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DEPARTMENT OF CONSERVATION
& LAND MANAGEMENT
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KENSINGTON WA

Volunteers Identify Orchid Species

As appeared in Conservation News, March 2006

Volunteers have helped CALM identify a healthy population of a rare and endangered species of orchid within Kooljerrenup Nature Reserve, near Pinjarra.

A survey of the nature reserve in October by eight CALM staff and volunteers located and recorded GPS coordinates for 246 plants of the grand spider orchid (*Caladenia huegelii*), which is now the third largest known population.

CALM Nature Conservation Officer, Nicole Willers, said the Kooljerrenup Nature Reserve, on the east side of the Harvey Estuary, was of interest to conservation staff since 1995 when a CALM scientist discovered a single flowering orchid.

"This was important as it provides a link between the two areas where the orchid was previously known to exist, in the Perth metropolitan area, mainly around Southern River and Huntingdale, and down to Mardella, and further south in Busselton," she said.

"With urban expansion impacting heavily on the grand spider orchid habitat, CALM has made a significant commitment to conduct extensive surveys since 2004.

"CALM, with the help of Botanic Gardens and Parks Authority and many volunteers, visited known populations and other areas identified as having prospective habitat to carry out surveys, which were coined the Huegelii Hunt."

Success was not immediate as the 2004 survey of Kooljerrenup Nature Reserve involving 32 search hours only discovered one flowering plant, located about 500 m from the plant found in 1995.



Pictured (left to right) are volunteers John and Judy Blyth from Dalglish and Jack Kelly from Mandurah Regional Herbarium, Petra Kohn (CALM Mandurah), Nicole Willers (CALM Swan Region), volunteer Peg Foreman from Mandurah Regional Herbarium, Myles Mulvay (CALM Mandurah) and Gillian Stack (CALM Woodvale).

This year, CALM volunteers from Mandurah and Perth joined CALM staff from Swan Region, Woodvale and Mandurah work centres to search more of the nature reserve, in the second instalment of the Huegelii Hunt.

"There was great excitement among the survey team as it became clear that the orchid was healthy and abundant in the search area with many standing 70 cm high and some

'double-headers' (two flowers per stem)," Nicole said.

"The contribution of volunteers to the conservation of this orchid species has been invaluable."

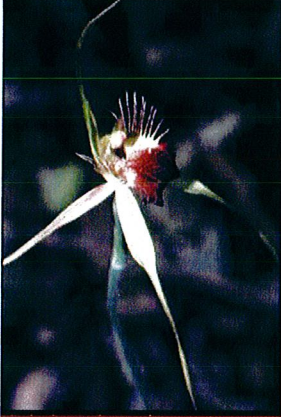
Further surveys are planned for 2006 and anyone interested in taking part can call Nicole Willers on 9368 4399. ☼

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The Editors Spiel

Frances Kirchner, Herbarium Liaison Officer, CALM Bunbury



Caladenia huegelii. Photo from FloraBase

In this edition of The Flora Scene we continue to introduce the regional herbaria of the SWCC NRM region as well as updates from those we have already met.

Many of you I know are interested in how to collect fungi and lichens so beginning with an introduction in this edition we will expand on this topic over the coming year. Please feel free to send in comments and suggestions as to how you collect and if there are other genii you would like focused upon.

With winter now upon us I have also included an article on *Phytophthora cinnamomi*.

Winter is a time when this pathogen is easily spread as mud sticks to our boots and vehicles. Please heed the precautions noted in the article when out collecting specimens.

It is my pleasure to welcome Erica Shedley to the Regional Herbaria Project as the Herbarium Liaison Officer for the South-East herbaria within the SWCC region. Erica is the first port of call for the West-Arthur/Darkan, Katanning, Kojonup, Manjimup, Northcliffe, and Blackwood herbaria.

Thank you to everyone who attended the Collecting

Workshop here in Bunbury and especially Rob Davis from the WA State Herbarium for imparting his knowledge on us. For those who missed out on this occasion we are endeavoring to repeat the event at an as yet undisclosed location so keep an eye on the letter box for those details.

For this newsletter to be relevant and informative we require your input and stories from the field so keep those articles coming

Closing date for the Spring editon: 8/8/06.

Plant Watchers Review Methods

As appeared in the South West Times, March 16th 2006

“(Hay Park) featured a unique suite of species as well as two threatened ecological communities”

The bush next to Hay Park was the meeting place for 22 volunteers from regional herbariums from across the South West on Tuesday.

