In September 2006, DEC staff visited the nature reserve area for further survey, monitoring and to establish additional vegetation plots. Before the 2006 survey, DEC's records indicated there were an estimated 915 known plants. DEC staff recorded new populations in and around the nature reserve and revisited known populations. The results of the trip included recording an estimated 6280 additional plants.

There are reports of significant range extensions of *C. toddii* following discussion with AngloGold Ashanti Environmental Officers. These reports would extend the known population by more than 100 km. DEC is awaiting lodgement of specimens for confirmation. Further surveys of Plumridge Lakes Nature Reserve and Queen Victoria Springs Nature Reserve were held in November and December 2006.

For further information please contact Wendy Thompson on (08) 9080 5513 or email wendy.thompson@dec.wa.gov.au



Baudin's cockatoo *Calyptorhynchus baudinii*: an endangered species and a pest of the pome fruit industry in south-west Western Australia

by Dr Tamra Chapman

The conservation of Baudin's cockatoo and the management of fruit damage by this species poses a considerable challenge for DEC and the pome fruit growing industry.

Endemic to WA's south-west, Baudin's cockatoo is, at the same time, a declared threatened species and a declared pest of agriculture. In bygone days, growers could shoot cockatoos to protect their crops but this is now illegal.

A grower survey was conducted by DEC to collect information on damage to pome fruit crops by Baudin's cockatoo in south-west WA during and after the 2004/2005 season. Of the 277 surveys that were posted to fruit growers registered as apple and pear growers with the WAFGA, 86 (31 per cent) were returned. Some of the key results of the survey are presented in this article and a paper on the results of the survey has been submitted to a scientific journal for publication.

Most growers (94 per cent) had previously incurred fruit damage by Baudin's cockatoo and 89 per cent reported that Baudin's cockatoo had damaged their crop in the previous 12 months. While Baudin's cockatoo was clearly a common pest in orchards, it was not the only pest bird of pome fruit. The survey showed that other damage causing species in these orchards include the Australian ringneck, red-capped parrot and other parrots.

The average farmgate value of the fruit per grower was estimated at \$208,018. Growers estimated fruit loss due to damage at an average of \$12,453 per property, which equates to six per cent of average farmgate income. Damage most commonly occurred in February, March and April and for all varieties combined, the most commonly listed damage category was 'low' or less than 10 per cent of fruit lost. The most severely damaged varieties were Pink Lady, followed by Granny Smith, sundowner and Lady Williams apples.

A high proportion of growers, 77 out of the 86 that completed the survey, reported that they had previously used pest control to prevent damage by Baudin's cockatoo. Growers spent an average of \$5041 on damage control per property and this represents two per cent of average farmgate income during the 2004/2005 season.



Above Baudin's cockatoo (*Calyptorhynchus baudinii*). Photo – Tony Kirkby

Left Fruit damage. Photo – Rick Dawson



The common perception among growers that non-lethal damage control techniques are not effective for Baudin's cockatoo was not evident in the survey results. Combinations of damage control techniques were highly effective. The most effective techniques were motor cycle (harassment) and/or shooting to scare. Shooting of Baudin's cockatoo to protect pome fruit in commercial orchards is unlawful and the survey demonstrated that it can not be justified in terms of the damage the cockatoos cause or the costs of damage control to growers. The survey showed that scaring techniques are cost-effective and are likely to be a

highly effective, non-lethal alternative to shooting, provided they are employed as part of a well planned, executed and evaluated damage control program.

DEC has an obligation to the WA community to protect Baudin's cockatoo from threatening processes and thus aims to eliminate illegal shooting. To meet this goal, DEC will continue to provide advice to pome growers to help them protect their crops from damage and to produce fruit in a sustainable manner.

For more information refer to the NatureBase website at www.naturebase.com.au.

The New Avon-Mortlock District: Partnerships form for threatened species recovery

by Joel Collins

DEC's Wheatbelt Region has recently undergone a boundary realignment that has seen the formation of the new Avon-Mortlock District, based at Northam.

The realignment has also seen the amalgamation of the old Narrogin and Katanning Districts into the Great Southern District and the former Merredin District, which has now picked up additional Unallocated Crown Land (UCL) to the east, being renamed Yilgarn District.

The Avon-Mortlock District contains 13 shires and includes local government authorities (LGA) previously outside the Wheatbelt Region. These are the Shire of Victoria Plains (formerly Midwest Region) and sections of the York and Northam Shires (formerly Swan Region). Other LGAs making up the district include the Shires of Goomalling, Wongan-Ballidu, Dalwallinu, Koorda, Tammin, Cunderdin, Wyalkatchem, Quairading, Beverley and Dowerin.

With the new boundary changes comes a new threatened flora list for the Avon-Mortlock District, which now includes 67 declared rare flora species comprised of 26 critically endangered, 22 endangered and 19 vulnerable species. A total of 310 priority flora species have been recorded in the Avon-Mortlock District. They include 53 priority 1, 64 priority 2, 116 priority 3 and 75 priority 4 taxa.

Boundary changes have been in response to improving the Department's service delivery in the region, in particular to the external funding provider the Avon Catchment Council (ACC). The ACC has provided funding to a range of conservation projects in the Avon Basin, starting in October 2005.

