

August 2 2012
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OBJECT: To foster an interest in nature

MEETING—THURSDAY 2nd August
7:30pm Gould Wing, Building 116
Australian National University
Venue details back page

LAKE GEORGE

Graeme Barrow

Biography and history of Lake George

Lake George is a vast sheet of water not far by road from Australia's national capital, Canberra. It attracts fascinated interest because its waters regularly disappear before returning, sometimes years later. Evaporation is the cause, with the rate of loss exceeding replenishment of the lake through rainfall and inflow from creeks.

Indigenous people knew of the lake for thousands of years before Europeans discovered it in 1820. The Aboriginals called it Weereewaa, but Governor Lachlan Macquarie, who saw the lake in October 1820, decided to ignore this charming name and call it Lake George after a dissolute English king.

Graeme Barrow is a Canberra author best known for his bushwalking guide books. In 2006 he won the non-fiction section of the ACT Writing and Publishing Awards for his book *Unlocking History's Secrets*. Graeme is a former editor of the *Canberra Historical Journal* and has published several books on local history. He is the author of many publications on local history and bush exploration. Some of his publications are probably present in most Canberra homes.

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Diary of Events

Club Nights

Sept 6 Dr **Denis Anderson** on "**Reducing the threats to pollination**". (Denis is recognised as a world expert on bees)

October 4 Annual General Meeting and preparation for the Australian Naturalists Network (ANN)

November 1 **Bill Gammage** author of Biggest Estate On Earth: How Aborigines Made Australia

December 6 Christmas function

Outings

Sunday August 5 Red Hill signposted geological walk Meet in the car park near the lookout/cafe, take our walk and then have coffee either from the boot or in the Cafe.

Sunday September 13 **Black Mountain. Forest trail.** This Forest Trail walk starts and finishes at the parking area half way along the road to the summit.

The parking area is on the right hand side as you are driving up Black Mountain. Walk across the road to the start of the track.

Meet at the car park 1/2 way up 10 am.

Presidential Musings

Chris Bunn

We are now only a few months away from ANN in October. Rosemary von Behrens in particular is working finalising the program. Shortly you will be receiving information about how members can be involved from day-to-day.

One worry is controlling finances. Obviously our aim is not to make a loss, but also not appear greedy. A worry also has been a few late cancellations .

As outlined on page 2 we have the program now outlined until the rest of the year, with some very interesting speakers. Please invite friends to attend.

The AGM is also due in October and the club urgently needs fresh blood on the executive. The current executive cannot be expected to continue indefinitely.

FeralScan

FeralScan (www.feralscan.org.au) is a new community website that allows you to map sightings of pest animals and record the problems they are causing in your local area. FeralScan will have direct benefits to farmers, community groups and individuals managing pest animals and their impacts. FeralScan provides mapping websites for foxes, pigs and goats, Indian myna birds, wild dogs and more. There are an amazing number of resources available for each feral species including links to grants to fund future projects. Visit <http://www.feralscan.org.au/default.aspx>

A summary of FeralScan is available from the Feral.org website: <http://www.feral.org.au/feralscan/>

Features of Eucalypts

In 1975 the late Lindsay Pryor (Professor of Botany, ANU) was the author of a booklet aimed to provide an introduction to the biology of the eucalypts. This booklet was one of over 60 produced by the Institute of Biology based in London. I picked up a copy from a recent book sale and have summarized below some of the points made by Lindsay Pryor in this small but fact-filled booklet Chris Bunn

Very much an Australian specialty, about six northern species occur also in New Guinea and east Timor. One species *Eucalyptus deglupta* does not grow naturally at all in Australia.

Within Australia, no species are shared between south-western Australia and south-eastern Australia.

A distinct vegetative feature is the leaves. Most species have a petiolate falcate-lanceolate leaves in shape, similar on both surfaces. All vegetation is leathery and tough textured (sclerophyll) and have more or less vertical alignment.

Juvenile type leaves may be radically different from the adult. One of the best known is *E globules* in which the juvenile leaves are opposite, sessile, highly glaucous and oblong-acuminate in shape and dorsiventral, while the adult leaves are alternate, petiolate, non-glaucous, falcate-lanceolate and mostly vertical.

An unusual feature seen in Eucalypts and some members of the Proteaceae family is a swelling at the base of the stem at soil level or just below. This swelling, known as a lignotuber, contains dormant buds, which burst into life when the top growth is destroyed (usually by fire).