The volunteers took part in a workshop aimed at standardizing the methods volunteers used for the collection of plant specimens.

Bunbury Herbarium Liaison Officer Frances Kirchner said the bush was a prime

location for the workshop because it featured a unique suite of species as well as two threatened ecological communities.

“The volunteers are amateur botanists in their own right, so to standardize the way they collect will greatly improve efficiency for staff at the WA Herbarium,” Miss Kirchner said.

WA Herbarium Technical Officer Rob Davis said the volunteers were an enthusiastic and dedicated group.☼

Plant Identification Course

When: 25/8/06

Where: Benson Room, Manjimup
CALM Office

Who: For all interested volunteers!

Please **RSVP** to Erica Shedley on
9761-7512



Pictured (L-R): Frances Kirchner, volunteers Lyn Clarke and Sue Merritt and the WA State Herbarium's Technical Officer Rob Davis at the Collecting Workshop. Photo by South West Times.

The Overlooked and Poorly appreciated Flora - Lichens

R.J.Cranfield, Botanist/Lichenologist CALM Science (WA Herbarium), Manjimup

The southwest is well represented by a group of plants that form an important component of the food chain but are usually ignored and as a result of this poorly known. This group form part of the cryptogamic flora and are known as lichens and are a part of the fungal flora. Western Australia at present recognises 750 species and 162 genera of lichens. A census of W.A. lichens has been published in 2005 and is supported by an electronic version to facilitate new records and names.

Lichens are a symbiotic partnership of an alga and a fungus that develop to form an individual unlike either the partners. The fruiting bodies of the lichens are formed by the fungal component of this union. There are five broad structural groups of lichens that can be classified as Foliose, Crustose, Fruticose, Squamulose and Filamentose. Analysis of lichen material shows that there are complex acids present in most species and it is these acids that are used to separate the species. The identification of lichens can be a challenge as published keys are sometimes difficult to use and may involve either chemical spot testing or analysis of chemical levels using chromatography techniques to separate species in many instances.

Lichens can be found on most stable substrates with some species adapting to artificial surfaces such as glazes and painted surfaces. Some species are substrate and aspect specific which makes them useful as indicator species. This approach is used in Europe to monitor pollution levels. In Australia lichens have been used mainly as indicators of vegetation and soil health. The development of lichens on various substrates is very dependant on the age of the material used

and in some instances location within the landscape.

Lichens are mainly digesters and erode rock surfaces and break down decaying woods and barks. This feature is important as they release nutrients that can be used by other life forms. Soil lichens are important in that they stabilise the soil surface and reduce erosion along with release of nitrates, which other plants can use. Some epithetic lichens appear to be using particular vascular species as facultative plant host and derive no nutrients from these plants. There are a few species of lichens that act as parasites on other lichens or other cryptogams (mosses). Most of these parasitic lichens are unnamed, minute and difficult to spot usually requiring microscopic investigation to locate and identify.

Collection of lichens has until recently been limited to visiting lichenologists many of which were based overseas who placed their collections in herbaria in foreign countries, but more recently Australia has had its own lichenologists and now has some good herbarium collections. The lichen collection in Perth is growing but the area to be covered is immense and it will be many years before the degree of coverage nears that of the vascular flora. It may be worthwhile if the regional herbaria included lichen collections as part of their activities as there are several rare species recognised. ☼

“The lichen collection in Perth is growing but the area to be covered is immense.”



Rimelia reticulata (Foliose group)

Beating the Biological Bulldozer

Lucy Mulcahy, Project Officer, Forest Management Branch, CALM Bunbury

I was walking through a southwest coastal park under the cool, dense shade of a *Banksia attenuata* woodland. The bush floor was carpeted with leaves and exquisite native plants. Some were in flower, like the purple flag, the red ink sundew and the beautiful pink boronia. The walk track was taking me along a sandy ridge. Suddenly, the canopy opened up, bare sand was reflecting the hot autumn sun back at my face. Where were the plants that should be here? Clearly, the biological bulldozer had done its damage.



The chronology of death in a stand of grass trees. Photo by L. Mulcahy

This bulldozer is a disease called *Phytophthora cinnamomi*. The term *Phytophthora* (pronounced fy-toff-thora) literally means 'plant destroyer'. When plants are killed, entire ecosystems can be destroyed and a species of plant, animal or fungus could be lost forever. The Federal Government has listed *P. cinnamomi* as one of the nation's top key threatening processes to biodiversity.

In WA, the Department of Conservation and Land Management (CALM) is battling this threat. CALM is focused on mapping where the disease is present, researching ways of limiting its impact, taking action to protect rare species at risk, raising awareness and providing information to the general public.

What is *Phytophthora cinnamomi*?

P. cinnamomi is a type of water mould that causes the disease known as *Phytophthora* dieback.

P. cinnamomi kills plants by causing a root rot that limits or stops the uptake of water and nutrients by the plant. Some plants are able to resist this attack, but such plants can become hosts for the pathogen.

How is it spread?

Humans are the most common cause of spread of the disease, by moving infested soil and plants.

Native and feral animals (especially pigs) can also spread *P. cinnamomi*.

The disease also spreads through direct root to root contact in the soil. This allows the mycelia (the microscopic threads that form the body of the pathogen) to invade another plant quickly. *P. cinnamomi* spreads upslope and across flat ground at

approximately one metre per year by this method.

P. cinnamomi produces tiny spores (zoospores) that travel in surface and subsurface water flows through the soil. The zoospores infect a plant by attaching themselves to root cells.

Can we eradicate *Phytophthora cinnamomi*?

No - there is no known way to eradicate the pathogen, although, a biodegradable fungicide called phosphite can be used to protect a plant from *P. cinnamomi* infection. Phosphite can also help a plant recover if it is already infected. Injecting a tree with phosphite provides three to five years protection; aerial spraying of an area provides one to two years of protection. Phosphite is safe to use - its toxicity to humans and animals is similar to table salt. There is also a very low pollution risk because only a small concentration is needed to protect a plant.

How can I stop the spread of *Phytophthora* dieback?

The easiest way to stop the spread of *Phytophthora* dieback is to **plan ahead**; the aim is to ensure there is no soil movement between bushland areas.

So, where possible plan your bushland activity for a time when the soil is dry. Avoid entering the bush after it has rained, when the soil is wet and muddy. Spring and autumn are peak times for the spread of the disease.

Contact CALM or the local council for information about the area you are planning to enter.

As you would for any bushland activity, obey the signs you see and stick to existing tracks.

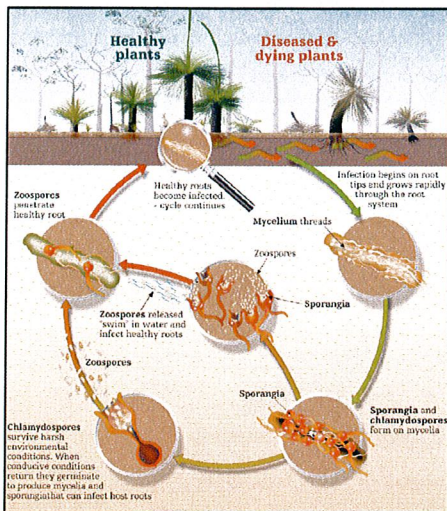
Make sure that all your equipment, tools and footwear are free from soil and mud.

You could join your local dieback action group or community conservation group. They will be able to provide you with many more guidelines to help stop the spread of *Phytophthora* dieback.

Where can I find out more information?

For more information, visit CALM's Naturebase website (www.naturebase.net) or contact the Dieback Working Group, or your local environmental group. The Dieback Working Group website is <http://www.dwg.org.au> and their contact phone number is 08 9257 9937.

"When plants are killed, entire ecosystems can be destroyed and a species of plant, animal or fungus could be lost forever."



Update from Cape Naturaliste

Don Carter & Hazel Cole, Cape Naturaliste Regional Herbarium

This month we started a survey of the very scenic Big Rock Reserve near Dunsborough. This is 78 hectares of bushland with steep sided valleys and a large rock dome at the eastern end. Spectacular views of Geographe Bay can be admired from the top of Big Rock.

We have divided the reserve into three parts reflecting different topography and to make the survey more manageable. We are grateful to Shirley Fisher (Bunbury Regional Herbarium volunteer) who has volunteered to survey the steep southern boundary of the reserve.

Exceptional summer rain appears to have triggered some local wildflowers to flower early such as *Conostylis setigera subsp. setigera* and

Agrostocrinum birsutum.

Overall we have completed surveys on seven reserves in our area. The Toby Inlet Catchment Group has been very active in developing management plans for these. Six reserves now have management plans in action or in draft stage. Our surveys are monthly and record all plants flowering on the day of the survey over a period of 12 to 14 months.