This funding has been allocated to a range of stakeholders within the new Avon Natural Diversity Alliance (ANDA). Members of the alliance include DEC (Wheatbelt Region), WWF Australia, Greening Australia and the Department of Water. Funding will be provided over a three year period. Threatened species and communities funding has been received by the Department's Wheatbelt Region through a project titled *Back from the Edge: Saving Native Species and Communities Most at Risk*. The aim of this project is to develop a strategic approach to threatened species and community management and carry out urgent recovery actions. As part of this project the Avon-Mortlock District is continuing to implement a range of rare flora recovery actions. These include threatened flora surveys, fencing of rare flora populations, weed control, community awareness and engagement, rare flora translocations and recruitment trials.

Specific projects currently being implemented in the Avon-Mortlock District include the proposed translocation of *Acacia subflexuosa* subsp. *capillata* (hairy-stemmed zig zag wattle), the community awareness project *Have you seen this plant?* letter drop to landholders for the species *Gastrolobium hamulosum* (hook-point poison), *Eremophila pinnatifida* (Dalwallinu eremophila) and *Cyphanthera odgersii* subsp. *occidentalis* (western cyphanthera), surveys for new populations of *Guichenotia seorsiflora* and *Pityrodia scabra* (Wyalkatchem foxglove) and the establishment of a threatened flora herbarium for the Shire of Wongan-Ballidu.

For more information on these and other upcoming projects please contact the conservation officers at the Northam Office, Joel Collins (joel.collins@dec.wa.gov.au) or Lorraine Duffy (lorraine.duffy@dec.wa.gov.au) on (08) 9622 8940.



Right The critically endangered Wyalkatchem foxglove (*Pityrodia scabra*).
Photo – Joel Collins

Below The critically endangered *Guichenotia seorsiflora*.
Photo – Lorraine Duffy



Recovery plans approved

One national recovery plan, three interim recovery plans that include two updated plans and a regional threatened flora management program have recently been endorsed by DEC's Director of Nature Conservation.

Some of these plans have been updated to include new information. All the plans were written with the assistance of the Commonwealth Department of Environment and Heritage's Natural Heritage Trust program.

| No/ Series No | Title | Prepared by | DEC Region/ State involved |
|------------------|---|--|-------------------------------|
| WMP 40 | Declared Rare and Poorly Known Flora in the Warren Region 2006 | Roger W. Hearn, Rachel Meissner, Andrew P. Brown, Terry D. Macfarlane and Tony R. Annels | Warren |
| National Plan | *Recovery Plan for the Gouldian Finch (<i>Erythrura gouldiae</i>) 2007-2011 | by Colleen O'Malley in collaboration with the national Gouldian Finch Recovery Team | Kimberley Region, NT and Qld |
| IRP 228 | Slender Andersonia (<i>Andersonia gracilis</i>) IRP 228 2006-2011 | Gillian Stack, Heather Taylor, Leigh Sage, Rebecca Evans, Gina Broun and Val English | Midwest, Swan |
| IRP 229 | Rose Mallee, (<i>Eucalyptus rhodantha</i>) IRP 229 2006-2011 (replaces Recovery Plan WMP14) | Kathy Himbeck | Midwest |
| IRP 230 | Shrublands and Woodlands on the eastern side of the Swan Coastal Plain (Community type 20C) 2006-2011 (replaces IRP No. 58) | Rachel Meissner, Val English and Jill Pryde | Swan |

*This plan should be cited as follows:

O'Malley, C. (2006). Recovery plan for the Gouldian Finch (*Erythrura gouldiae*). WWF-Australia, Sydney and Parks and Wildlife NT, Department of Natural Resources, Environment and the Arts, NT Government, Palmerston.

Translocation of threatened fauna and flora

Four translocation proposals were approved during 2006.

| Species | Translocation details | Proponent |
|---|--|---|
| Noisy-scrub-bird, <i>Atrichornis clamosus</i> | Noisy-scrub-birds sourced from Mermaid-Waychinicup area to Bakers Junction Nature Reserve, Porongurup National Park and Gull Rock Reserve, South Coast Region. | Sarah Comer, Alan Danks, DEC |
| Winged-fruited Lasiopetalum, <i>Lasiopetalum pterocarpum</i> | From three sources within Serpentine National Park to sites within 3 km of this source, Perth Hills District. | Vanessa Clarke, DEC |
| Prickly honeysuckle, <i>Lambertia echinata</i> subsp. <i>echinata</i> | Not an actual translocation but the establishment of a seed orchard. | Emma Adams, Sarah Barrett, Anne Cochrane, Leonie Monks, DEC |
| Mogumber bell, <i>Darwinia carnea</i> | Material sourced from the only extant population (northern end of its range) to Udamung Nature Reserve, Perth Hills District. | Gillian Stack, Maria Lee, DEC |



From far left Emma Clingan (AWU, Moora district) and Don Williams (Property owner) using a post hole digger to prepare a hole to install a pitfall trap. Photo – Kathy Himbeck; a feral bee (*Apis mellifera*) on *Conostylis* sp. Photo – Jennifer Jackson; Ted Middleton planting Albany Banksia (*Banksia verticillate*) seed. Photo – Nikki Rouse; and *Caladenia graniticola*. Photo – Andrew Brown



Department of
Environment and Conservation

The Department of Conservation and Land Management merged with the Department of Environment, forming the new Department of Environment and Conservation (DEC) on 1 July 2006.

Editors: Jill Pryde, Mia Morley
DEC Species and Communities Branch
Department of Environment and Conservation
Western Australia
Locked Bag 104, Bentley Delivery Centre, Bentley WA 6983
Email: jill.pryde@dec.wa.gov.au or mia.morley@dec.wa.gov.au