The bud system of the leafy shoot of *Eucalyptus* has some unusual features. In the axil of each leaf there are always originally two buds, one is called a naked bud the source during an ordinary growing season of the lateral branches of leafy shoots. At the same time there is a second bud which is covered by tissue. In the first growing season it does not usually develop to form a leafy shoot, but in many environments, the stresses of dry or cold conditions lead to aborting and death of the naked buds. When growth resumes in the following season it is usual for the new shoots to be produced from concealed buds. Not all concealed buds are stimulated to growth after a season of stress and some of them remain dormant indefinitely. Their existence is appreciated most readily when an individual tree is subjected to defoliation either by fire, drought, leaf-eating insects or mechanical damage. Then released from their dormancy they spout epicormic shoots all over the trunk and main branches. Interestingly the leaves produced from the dormant buds are of the juvenile type.

A small number of species have an alternative strategy to survive fire. These are the species of the wet sclerophyll forest, which in general are less resistant to fire in the adult stage than the great majority of eucalypts. *E regans* is often completely killed by an intense fire. There is a compensating condition. These species in most years carry heavy crops of fruit from which the seed rain is very intense after a heavy fire. The removal of undergrowth and killing of trees of various ages creates a suitable seed bed with a regeneration of $\geq 20\ 000$ small seedlings per ha being recorded.

Bark shed in decortivating species is seasonal and often associated with a colour change — *E rubida* (candlebark) for example is named because of the rosy colour which the trunk assumes when the dead outer bark is shed in midsummer. The bark may shed in a patchy way to give a mottled appearance as in *E maculata* (spotted gum).

The most distinctive feature of the *Eucalyptus* flower is the presence of an operculum — a cap covering the reproductive organs. The cap is shed at the start of flowering setting the reproductive process in action. The operculum in most eucalypt species is a combination of two such caps, outer and inner. These are interpreted as being the calyx and corolla respectively of a tetramerous (having four similar parts) flower, in which the four separate sepals are united into a single cap and the separate petals into the second inner cap.

The *Eucalyptus* flower has some of the general characteristics of the Myrtle family such as the large number

(Continued on page 4)

(Continued from page 3)

of stamens and perigynous of the outer floral whorls (i.e. the female arrangement of the flower is at the same level as the stamens).

The seed is mostly small, 600 000 – 700 000 per kilogram even when mixed with chaff. The seed when temperature and moisture are suitable will germinate within a week. In cold areas seeds may require low temperatures for 4-6 weeks before germination (mimicking snowfall areas).

Eucalypts are in general protandrous. The stigma usually becomes receptive one or more days after the stamens are fully expanded, by which time much of the pollen is already removed from the anthers by visiting insects. This favours pollination from another source, although it still could be the same tree.

Many pairs of species of Eucalypts can and do hybridize. Under natural conditions the species do not break down genetically and the products of interspecific breeding remain few and scattered relative to the total species population numbers.

Frozen ground is lethal to eucalypts, the snow cover regularly present in the cold parts of their environment ensures that they are not exposed to this condition. Often plants need “hardening off” An example is provided by *E bicostata* which is quite able to stand -10°C at 600m elevation in Canberra but has trouble surviving in Coffs Harbour at 50m with a minimum -3°C.

While eucalypts are completely able to complete their life cycles on sites of low nutrient status (especially in phosphorous), however they retain the capacity to respond markedly with improved phosphorus and nitrogen levels.