Specimens are collected from plants when we are uncertain of their identification. These are forwarded to the WA Herbarium for determination. The survey records all flowering plants and their flowering period.☼



Agrostocrinum birsutum Photo by FloraBase

Flora of the Cape Naturaliste Region CD

A revised CD (Dec. 2005) of the Flora of the Naturaliste Region has been completed by the considerable efforts of members of the Toby Inlet Catchment Group (TIC). The Cape Naturaliste Regional Herbarium is very grateful for their efforts and generous access to their resources. Copies of the CD may be ordered from TIC (Brian Clay 9755 3384) for \$15 plus \$5 postage.

"We have hundreds of plants mounted....and several hundred still in boxes awaiting processing."

Introducing: The Kojonup Regional Herbarium

Chris Lewis, Kojonup Regional Herbarium volunteer

It is hard to realize that twelve years have passed by since in 1993 a group of Wildflower enthusiasts in Kojonup banded together to apply to Greening Australia for the "Regional Natural Resources Kit."

As we were all involved in the Land care movement in our district we could see the tremendous benefit there would be in having a link with the WA State Herbarium and to be able to have our plant identifications checked and verified.

In early 1994 we eagerly received "our kit", book case,

files, textbooks and after attending wonderful workshops we set to work collecting.

Now after some periods of great activity and a few quiet times we have hundreds of plants mounted and files some with photos presented for all to see at Kodja Place, the tourist center, and several hundred still in boxes awaiting processing.

"Kodja Place" Kojonup's visitors center is open to the public seven days a week from 9am to 5pm.

Members of the land conservation committee who

wish to replant local species use the Herbarium. It is very popular with wildflower enthusiasts and tourists wanting to know what flower is this.

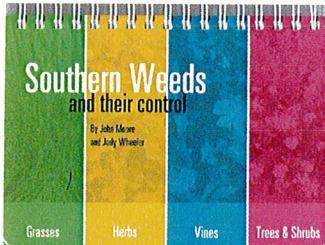
The Herbarium is particularly valuable when it comes to identifying the 500-600 plants that are collected for our Wildflower display in October.☼



Members of the Kojonup Regional Herbarium with Erica Shedley, Herbarium Liaison Officer.

Weed ID and Control Course

Olga Green, Bunbury Regional Herbarium volunteer



Southern Weeds and their control by John Moore and Judy Wheeler, available from the Department of Agriculture.

Jean and I from the Bunbury Regional Herbarium, had a most interesting expedition, with Frances, 2 days of WEEDS...

Approximately 20 people headed to Lake Clifton for a Weed ID and Control Course run by the Department of Agriculture and presented by John Moore.

John being a weed guru was full of information. In removing weeds, he suggested we select the rare and endangered areas, remove the large blocks of weeds first and clean up the odd ones second, remembering that tree roots cover an area equal to their

canopy with many being quite close to the surface.

He also noted the importance of selecting the right chemical for the situation as some sprays are residual and thus remain active in the soil for sometime, which is not recommended where you plan to replant at once.

Other important points raised include:

- Some seed remains viable in the soil for a long time so a once off spray is not going to work, you need to maintain the area over a number of years;

- Grasses can choke out small seedlings so you need to get on top of weed invasions as soon as they appear

- Compost helps when replanting but make sure it is not too thick as it will prevent moisture reaching the roots...

We received some very useful printouts which we can add to our information in our library. I did try to make notes, regret my fickle memory. It was a very interesting time and other people were all very friendly. Thank you Frances for your company, and excellent driving.☀

Darkan Calling.....

Lyn White, West Arthur-Darkan Regional Herbarium Volunteer

"Some (chemical) sprays are residual and remain active in the soil for sometime."

The West Arthur Wildflower and Plant Group met recently for an impromptu specimen mounting day. The group of six people, including two recruits, added 79 to the permanent files, which number 960 to date. Just 157 pressed samples to go!

For these occasions, which are a great opportunity to compare notes and reacquaint ourselves with our district's plant species, the local Arts Council premises have proved the ideal location. We look forward to more collection days and wish you all happy hunting!☀



L-R J. Smith, L. White, and V. Putland at a recent mounting day. Photo by V. Crowley.



L-R V. Crowley, V. Putland and J. Smith surveying for Synaphea flabelliformis last year. Photo by L. White.

Wellington Weeds

Tenielle Brown, Nature Conservation Officer, CALM Bunbury

In an effort to discuss options for treating a number of invasive weeds within Threatened Ecological Communities of the South West, Kate Brown of CALM's Urban Nature Program recently joined several CALM staff for a tour of duty.