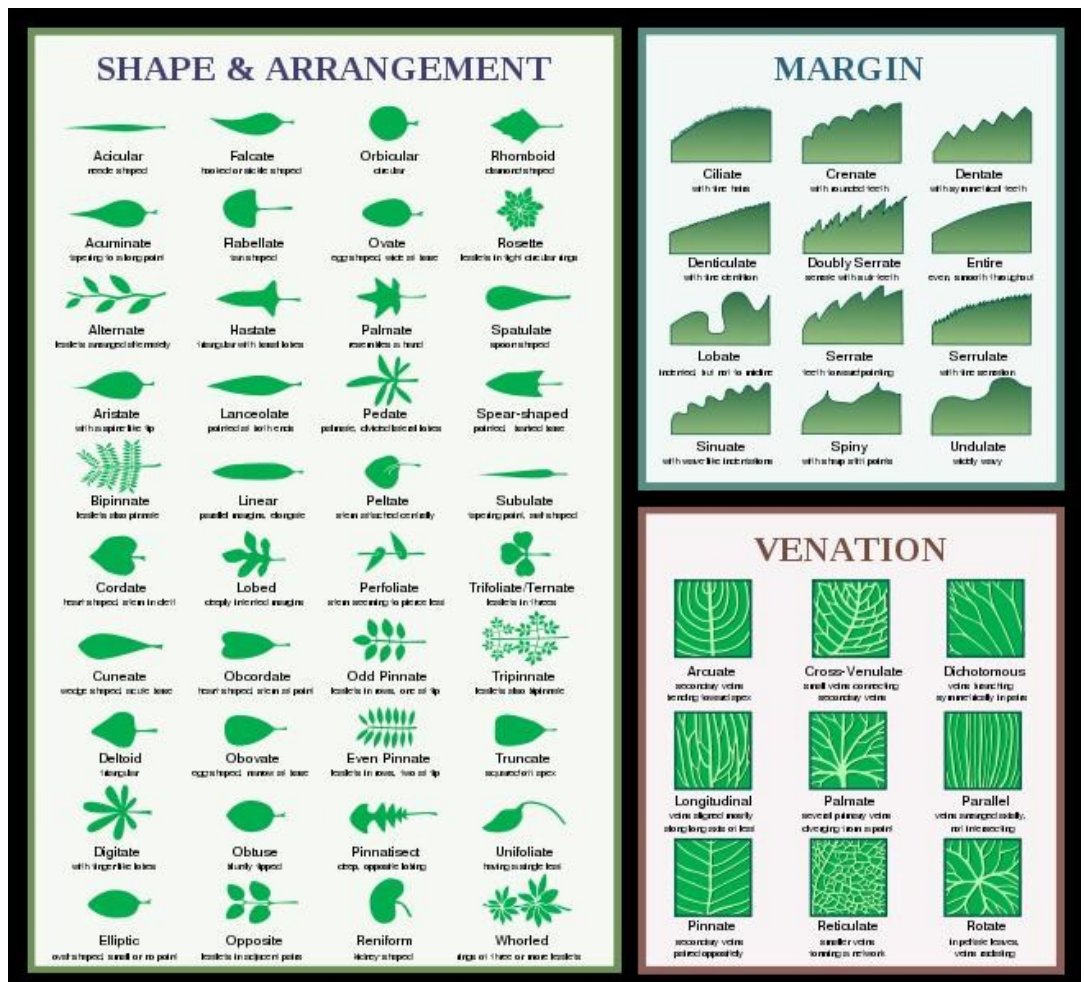
Eucalypts are evidently able to endure very low levels of many of the minor elements, which causes deficiency signs in other species e.g. the need to add zinc supplements when pines have been planted on previous eucalyptus sites of low fertility.

LEAF morphology

This chart is downloaded from Wikipedia.

A clearer image can be obtained from

<http://en.wikipedia.org/wiki/Leaf>



Note — We have been trying to obtain Kate Gracock as a speaker but she is not available until next year. A scientific paper relating to her work has just been published on the internet. The abstract of that paper is produced below.

Is It Benign or Is It a Pariah? Empirical Evidence for the Impact of the Common Myna (*Acridotheres tristis*) on Australian Birds

Kate Gracock, Christopher R. Tidemann, Jeffrey Wood, David B. Lindenmayer

Abstract

There is widespread concern over the impact of introduced species on biodiversity, but the magnitude of these impacts can be variable. Understanding the impact of an introduced species is essential for effective management. However, empirical evidence of the impact of an introduced species can be difficult to obtain, especially when the impact is through competition. Change in species abundance is often slow and gradual, coinciding with environmental change. As a result, negative impacts on native species through competition are poorly documented. An example of the difficulties associated with obtaining empirical evidence of impact due to competition comes from work on the Common Myna (*Acridotheres tristis*). The species is listed in the World's top 100 worst invaders, despite a lack of empirical evidence of its negative impacts on native species. We assessed the impact of the Common Myna on native bird abundance, using long-term data both pre and post its invasion. At the outset of our investigation, we postulated that Common Myna establishment would negatively affect the abundance of other cavity-nesting species and bird species that are smaller than it. We found a negative relationship between the establishment of the Common Myna and the long-term abundance of three cavity-nesting species (Sulphur-crested Cockatoo, Crimson Rosella, Laughing Kookaburra) and eight small bird species (Striated Pardalotes, Rufous Whistler, Willie Wagtail, Grey Fantail, Magpie-lark, House Sparrow, Silvereye, Common Blackbird). To the best of our knowledge, this finding has never previously been demonstrated at the population level. We discuss the key elements of our success in finding empirical evidence of a species impact and the implications for prioritisation of introduced species for management. Specifically, prioritization of the Common Myna for management over other species still remains a contentious issue.

PLoS ONE 7(7): e40622. doi:10.1371/journal.pone.0040622

Rock wallaby bounces back in South Australia

An ecology program in South Australia's north has been successful in saving a species of wallaby from possible extinction. The South Australian Government's **Operation Bounceback** has increased some yellow-footed rock wallaby populations by more than 20 times since it began in 1992.