Weeds are usually best assessed when they are flowering, but due to spring being a very busy time for any staff involved in flora management it was decided to make the most of the current opportunity to quiz Kate on all things weedy.

Three threatened community types were covered, including *Eucalyptus calophylla* and *Xanthorrhoea preissii* woodlands and shrublands, herb rich shrublands in clay pans and dense shrublands on clay flats.

Weeds such as couch, *Watsonia*, freesia, African lovegrass and bridal creeper are invading communities across a number of occurrences, and to varying

degrees.

Unfortunately with most of these communities there is a very small window of opportunity to treat weeds as a result of inundation during winter. The type and strength of chemical application must be carefully considered when looking at the implications of contamination in the wetter environment.

It became apparent that in several areas where mapping of weed invasion has not been completed this is a priority. This will allow us to determine how effective future weed control is.

Several trials that have proven successful in the metropolitan area, through Kate's work, may have validity for replication in the South West, especially in communities of the same type.

One of the most serious weeds in the South West, *Watsonia*, was discussed at length. The best time to treat

this weed is at its weakest, when the corm is exhausted as a result of producing flowers, and before seed set. Taking into consideration the time taken for water to recede in these communities, there is usually a window of about 2-3 weeks.

To make weed control effective in these areas it is important to plan priority areas to be targeted and ensure that resources can be made available at the most appropriate time.

With a general shortage in CALM staff, it may be an opportunity for cooperative efforts with the assistance of volunteers from herbariums, friends of groups and students to assist with weed monitoring. ☀



Discussing weeds in Waterloo Nature Reserve (L-R) Katharine Dickinson (Associate Professor of Botany, on sabbatical from Otago University, Dunedin NZ), Russell Smith, Frances Kirchner, Kate Brown, Darren Harvey and Wink Ferris. Photo by T. Brown.

"Weeds such as couch, *Watsonia*, freesia, African lovegrass and bridal creeper are invading (TEC) communities."

Upcoming Training Opportunities

Perth Urban Bushland Fungi

- 10/6/06 Koondoola Bushland walk
- 18/6/06 Whiteman Park Workshop
- 19/6/06 Fungi of Costa Rica talk, 7:30pm, Hew Roberts Lecture Theatre UWA
- 2/7/06 Trigg Bushland Workshop
- 9/7/06 Modong Bush walk
- 16/7/06 Maida Vale walk
- 23/7/06 Queens Park Bushland walk

For more information go to :
<http://www.fungiperth.org.au/>

Skills for Nature Conservation

- 17/6/06 How to Recruit Volunteers & Keep them Interested
- 4/11/06 Knowing & Managing Native & Introduced Grasses



For more information go to :
http://www.naturebase.net/urbannature/pdf/SFNC_Calendar_06.pdf
Or phone 9374 3333



For information or to submit an article contact

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Useful Websites:

<http://florabase.calm.wa.gov.au/>

<http://www.calm.wa.gov.au/>

<http://www.lotterywest.wa.gov.au/>

Reminder!

For those of you who are registered CALM volunteers you need to be keeping a record of the hours you have worked and regularly forwarding these either to myself at the relevant address or Marg Buckland from the Community Involvement Unit who can be contacted on 93340251.

Why? It ensures that you are insured when volunteering for CALM and if you reach 50hrs of service within a calendar year you will receive an annual national parks pass! For those brave enough to reach 500hrs you will also receive a one year subscription to Landscape.

Funding Opportunities

If you would prefer to receive this newsletter in electronic format please let me know.

- **Lotterywest and the Gordon Reid Foundation** have ongoing grants available to community organisations involved in the Conservation of Western Australia's natural habitats and diversity. Find out more at <http://www.lotterywest.wa.gov.au/>
- **Coastwest Community Support Grants** also have ongoing grants of up to \$3000 available to community groups for capacity building exercises. Contact the State Coastwest Coordinator, Mr. Bill Cuthbert, to discuss on 9264 7834 or by emailing Coastwest@wapc.wa.gov.au
- **The NAB Volunteer Awards** recognise volunteer groups who demonstrate "best practice" in the management of volunteers. Winners share in a total prize pool of \$364,000. Find out more at <http://www.national.com.au/community/> or by phoning 1800 807 121 or emailing nab@javelinaustralia.com.au
- **Threatened Species Network Community Grants** closes Friday 2nd June. Grants of up to \$50,000 are provided to community groups to support work on the conservation and recovery of threatened species and ecological communities. Find out more at <http://www.wwf.org.au/tsn>