Project officer Trish Mooney says feral animal control has played a major part in the recovery of the species and its food supply.

"In the Flinders Ranges National Park, before the management program commenced in the early 90s and late 80s, the population was thought to be less than 50," she said.

"We know the population from 2009 from the aerial surveys have increased to over 1,000.

"But I emphasise that's occurred in areas where there's have co-ordinated fox and goat control."

Urban spread poses new threat to endangered frogs [Vic]

28/6/2012 Banyule and Nillumbi Weekly: <http://www.banyuleandnillumbikweekly.com.au/news/national/national/environment/urban-spread-poses-new-threat-to-endangered-frogs/2606103.aspx> by BRIDIE SMITH. "MELBOURNE'S expanding urban growth boundary is forecast to hit remnant populations of one of the state's most endangered frogs, just as new figures show an almost 30 per cent drop in growling grass frog populations over the past decade. Results of a Melbourne University survey released to The Age found the **growling grass frog** suffered "significant and unsustainable population decline" around Melbourne, due largely to a loss of habitat, drought and disease. The survey compared population data recorded at 152 sites across Melbourne's north in 2001-02 and in 2011-12. Geoff Heard, research fellow at Melbourne University's school of botany, said in the decade to 2012 there had been a 29 per cent decline in growling grass frog populations in this area." Follow link to read full story.

CITIZEN SCIENCE—a shining example from Western Australia

Citizen Science is research and monitoring conducted by communities in the public interest. It is not directed by government or driven by the market and its participants are largely volunteers, or communities may fundraise to pay a few part-time positions.

Citizen science focuses on research and monitoring programs that governments or businesses can't or won't fund. The Conservation Council Western Australian (CCWA) Citizen Science Program is designed to build capacity at the community level to fill gaps in government programs around ecological monitoring of the kind necessary to monitor the biological responses to climate change or long-term outcomes of biodiversity oriented natural resource management projects.

The Conservation Council of WA has established a Citizen Science Network and participants are involved in a variety of projects.

Currently CCWA has 6 Citizen Science Projects and new ones are being developed with affiliate and other community groups. In particular, the Albany Environment Dredging Network is working with the CCWA Citizen Science program to develop marine monitoring.

Also, to benchmark the current frequency and dispersion of fugitive GM Canola plants a 'citizen-science' monitoring project was conducted in the Esperance region in 2011. Examples of current activities are listed below

ACTIVITY
Bird banding (feather sampling), small vertebrate sampling.
Routine monitoring of 10 bio-indicators including vegetation, ants, bats and dunnarts.
Testing for the spread on fugitive Canola plants at a property near Cunderdin.
Banding, feather sampling and feeding observations of Caspian Terns on Penguin Island.
Vegetation survey and weed control experimental treatments on Rat Island, Houtman Abrolhos

OUTCOMES OF THE CITIZEN SCIENCE PROGRAM

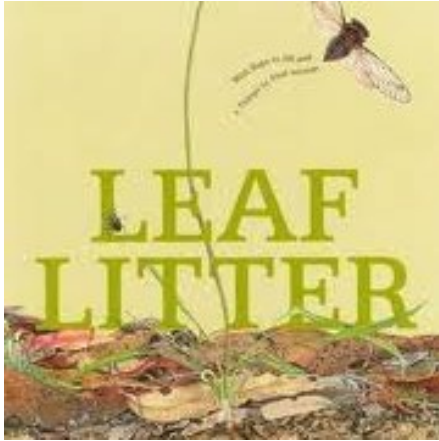
- Scientific papers and monitoring reports that highlight important environmental issues.
- Visible impact in influencing policy or decisions.
- A network of *circa* 150 citizen-scientists most with no previous engagement with CCWA.
- Increased community capacity and empowerment.
- New partnerships with other environmental organizations.
- Re-engagement with 'hobbyist' affiliate groups.
- A new visibility for CCWA in the regions (particularly outside the metropolitan area and forested South-West).
- Strong bonds between participants based on the shared enjoyment of nature-based experiences.

*The importance is the focal organisation through the CCWA with a designated person to be the coordinator. To my knowledge such an arrangement doesn't exist in the ACT.
For more information visit <http://ccwa.org.au/programs/citizen-science/>*

Book Reviews

Explorations for the curious

I've recently enjoyed introducing a range of people to Rachel Tonkin's *Leaf Litter* (Harper, 2006)



The large format picture book has 14 double-page paintings depicting the diversity of life, action, death and life cycles amongst the leaf litter typical of southern Australia's temperate woodlands.

Tonkin is based in Castlemaine so the species she's accurately shown are familiar. The range of species is enhanced by lift-the-flap excitement on each page and ten additional challenges for the observant to find are listed ahead of the excellent glossary. Below each page a detailed text suggests and explains features for searches and sharing both above and below ground level.

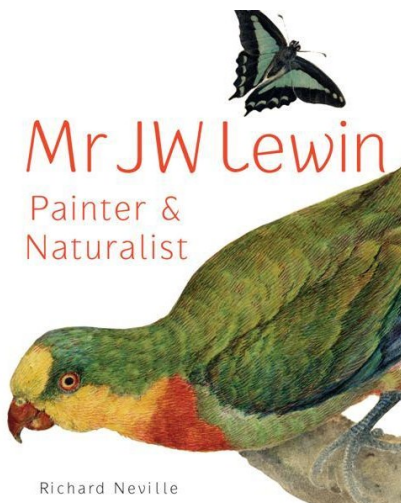
Leaf Litter is a beautiful book and a colourful way to convince people that rather than being dead, drab and lifeless, leaf litter is teeming with nutrient-generating organisms from microbes to invertebrates and reptiles, frogs and small mammals. Foraging birds enter each scene. Plants' form and seasonal changes give each painting structure with an ancient eucalypt focussing attention on textures and natural patterns.

The paperback edition is available from the Botanical Bookshop for \$18 and opens out nearly as well as the original hardback copies. *Leaf Litter* is an ideal introduction to the vitality and essential nature of soil and an affirmation that we cannot afford to destroy the ground layer of the land.

Rosemary Blemings

Mr J.W. Lewin; painter and naturalist Richard Neville State Library of NSW. 272 pages. RRP \$40

John Lewin is becoming better known here after a being long time obscure; I welcome his emergence.



He was an English illustrator sponsored by the wealthy silversmith and amateur entomologist Dru Drury to come to Australia in 1798; he was provided with collecting gear and engraving materials which he was expected to refund in kind, with insect collections and engravings. When Drury died in early 1804 Lewin expanded his interests, particularly in the direction of bird art. He always needed to make a living and had of necessity an eternal eye out for what was going to be attractive to potential purchasers, both in the colony and back in England. This didn't prevent him from being both original and exacting, and the fact that he was familiar with most of his subjects set him apart from his contemporaries who were generally working only from skins. He made a point of including habitat or relevant vegetation with both his bird and insect paintings, a style that was most uncommon at the time. As Neville says: "Unlike any of his contemporaries, Lewin painted the peculiarities of the Australian environment with a startling confidence, boldness and literalness." They stand up well to having details magnified, a feature of the book. I've had cause recently to become familiar with many of his Australian paintings per

the National Library of Australia's excellent on-line services, but even so I found many works here I didn't know, from collections in New Zealand, Canada and Britain. Importantly Neville (Mitchell Librarian at the State Library of NSW) sets Lewis's story in its historical context, making this an important addition to the telling of our story, as well as being a beautiful (and affordable) book.

Reviewed by Ian Fraser a Canberra-based professional naturalist and writer who is the author of seven books on local natural history, most recently A Bush Capital Year,



Field Naturalists' Association of Canberra Inc.

Who are the Field Naturalists?

The Field Naturalists' Association of Canberra (FNAC) was formed in 1981. Our aim is to foster interest in natural history by means of meetings and regular field outings. Meetings are usually held on the first Thursday of each month. Outings range from weekend rambles to long weekends away. Activities are advertised in our monthly newsletter. We emphasise informality and the enjoyment of nature. New members are always welcome. If you wish to join FNAC, please fill in the member application below and send it in with your subscription to the FNAC Treasurer at the address below.

President: Chris Bunn (02)62412968/0417407351

Email: fieldnaturalist@yahoo.com.au

Website: www.fieldnatscanberra.com

All newsletter contributions welcome, material published does not necessarily reflect the views of the club



Monthly meeting venue: Division of Botany and Zoology, Building 116, (Gould wing) Daley Rd, Australian National University. Park (occasionally the adjacent building 44). Meetings start at 7:30 pm and are followed by refreshments.

**Field Naturalists' Association of Canberra
GPO Box 249
Canberra ACT 2601**



MEMBERSHIP APPLICATION OR RENEWAL

Family name: First name:

If a family membership, please include the first names of other members of the family:

.....

Postal address:

Suburb: State: Postcode: Home phone:

Work phone: Email address:

Subscription enclosed: \$.....(Single/Family \$25) Donation: \$.....

How did you hear about FNAC? Please circle: FRIEND? OTHER? Please specify: