THE NATURALIST NEWS

PUBLISHED FOR NATURALISTS IN WESTERN AUSTRALIA

THE WESTERN AUSTRALIAN NATURALISTS' CLUB INC

FOUNDED 1924

ABN 97 932 293 116

POSTAL ADDRESS PO BOX 8257, PERTH BUSINESS CENTRE, WA, 6849

PHONE: (08) 9228 2495

Email: info@wanaturalists.org.au Website: www.wanaturalists.org.au

JUNE 2015

MISSION: **To encourage the study and protection of the natural environment**

CONTENTS

COUNCIL CORNER

AUSTRALIAN NATURALISTS' NETWORK 2016

Planning for the Australian Naturalists' Network meeting in 2016 in Perth has started. The Steering Committee, consisting of Jolanda Keeble (Chair), Margaret Larke (Secretary), Don Poynton (Treasurer), Amrit Kendrik (Marketing), Lutz Elber, Pam Ghirardi and Kath Muntz has been busy inspecting venues, looking at menus, budgets, bus companies, taking walks and talking to club members and the Toodyay and Busselton Naturalist clubs.

So, mark the tentative dates in your diary: Saturday 1 October to Monday 10 October.

The ANN will be a fully-catered event and will include daily bus excursions to areas of interest covering a range of ecosystems unique to Perth and surrounds, including Rottnest.

We intend to run a separate pre-meeting tour north to the Kwongan, wildflowers and everlastings and a post-meeting tour south.

Please note: we are very much at the beginning of planning so nothing has been set. We have received many ideas from members.

We will be keeping you posted on developments and you will receive a call for expressions of interest soon. As the time approaches we will be asking for your help in making this ANN enjoyable and informative.

Margaret Larke

MAIN (CENTRAL) CLUB

MEETING REPORT, APRIL: MARINE TURTLES

The Secret Life of Western Australian Marine Turtles was the full title of a lively presentation by Dr Kellie Pendoley. Since 1985 Kellie has been studying marine turtles and their interaction with human industry. This work has taken her to the mouth of the Congo River in Angola, Norfolk Island, Queensland, the Kimberley and especially the Pilbara region of WA, where she has worked on turtle biology and ecology. Her PhD involved the environmental management of turtles in relation to industry on Barrow Island, Lowendal Island and the Montebello Islands.

Kellie has studied three species of marine turtle in Australian waters. They are *Eretmochelys imbricata* (Hawksbill), *Chelonia mydas* (Green) and Kellie's favourite *Natator depressus* (Flatback). Each species has its own behaviour and migration pattern.

Kellie's talk addressed commonly asked questions such as what determines their sex, why they hatch at night, why they don't emerge straight after hatching and how the hatchlings find their way to the sea. There is also the mystery of where turtles go during their "lost years" out at sea, and how they find their way back to their natal shores. And there is the myth of the full-moon hatching event.

Turtle nesting beach, K. Pendoley

During their 6-8 weeks' incubation, the temperature of the nest at a critical time determines the hatchlings' sex. Those at the bottom of the nest may be exposed to temperatures below 28°C and become males, while those higher up in the nest are often exposed to higher temperatures (over 31°C) and become females. Global warming has implications in this process. In some nests many of the eggs die through overheating and a 30 per cent survival

rate is not unusual. Temperature also determines the timing of the emergence of hatchlings and their rush for the sea: after hatching, they wait a few days while the yolk is re-absorbed, and then emerge from the sand at the surface of the nest when the temperature drops. This happens at night or when it rains. The "moonlit night" myth probably arose because that is when people formerly went looking for hatchlings. Hatchlings head for the horizon that is low and bright. Under natural conditions that is the horizon over the sea, but when there is an artificial light, this cue may lead them in the wrong direction.

Turtle eggs, K. Pendoley

Although turtles are resilient and often survive major injury, there is still an enormous loss of numbers from predation during the dash to the sea. On the beach, Perenties, gulls and even bettongs prey on the baby turtles. Then there is predation by fish and octopus as they head out to sea. The young turtles swim straight into the wave-front, which draws them further offshore where it is safer. Beyond the near-shore wave zone, they use the earth's magnetic map to migrate.

After that, there is the mystery of the "lost years" when hard-shelled turtles (Green and Hawksbill) are out in the deep ocean for up to 20 years before being seen again. The endemic Flatback Turtle doesn't share this same deep ocean habitat. Instead, they remain on Australian continental shelf waters their entire lives. Little is known of turtle behaviour during that time, but some species are thought to feed in mid-ocean zones where there are ecosystems based on marine macro-algae (seaweeds), such as the Sargasso Sea. Reaching sexual maturity takes up to 50 years in some species. They return to the beaches in the region of their birth, which may include the beach they hatched from decades earlier. While human disturbance at the nesting beaches is ignored by sexually mature females, it is thought that the first-time nesting females are more sensitive and will find another beach.

Mating occurs offshore from the nesting beach. Kellie described some strange mating behaviour: confused males may mate with a female of the wrong species or even attempt to mate with a log. Divers beware! After basking on the nesting beach, females may mate with several males offshore. Sperm from several males is stored in the female's body and the eggs are subsequently fertilised from this. Females then move offshore to inter-nesting grounds for approximately 14 days while the newly fertilised eggs develop before returning to the nesting beach to lay a clutch of eggs; this is repeated 3 to 5 times in the season. Typically, Green Turtles lay 100 medium-sized eggs, Hawksbills 150 small eggs and Flatbacks 50 large eggs. The leathery eggs are laid 60 - 100 cm deep, depending on the species. Using her flippers, the female backfills the egg chamber after laying the eggs, so that the body pit is not where the eggs are, but where she stops backfilling.

In 2000 Kellie used platform terminal transmitters to track females on their return migration to the foraging grounds, and found that Green, Flatback and Hawksbill Turtles dispersed to foraging grounds between Shark Bay and Torres Strait.

Current knowledge suggests that West Australian Green and Hawksbill Turtles leave Pilbara rookeries for the open Indian Ocean, remaining offshore for 10 to 15 years before moving as juveniles to shallow water foraging habitats in Pilbara and Kimberley mangrove systems and creeks. They reach sexual maturity in another 10 years or so, when they make their first breeding migration to their Pilbara natal beaches. They then move back and forth along the

Pilbara and Kimberley coastlines every 5 to 7 years on breeding migrations. Flatbacks do not have the same oceanic phase in their lifecycle and instead spend their entire lives moving up and down along the Kimberley and Pilbara coasts to breed every 1 to 2 years.

Green Turtle (Chelonia mydas), K. Pendoley

The threats to the survival of marine turtles off the WA coast include predation on the beach and in the sea, light from industry, boat strikes, oil spills, being caught in nets, and the ingestion of plastic bags and tar balls.

Most of us have a vague knowledge of the natural history of marine turtles but Kellie's expert knowledge, gained from years of careful observation, has answered a lot of questions which we "wanted to know but were afraid to ask". For further clarification of turtle facts and to explain her research methods, Kellie's PhD thesis is available at http://researchrepository.murdoch.edu.au/254/. There is also an article by Kellie on the first modern records of the turtles of Barrow Island in our own journal, *The Western Australian Naturalist*, vol 23 No 3 (2002).

Mike Gregson

MAIN (CENTRAL) CLUB

MEETING REPORT, MAY: JOURNEY TO REMOTE PNG

A Journey to Remote Papua New Guinea was the title of the talk by Norm Pinsky. Norm is a doctor who volunteered to visit some villages in a remote area of PNG, north-west of Port Moresby, to bring medical treatment to the inhabitants. He visited this area twice, the second time with his 15-year-old son Will.

After landing in a Cessna on one of the notoriously small and dangerous landing strips in the mountains, Norm, his son, their interpreter and five porters had to walk for three days to one village and two more days to another. This included crossing several flimsy bridges. Having been warned, Norm was prepared for a surprising welcoming ceremony, but when it came—with spears hurled either side of him—it was rather terrifying.

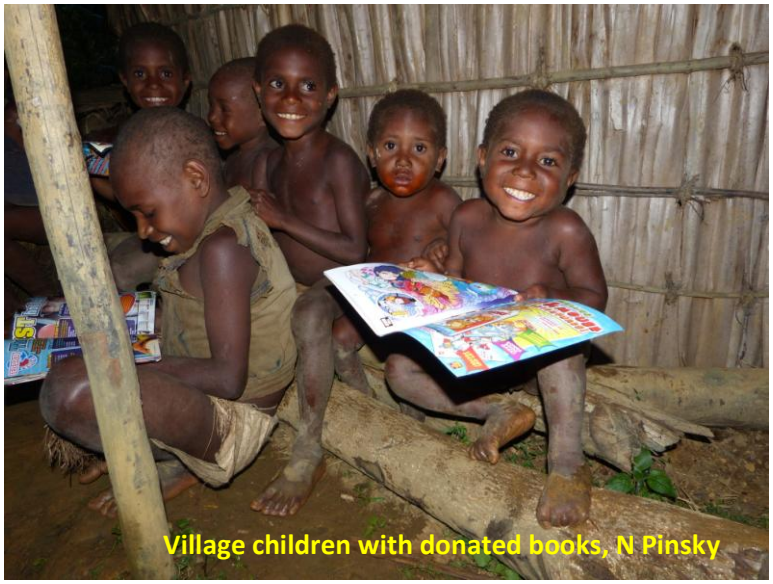
Norm encountered happy, friendly people who went about their lives without rushing, in a setting that could be described as prehistoric. No doctor had ever been there. No vaccines had ever been administered. The people had

no written records and didn't know how old they were. Some of the children wore Western clothes, but only as an adornment, it seemed.

Village huts and surroundings, N Pinsky

People came in from surrounding villages for medical help. Ailments included pneumonia, tuberculosis, blindness, cerebral palsy, possible cancer, and a broken arm that was crooked and had to be re-set. There were disabling burns, the result of fires in the grass huts. Norm was able to relieve many of the ailments, but of course there were many who were incurable—at least in the absence of a hospital and sophisticated equipment.

The preponderance of taro and banana in the people's diet results in low levels of protein, leading to kwashiorkor, or 'swollen-belly', among the children. Most of their food comes from their gardens, which the people work very hard to maintain. Insects and frogs are eaten, and the men hunt small mammals for food. But despite this, there is protein deficiency and little variety in their diet.



Village children with donated books, N Pinsky

The most difficult part of the trip for Norm was realising that the natives did not know his limitation to treat serious disease. He said, 'They had no idea that I couldn't cure blindness of 20 years, or someone who has never walked since birth. They would carry people for days over extremely difficult and dangerous terrain in

the hope that I could fix them. It was often heart-breaking.'

Norm showed us his photos of wild mountainous country, flimsy bridges, village life and smiling children, as well as some of the ailments affecting the people. There were pictures of insects, with some astounding examples of camouflage (***below left***) and the wonderful and varied beauty of PNG's moths (***below right***).

This was a first-hand account of a journey into a wild and remote landscape inhabited by people untouched by the modern world. It gave us an insight into a culture very different from our own. All this was illustrated by high-quality photographs.

Mike Gregson

NORTHERN SUBURBS BRANCH

MEETING REPORT, APRIL: WESTERN AUSTRALIA'S MEGA-TSUNAMIS

Our speaker for April was no stranger to our branch or our club. Dr Phillip Playford AM is one of Western Australia's most recognised scientists and historians. On this occasion Dr Playford provided a comprehensively illustrated presentation on evidence he has gathered to support his belief that the northern coast of Western Australia has experienced a number of mega-tsunamis over the last few thousand years.

What we learnt:

- Dr Playford's interest in tsunami deposits began in 1977 when, travelling past Legendre Island, he saw many large blocks of limestone lying above the cliffs.
- Many other boulder deposits that are thought to have resulted from two or perhaps three tsunamis are now recognised along the west coast, including those on Dirk Hartog Island, Dorre, Bernier and Koks Islands (all near Shark Bay), Point Quobba and Barrow Island.
- All these blocks have been derived from the adjacent cliffs of Tamala Limestone.
- The blocks become smaller the further inland they are from the cliffs and are only present where the cliffs are less than 20 metres above the current sea level.
- The largest block found on the west coast of Dirk Hartog Island; lying 150 metres inland and 15 metres above present sea level, it is estimated to weigh over 700 tonnes (***next page***).
- Two samples of oyster shells adhering to the blocks on Barrow Island have been radiocarbon dated as 2895 and 3777 years BP (before the present day).
- In contrast, the large blocks found along the Kimberley coast consist of silicified sandstone.
- Mega-tsunamis are likely to have resulted in the deaths of many Aborigines; tradition tells how about 300 people died, and only two survived, when a huge wave passed over the Montgomery Islands, off the West Kimberley, during the early 20th century.

- If a mega-tsunami struck the Pilbara coast today a large amount of the LNG and iron ore loading infrastructure would be at risk.

Limestone block, Dirk Hartog Island. P Playford

Dr Playford believes that although mega-tsunami deposits in the Kimberley area are likely to have been generated by earthquake activity along nearby parts of the Sunda and Banda Arcs, those arcs are thought to be too far away to have been responsible for the mega-tsunami deposits along the Pilbara and Shark Bay coasts. He believes a likely explanation for the origin of those deposits is massive slumping of sediments from scarps along the edge of the continental shelf.

Don Poynton

KWINANA/ROCKINGHAM/MANDURAH BRANCH

MEETING REPORT, APRIL: MANAGING OUR NATURAL MARINE ASSETS

Dr Kim Friedman, Principal Research Scientist (Monitoring) with the WA Marine Monitoring Program (Department of Parks and Wildlife) spoke to us at the April meeting. He commenced by stating that our coastal beaches and waters play a big part in how we see ourselves and how we are seen by others. To give you an understanding of just how much, put the words "Western Australia Images" into the search engine on your computer and up will pop a myriad of pictures of our natural landscapes and seascapes. Dr Friedman gave KRMB members further insights into the state of the marine environment and the Department's efforts to conserve and manage these natural treasures for present and future generations.

'Luckily WA's marine systems are in good condition,' said Dr Friedman, who presented the government actions as forward-thinking, getting on the 'front foot' in establishing management areas in places of high value. 'This is a move that will be gratefully received as pressures on the environment increase going forward,' he said.

Dr Friedman walked the audience through slides and video that showed WA's marine environment as highly dynamic and connected. Highlighting that *change* was a constant factor, Dr Friedman presented slides on our growing population, our changing climate and how important commerce was across our coastal waters. On a more

personal note, Dr Friedman showed the changes in the way we engage with and use our coastal waters for recreation. He highlighted that WA's growing population had increased by almost 30 per cent since 2000, with WA the fastest growing state in Australia and growing at a much higher rate than the global population.

Our speaker explained the need for Parks and Wildlife to be able to continually improve its work practices and conservation outcomes in a changing world.

'My job is to help ensure Western Australia's natural marine assets are conserved and valued, and I assist in this task by presenting marine park managers with information needed to measure and guide their business,' Dr Friedman said. As a general rule the most successful businesses are those with the best information, and Dr Friedman coordinates Parks and Wildlife's systematic monitoring program that informs work programs of their operational effectiveness and efficiency.

Noting the pressures on capacity and resources, Dr Friedman explained how Parks and Wildlife went about prioritising which information was needed, and gave some examples of how coral reefs, seagrass meadows and large fauna were faring, and what Parks and Wildlife was doing to protect and value these assets. Information collected on the long-term welfare of the environment and the pressures it faces is documented annually in the form of reports that consolidate the history of what Parks and Wildlife has learned through time.

As a common thread in the presentation, Dr Friedman encouraged us all to maintain our strong engagement with marine parks and the conservation estate across WA.

'Our environment is in good condition and it is only through getting parents and kids out there enjoying the natural wonders of WA that its value will truly be appreciated and protected through time,' he said. Highlighting the government's investment in marine conservation, with a special focus on the Kimberley, Dr Friedman noted where new marine parks were being established that have joint management with Aboriginal communities—a new and exciting opportunity that will be looked back on in future decades as a particularly insightful initiative. Dr Friedman finished off by urging all Club members to commend and encourage the government to continue to invest in our natural marine assets and related social values. His parting statement was, 'There aren't many environmental lobbyists, so I encourage you all to visit marine parks more often, get engaged in understanding the challenges we face and to speak up for what you want.'

The talk prompted many questions and comments from the audience, an indication that the topic was one close to the hearts of KRMB members.

Colin Prickett

RETIRED & LEISURED GROUP

MEETING REPORT, APRIL: OPALS

Mrs Eleanor Sanders gave us a talk on opals which are our national gemstone, as Australia is a major producer of them. The first commercial opal items came from Slovakia.

Geologists classify opals based on the rocks in which they are found. Mineralogists classify opals based on X-ray diffraction. Opal is a natural form of hydrated amorphous silica, with a water content of 1 – 21 per cent, or 3 – 10 per cent in precious opal. The latter shows a play of colour caused by diffraction and interference of white light by an ordered array of silica spheres. Small spheres produce a blue colour and large spheres produce red and other colours. If the spheres are disordered, no colour appears.

Opal is a relatively soft gemstone, with a hardness of 5 – 6.5 on the Moh's scale. There are Peruvian opals in blue or pink, fire opals from volcanic deposits and chatoyant or 'cat's-eye' opals from Tanzania.

Australian opals were first discovered at Angaston, SA in 1841, with subsequent important finds at White Cliffs NSW in 1889, Lightning Ridge in 1905, Coober Pedy SA in 1915 and Andamooka in 1930. Opals are found in the Great Artesian Basin where there are Cretaceous age sediments with opal deposits.

The formation of opal occurs by the action of water on silica, which begins to dissolve it and with permeability the solution passes through rocks to depositional sites in geologically stable terrain. This is described as the deep weathering model. Aerobic microbes may be found in host rocks. Opals may possibly be associated with mound

springs.

Opal nomenclature types are:

Type 1 – all opal, in one piece, chemically uniform.

Type 2 – opal on rock where it is naturally attached to a host rock of different composition.

Type 3 – opal in rock.

There are black, dark and light opals based on their tone and transparency. Some fossils are opalised. There are composite opals such as doublets, with opal over opal or opal on a matrix. Natural imitations of opal are ammolite (fossilised ammonite shells), fire agate or paua shell. Opals can be manufactured synthetically using glass or plastic and it is done both in WA and in Russia.

Eleanor gave us a very well constructed and illustrated talk, supported by a truly marvellous collection of specimens for us to examine and enjoy.

Margot Bentley

MAIN (CENTRAL) CLUB

LATE EASTER CAMP, JURIEN AREA, 20-24 APRIL 2015

Nearly thirty members attended the excursion to Jurien Bay, staying at the Apex Camp and the Jurien Bay Tourist Park.

A remarkable array of plants was in flower, allowing us to see many that are missed in spring. In stunning yellow was the Lesueur or Pine Banksia (*Banksia tricuspids)* ***left, P Coyle***. Also fitting in the autumn flowering was the magnificent Scarlet Featherflower (*Verticordia grandis)*. We had lots of botanical assistance from Alan Notley, Cate Tauss, Mike Gregson, Peter Coyle and Jolanda Keeble. They identified a range of plants for us, hakeas and banksias providing lots of opportunities to study our reference books. Shell Hakea, (*Hakea conchifolia)* and *Banksia grossa* were two of the spectacular flowers. Other plant treats included Heath Strangea (*Strangea cyanchocarpa)*, Staghorn Bush (*Daviesia epiphyllum)*, and the Mountain Marri (*Corymbia haematoxylon)*.

Some intrepid walkers, lead by Lutz Elber, walked to the summit of Mt Lesueur and others completed the loop walk there. We also visited Cockleshell Gully. An eagle eye was alert for the notorious ticks and Kath spotted some nymphs or pepper ticks. Among other notable sights in the park were the impressive tall cycads, *Macrozamia fraseri*.

On another day, many walked the five kilometres into and out of Stockyard Gully. Beehives were attached to the limestone cliffs, some covered with hundreds of clustering bees. It was cool and dark as we walked into the cave. Stockyard Gully contains some of the most southerly stands of River Red Gum (*Eucalyptus camaldulensis)*, in WA.

Grigson's Lookout and Green Head were two other interesting sites we visited. On the headland at Green Head we were intrigued by the sight of a flowering mistletoe, *Amyema miraculosa subsp miraculosa*, which was growing

on a Quandong (*Santalum acuminatum)*. As Cate (who identified the mistletoe) commented, it was a case of a hemi-parasite growing on a hemi-parasite. Alan kept us fascinated with his historical titbits along the way.

Extra-curricular activities during the week included MicroBlitz soil sampling (***below***), Firewood Banksia (*Banksia menziezii)* surveys, swimming, fishing and beach walking. On the way home, some of us stopped at Lake Thetis to see the stromatolites and visited Hangover Bay on the coast near The Pinnacles.

Our bird list for the camp reached forty, with a pair of Brown Goshawks giving us a treat during our evening sundowners. It was terrific to see a flock of over two hundred White-tailed (Carnaby's) Black-cockatoos on our way back from Stockyard Gully.

Peter Coyle and Jacquie Gregson

WHAT DID WE SEE AT COOMALLO CREEK? Macrozamia in South-Western Australia

The recent post-Easter excursion was chock-a-block full of choice bushwalking and botanical experiences at Jurien Bay, Green Head, Mt Lesueur National Park, Drovers Cave National Park, Wandoo Conservation Reserve and Lake Thetis.

We also paused at the lovely Coomallo Creek picnic area (prime Carnaby's Black Cockatoo habitat) to stroll through the Wandoo woodland fringing the creek and then onwards along the short Zamia Trail loop. The imposing stand of tall, old Cycads (*Macrozamia fraseri*) that surrounded us prompted many taxonomic questions. Cycads (Cycadophyta) are an ancient lineage of plants dating back to the Permian era (over 200 million years ago) that have 'bare' ovules that are produced on open carpophylls (seed leaves) and not enclosed in an ovary as in Angiosperms (including palms). However, cycads are often confused with palms due to the misleading and scientifically-inaccurate common name 'Zamia Palm' that is often used for *Macrozamia riedlei* in the Perth Region.

Here is some information (summarized in Table 1) about differences between the three *Macrozamia* species endemic to south–west Western Australia.

Macrozamia dyeri: Confined to near coastal areas near Esperance, from about Munglinup to Cape Arid. It is distinguished by its very robust 'trunk', large seed comes and the short length of the apical spines on the sporophylls of the pollen cones.

The botanical name for the semi-woody 'trunk' of cycads is 'pachycaul stem'. Plants that have a pachycaul stem are described as having a 'caulescent habit'. The pachycaul stem of old *M. dyeri* plants grows to a much greater diameter than that of *M. fraseri.* Also, the female cones and male cones of *M. dyeri* are the largest of all the species in WA.

Macrozamia fraseri: Occurs from Eneabba to south of Perth. It also has a caulescent habit (up to 3 m in height) and keeled leaves. However, the crowns are densely-woolly, the seed cones are smaller than those of *M. dyeri* and the sporophylls of the male cones have longer apical spines than *M. dyeri*.

The easiest 'spotting feature' used to distinguish *M. fraseri* from *M. riedlei* is the prominent keel on the under-surface (abaxial surface) of the leaves of *M. fraseri.* In contrast to this, *M. riedlei* lacks a prominent abaxial keel.

Macrozamia riedlei: This is the common zamia that occurs from north of Perth to Albany (including the western Darling Range). It is smaller in overall stature than the other W.A. species and rarely caulescent (i.e. it usually has no trunk). The leaves are relatively few in number and they are flat (i.e. without a pronounced abaxial keel). The seed cones are smaller than in the other species.

C. Tauss

Table 1: Differences between the three *Macrozamia* species of south-west WA

	Caulescent habit	**Abaxial keel on leaf**	**Seed (female) cones**	**Pollen (male) cones**
Macrozamia dyeri	Very robust trunk to 3m tall and up to 1.2m diameter	Keel present	Long 45–50 cm length 15–20 cm dia.	Long 48–62 cm length 10–14 cm dia.
Macrozamia fraseri	Trunk to 3m tall and up to 0.7m diameter	Keel present	Medium 35–45 cm length 15–17cm dia.	Medium 30–48 cm length 10–14 cm diam.
Macrozamia riedlei	Seldom any trunk	No keel – or leaf almost flat	Shortest 25–35 cm length 15–17 cm diam.	Shortest 29–41 cm length 11–15 cm diam.

For more information: Hill, K.D. (1998-). *The Cycad Pages.* Royal Botanic Gardens Sydney Online at http://plantnet.rbgsyd.nsw.gov.au/PlantNet/cycad/index.html

DARLING RANGE BRANCH

EXCURSION REPORT: BIBBULMUN TRACK

Following an inspirational 42-day walk on the Bibbulmun Track in 2014 (August and September, north to south, Perth to Walpole 850 km), and a wish to evoke some of the romance of this wonderful Western Australian icon, a small number of DRB members walked the Track on a beautiful autumnal Sunday in April. Well, a section of the Track; or to be exact, a portion of a section of the Track—a very short portion. Our destination was Hewitt Shelter, 10 km from Kalamunda. We joined the Track at the Camel Farm off Paulls Valley Road.

The glorious mild weather complemented our slow meander. We walked through Jarrah-Marri woodland with some areas of healthy Bull Banksia (*Banksia grandis*) and Spreading Snottygobble (*Persoonia elliptica*).

While we enjoyed following the Wauguls (yellow and black serpent directional symbols of the Bibbulmun Track) and were refreshed at the Hewitt Shelter, we recorded little wildlife of note. This time of the year (Djeran in the Noongar calendar) found the bush seemingly dormant and waiting for rain. Few flowers were out along this well-worn and popular portion of the Track (we noted over 30 people over a 3-hour period). Invertebrate and herpetological life remained hidden and birdlife was scant.

The following lists our observations. For interest the etymology of each name of the species seen is provided. If the Noongar term could be sourced it is included. If you are able to supply the aboriginal name for any of these species please contact us. It would be great to understand further.

Common name	***Scientific name***	**Meaning of name**		**Aboriginal name / notes**
		Genus	**Species**	
Birds				
Red-tailed black cockatoo	*Calyptorhynchus banksii*	Calyptorhynchus = Greek *calypto* "hidden" and *rhynchus* "beak"	*banksii* = commemorates Joseph Banks	Karrak = Noongar term derived from the call for the south-western race
Australian magpie	*Cracticus tibicen*	*Cracticus* = a taxonomic family within the order Passeriformes i.e. the butcherbirds and allies	*tibicen* = flute-player or pipe in reference to the bird's melodious call.	
Scarlet Robin	*Petroica boodang*	*Petroica* = ancient Greek words: *petro-* rock and *oikos* home, from birds' habits of sitting on rocks	The meaning of *boodang* is not known	
Grey fantail	*Rhipidura albiscapa*	*Rhipidura* = Greek for ***rhipis*** or ***rhipidos***, meaning fan, and ***ura***, meaning tail	The meaning of *albiscapa* is not known	Koodjinok This bird kept us company all day (and was observed continually during the entire 2014 Track walk)
Fungi				
	Aminita preissi	From Greek *amanitai* (plural) a variety of fungus	*preissi* = honours Johann August Ludwig Preiss (1811 – 1883) who collected in Western Australia (1839 -41) more than 2,700 species.	Several breaking through the soil. Not fully ripe.
Scale fungus	*Coltricia dependens*	*Coltricia:* meaning unknown	*dependens* = pendant, hanging	'A peculiar woody polypore...' (personal comment Kevn Griffiths 2015)
Flora (in no particular order)				
Hairy Jug Flower	*Adenanthos barbiger*	*Adenanthos*: *Aden* gland and *anthos flower.* Refers to the glands at the base of the ovary	*barbigera* = bearded	
Silky-leaved Blood flower	*Calothamnus sanguineus*	*Calothamnus* = *kalos* (beautiful) and *thamnos* (shrub).	*sanguineus* = blood coloured	
Autumn Scrub Daisy	*Olearia paucendata*	*Olearia* = Olive Tree. The leaves on the original species resembled those of the olive	*paucidenata* = few/little teeth	
Bunny orchid	*Eriocilus dilatatus*	*Eriochilus* – woolly lip. Refers to the densely woolly labellum found in all species	*dilatatus* = extended, dilated	Refers to the prominent earlike lateral petals
Pin or Common Heath	*Styphelia tenuiflora*	*Stypheli* is from the Greek word ***styphelos***, meaning tough or harsh, referring to the stiff, prickly leaves	*tenui* = thin, narrow delicate, *flora* = flowers	
Drooping Leucopogon	*Leucopogon nutans*	*Leucopogon* = white, grey beard. Refers to the densely bearded corolla lobes	*nutans* = nodding with the apex facing downwards	
	Lepidosperma squamatum	*Lepidosperma* = Greek ***lepis***, meaning scale, and ***sperma***, meaning seed. It refers to the scales surrounding the nut	*squamatum* = Latin ***squama***, meaning scale. Botanically it refers to small scale-like leaves or bracts.	
Tapeworm plant	*Platysace compressa*	*Platys* = flat, wide, broad bag. Refers to the broad fruit	*compressa* = pressed together. Refers to the flattened stems.	

	Lomandra preissii	*Lomandra* = Greek ***loma***, meaning the border of a robe, and ***andros***, meaning man. It refers to the border of the anthers in some species.	*preissii* = honours Johann August Ludwig Preiss (1811 – 1883) who collected in Western Australia (1839 -41) more than 2700 species.	Brown and greenish yellow variant seen
Drosera bulbosa	*Drosera*	*Droseros* = dewy	*bulbosa = bulb*	

The walk introduced several members to the process of walking the Bibbulmun Track and for others it was a return to a favourite place. Long may it be loved and enjoyed!

Diana Papenfus

References:

Western Australian Plant Names and their Meanings, a Glossary. FA Sharp. 1996.
Flora of the Perth Region. NG Marchant, JR Wheeler, BL Rye, EM Bennett, NS Lander, TD Macfarlane. 1987

NORTHERN SUBURBS BRANCH

EXCURSION REPORT: 'GOLLY' WALK – BEACHCOMBING, NORTH BEACH TO WATERMAN BAY

Our April GOLLY walk got off to a great start when a Sea Lion (*Neophoca cinerea*) surfaced just a few metres from the shore before we had even started the walk and later demonstrated his prowess as a fisher.

Despite many of our regulars being away at the late-Easter camp, the perfect autumn day ensured a good roll up (17 members and guests) for the walk along the beaches and footpaths between North Beach and Waterman Bay.

Don Poynton used a hydrographic chart and a diagram showing the eustatic sea-level curve for the last 140,000 years to explain how the waxing and waning of the continental ice sheets had been responsible for the changes in the position of the coastline and the resultant geological formations, as well as the course of the ancestral Swan River—which was north of present-day Rottnest Island.

An outcrop of limestone with steeply dipping layers was used to illustrate how it was possible to tell the difference between formations that had been laid down in water and those that had been deposited as sand dunes; sand grains in water will slide over one another if their angle of repose is greater that about 10 degrees whereas grains in sand dunes can remain stable until the angle reaches about 40 degrees due to the greater friction in the absence of water.

Unfortunately there was very little marine life washed up on the beach, so it was lucky that we had members of Stirling Natural Environment Coastcare (SNEC) with us to explain their restoration efforts and to point out the various coastal plants. One area has been planted with Western Pellitory (*Parietaria australis*), in a successful effort to attract the Yellow Admiral butterfly (*Vanessa itea*).

Less successful has been the attempts to eradicate the South African Pigface (*Carpobrutus edulis*). Hybridisation is occurring with native Coastal Pigface (*C. virescens*), with these hybrids having the potential to further complicate management of the invasive species. Differentiation between the native and non-native species has typically focussed on floral colour (pink for native, yellow for non-native) and basic leaf morphology, which has proven to be relatively inaccurate. This is due to significant morphological and colour variation, particularly with the hybrid. Greg Keighery of DPaW is currently assisting SNEC with improved identification methods.

Our last stop was Granny's Pool where an exposure in the cliff face enabled us to view evidence for sea-level changes and climate change. Fragments of Staghorn Coral (*Acropora* sp) and Brain Coral (*Goniastrea* sp) along with shell debris about two metres above today's sea level marked the level of the last high stand about 6,000 years ago. Some of the corals are temperature sensitive and are no longer found south of the Abrolhos Islands, suggesting the water temperature around Perth was then warmer.

Don Poynton

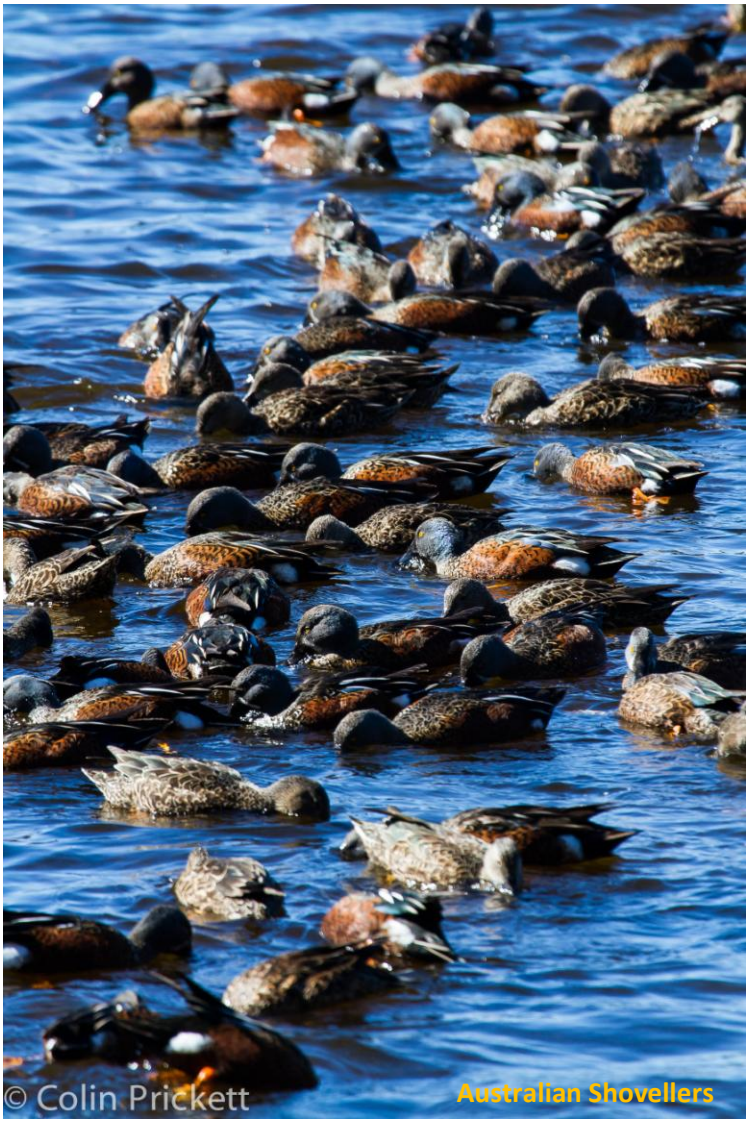
KWINANA – ROCKINGHAM – MANDURAH BRANCH

EXCURSION REPORT: BIBRA LAKE

Twelve members attended our April field trip on a beautiful autumn morning. On first impression there appeared to be plenty of water in the lake. But it soon became apparent that the water level was quite low. The giveaway was the presence of Black Winged Stilts out in the centre of the lake—a species normally found wading in the shallows. However, the shallow depth resulted in perfect conditions for the Yellow-billed Spoonbills and **Australian Shovellers** (***next page***), both species being present in very large numbers, with approximately 90 of the Yellow-billed Spoonbills spread out over the lake. There must be lots of aquatic life for them to feed on. Above the lake Welcome Swallows and Tree Martins were active, feeding on insects. A total of 33 bird species were recorded (see list below). A special sighting was a solitary Glossy Ibis found close to a group of Australian White Ibis towards the northern end of the lake. Three species of raptor were spotted above the lake: a Little Eagle, a Square-tailed Kite

and a Brown Goshawk, the appearance of each resulting in panic amongst the smaller waterbirds, who took to the air to escape the threat.

While many of us were focused on the waterbirds, Otto Mueller and Daniel Heald were finding many different species of invertebrates. Otto showed us tufts of spider web on the tips of Melaleuca saplings, which he said he has inspected under a microscope and found three tiny spiders. Spiders included various small orbweavers and long-jawed orbweavers, Edible Golden Orbweaver (*Nephila edulis*, Family Nephilidae); Long-jawed Orbweaver (*Tetragnatha* sp., Fam. Tetragnathidae); Rural Crab Spider (*Tharpyna campestrata*, Fam. Thomisidae). Long-jawed Orbweaver males use their very large jaws to hold the female's jaws apart during mating. Rural Crab Spiders are found across Australia. Females and their eggs are usually hidden under bark, while the males are most often seen wandering. Otto also found mites and an undescribed beetle. A nice sighting was a **Metallic Green Soldier Fly (*Odontomyia* sp. Fam. Stratiomyidae), *below***. Other flies included Australian Sheep Blowfly (*Lucilia cuprina*, Fam. Calliphoridae); Brown Blowfly (*Calliphora* sp. Fam. Calliphoridae); tiny hoverflies (Fam. Syrphidae)—all three types were hovering around or pollinating a particular pungent shrub in bloom.



In the long, incredibly sticky grass beside the lake Daniel found a late-instar Tropical Armyworm or Cluster Caterpillar (*Spodoptera litura*, Fam. Noctuidae); a Budworm Moth (*Helicoverpa* sp. Fam. Noctuidae) and a Beet Webworm Moth (*Spoladea recurvalis*, Fam. Crambidae). All three are agricultural pests.

There were also true bugs—lerps, scale insects, adult psyllids, *Hymenoptera*—feral honeybees; and leaf-mining sawflies, probably the Leaf-blister Sawfly (*Phylacteophaga froggatti,* Fam. Pergidae), an eastern species that's become rather invasive in Western Australia, but is being checked (somewhat) by our local parasitoids.

Various ants were seen, including tiny ones nesting inside paperbark, and Valentine or Acrobat Ants (*Crematogaster* sp., Fam. Formicidae) on another tree. They are so-named from their heart-shaped gasters and arboreal habits.

We saw various dragonfly and damselfly nymph exuviae, some a good distance from the water. A large day-flying moth was seen flying overhead but was not identified.

Fungi sightings included Woody Layered Bracket Fungus (*Fomitiporia robusta*, Fam. Hymenochaetaceae) and Shaggy Parasol (*Chlorophyllum brunneum*, Fam. Agaricaceae).

A tube attached to (or protruding from) the trunk of a tree was identified as a Tube Concealer Moth (*Hemibela* sp. Fam Oecophoridae). They hollow out a small length of twig and stay protected inside, just poking their head and thorax out to feed. They all feed on eucalypts, grow to a length of about 1 cm and pupate inside their tube, which they first secure to a flat surface.

A row of large brown insect eggs on a tree trunk was later identified as being from an Emperor Gum Moth, (*Opodiphthera eucalypti*, Fam. *Saturniidae*). One eucalypt near the footpath contained a baiting/monitoring station for Queensland Fruit Fly.

While making our way to the picnic area near the car park we noticed that a group of around 50 Spoonbills had congregated across the lake, having eaten their fill for the time being. It was quite a sight to see so many together. Thanks to Otto for leading the walk and to Daniel for the invertebrate details.

Bird species sightings were as follows:

Hoary-headed Grebe	Galah	Brown Goshawk
Yellow-billed Spoonbill	Black-winged Stilt	Purple Swamphen
Australasian Shoveler	Musk Duck	Australian Shelduck
Pacific Black Duck	Red-necked Avocet	Western Gerygone
Eurasian Coot	White-faced Heron	Glossy Ibis
Tree Martin	Welcome Swallow	Australian Magpie
Little Eagle	Black Swan	Australian Pelican
Rainbow Lorikeet	Magpie-lark	Australian Raven
Australian White Ibis	Little Black Cormorant	New Holland Honeyeater
Willie Wagtail	Little Pied Cormorant	Square-tailed Kite
Red Wattlebird	Singing Honeyeater	Grey Teal

Colin Prickett

BUSHWALKING GROUP

ABYSSINIA ROCK

Although it is a spectacular walk, the number attending our April 12 outing was somewhat disappointing—only 12 walkers. However it was pleasing to see that we had three participants who found about the walk from the MeetUp site. The rock is about 50 km south of Perth on the Brookton Highway. Initially we walked through Jarrah forests and gradually came across pockets of exposed rock until we reached Abyssinia Rock itself. On our return journey we walked along a section of the Bibbulmun Track. We were fortunate enough to see lichen of many colours. Margaret took a great photo of **coral lichen** (***right***) which was widespread on the Rock itself.

YANGEBUP LAKE

In contrast to the previous walk, we had a great turn out for this walk on April 26 with 20 walkers including new members Frank and Jan, who have just settled in Perth from Florida. The lake is about 25 km from the Perth CBD and there are a number of paths connecting adjoining lakes. We managed to circumnavigate a couple of these lakes.

Norm took a magnificent photo of the **brilliant red fruits of a zamia**, a relatively small cycad (***left***). Underneath the soft red flesh one can see nuts with kernels.

Allan Doig

NEW CONSERVATION SUB-COMMITTEE

The Club would love to get more involved in offering expert feedback to government and other agencies about conservation issues in WA—black cockatoo habitat, Naturaliste NP, Helena Aurora Range, etc. However, with all that's happening we simply don't have the time and resources. So, if you feel motivated to help us speak out on these important matters, please contact a Council member or the office for more details.

CONSERVATION FARMING GROUP SEEKS NEW MEMBERS

A letter from Middlesex Conservation Farming Club Inc

To: Editor, *The Naturalist News*

The Middlesex Conservation Farming Club Inc. has a property south of Manjimup of about 60 hectares. A founding purpose of the Club was to have a farm which would pay for the cost of running it and also preserve some natural bush. The Club has been in existence since 1973; the number of members has varied from nine to fourteen. In the past we have had our own herd of breeding cattle but now have the paddocks leased for agistment of cattle. There is accommodation on the farm for members to use during visits. There is an initial joining fee and members undertake to contribute to the working of the property.

With regard to conservation, there are about 20 hectares of remnant bush. This has been logged and accessible to stock in the past but most of it is now fenced off. There is **Karri** (***left***), Jarrah and Marri, also Banksia and Peppermint and a variety of under-storey species. In general we do not cut timber and leave naturally fallen trees for habitat. Overall there is good connectivity of the bush areas on the farm and—to some extent—to other bushland in the vicinity. The bushland is covenanted to the National Trust of WA and we've been registered with Land for Wildlife.

We have investigated the natural history of our bushland to some extent and have had considerable help with this. In 2006 we approached the WA Naturalists' Club about studying the fauna in our bushland and over the Queen's Birthday weekend that year members of the club visited the farm to do a fauna survey and establish pitfall traps. Using the latter we have found that the bushland supports dunnart and pigmy possum and a range of frogs, reptiles and invertebrates. Earlier on, volunteers from the Wildflower Society of WA helped us by means of a flora survey, putting in nine quadrats. From this we made a herbarium and add new species as we find them. We

have also studied the fungi. Officers at the Department of Parks and Wildlife have been most generous with their expertise. We are keen for this nature work to continue. Unfortunately, there are weed species that need attending to.

It is a lovely property with two permanent creeks (***above***). There are tracks for pleasant walks through the bush and there is of course birdlife around, including the charming Splendid Wren.

We are looking for new members who have a similar outlook to us. For further information email MCFC1973@outlook.com or phone Paddy on 0431 413 666

Sincerely

Dorothy Perret

AUDITOR'S REPORT

The Auditor's Report for the Club for 2014 is now on our website.
If you have any questions about it please contact
our Treasurer, ***Alison Young*** *on jtyth@bigpond.net.au*

LOVE YOUR CLUB?

Support your love of natural history and your Club with a **donation** this year.
Go to http://www.wanaturalists.org.au/get-involved/donating-to-the-club/ for details.
Payment is by EFT, cheque or money order.

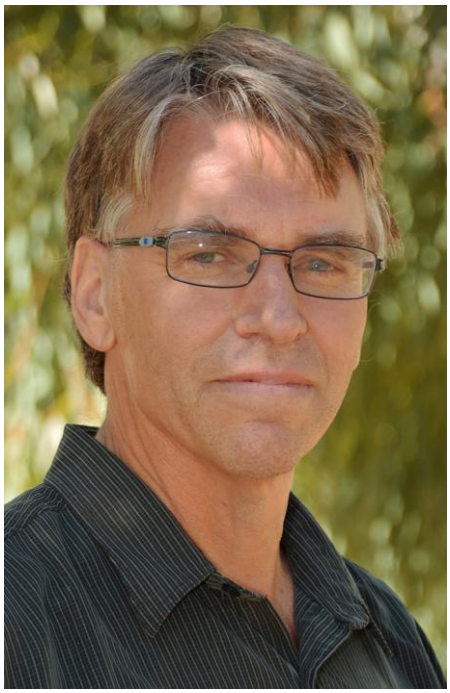
COMING EVENTS

Visitors are welcome at any meetings or excursions

FRIDAY 5 JUNE

With the MAIN CLUB: GENERAL MEETING

Topic: Fungi and FunKey – the new key to genera of macrofungi in Australia
Speaker: Kevin Thiele (***below, right***)
Venue: Hew Roberts Lecture Theatre, UWA, Clifton St, Nedlands
Time: 7.30 pm



Details: Decades in the making, FunKey is a first of its kind—a new, computer-based, easy-to-use, interactive key to the genera of **agaric macrofungi** (***above left***) of Australia. Using FunKey and matching against simple, illustrated characteristics, it will often be possible to identify any mushroom or toadstool to its correct genus, or at least to a short-list of possible genera.
Kevin Thiele is the head of the Western Australian Herbarium. As well as taxonomic research, Kevin designed the Lucid software used for interactive keys such as FunKey.
Door fee $3 includes raffle ticket, tea/coffee and biscuits after.
Contact: John Gardner: 9389 8289

FRIDAY 12 JUNE

With the DARLING RANGE BRANCH: GENERAL MEETING

Topic: Members' night
Speaker: All members and guests invited to share photos, objects and other items of interest. Please arrive early to allow us to load files onto the computer.
Venue: CWA Hall, Central Rd, Kalamunda
Time: 7.30 pm
Details: $3 door fee covers venue and supper.
Contact: Diana Papenfus: 9293 1676 or diana676@tpg.com.au

MONDAY 15 JUNE

With KWINANA/ROCKINGHAM/MANDURAH BRANCH: GENERAL MEETING

Topic: Small is beautiful
Speaker: Otto Mueller
Venue: Gary Holland Centre, Kent Street, Rockingham
Time: 7.00 pm

Cost: Note there will be a charge of $3.50 per person to cover hire of the venue
Contact: 9524 2290 for further details

WEDNESDAY 17 JUNE

With the NORTHERN SUBURBS BRANCH: GENERAL MEETING

Topic: Evolution and the Tree of Life: Darwin to DNA
Speaker: Dr Alan Needham, Honorary Senior Lecturer, Biological Sciences, ECU
Venue: Henderson Environmental Centre, Groat St (off North Beach Rd; at end of street)
Time: 7:30 pm
Details: All visitors welcome, gold coin donation.
Contact: Lutz Elber: lnnelber@bigpond.net.au

WEDNESDAY 17 JUNE

With the RETIRED & LEISURED GROUP: GENERAL MEETING

Topic: Owls and Nightjars
Speaker: Brice Wells
Venue: Naturalists' Club Library, 1st Floor, 82 Beaufort St, Perth.
Time: 10 am - 12.30 pm
Cost: $2 per person (includes morning tea)
Contact: Margot Bentley 9386 1974; RSVPs required, thanks.

CLUB EXCURSIONS

SUNDAY 7 JUNE

JOHN FORREST NATIONAL PARK —with the BUSHWALKING GROUP

Location: Along Jane Brook, crossing over at the two waterfalls
Time: 9.30 for 10.00 am start
Meet: Car park off Peachey Road near Morrison Road intersection [UBD 233, L14]
Details: An easy walk, about 10 km, on good paths on both sides of Jane Brook, mostly in open woodland. Will be led by Lutz Elber. Visitors always welcome.
Please visit the www.wanaturalists.org.au/branches-groups/bush-walking/ for more details.
Contact: Lutz Elber: lnnelber@bigpond.net.au

SUNDAY 21 JUNE

FUNGI OF THE FOREST—with the DARLING RANGE BRANCH

Location: John Forrest National Park, Hovea
Time: 9.30 am for 10.00 am start; finishes after lunch
Meet: At end of Falls Rd, Hovea. Take Owen Rd off Seabourne St, pass Parkerville Tavern; turn right into Falls Rd, which then veers left. Continue past Parkerville amphitheatre and Uniting Church campsite; turn left and continue to end where there is turning space and parking.
Activities: Fungi foraging in the national park with fungi expert Kevn Griffiths.
Bring: Morning tea, lunch, camera, magnifying glass
Contact: Kevn Griffiths on 9255 1965 or Diana Papenfus 9293 1676; diana676@tpg.com.au

SATURDAY & SUNDAY 20 & 21 JUNE

GOODALE SANCTUARY—with KWINANA/ROCKINGHAM/MANDURAH BRANCH

Location: Goodale Sanctuary
Time: 9.00 am on either day, or camp for the weekend
Meet: Phone for directions (private property)
Contact: 9524 2290 for further information

SUNDAY 21 JUNE

CANNING RIVER REGIONAL PARK—with the BUSHWALKING GROUP

Location: Both sides of the Canning River near Kent St Weir

Time: 9.30 for 10.00 am start

Meet: Car park at end of Kent Street, Wilson (BMX Wilson Park, Kent St Weir)
[UBD Map 310, D10]

Details: An easy loop walk, about 6 km, on both sides of the Canning River. Will be led by Haydee Adel and Sue Gardner. Visitors always welcome. Please visit the www.wanaturalists.org.au/branches-groups/bush-walking/ for more details.

Contact: Lutz Elber lnnelber@bigpond.net.au

WEDNESDAY 24 JUNE

GOLLY WALK: JOONDALUP BUSHLINK—with NORTHERN SUBURBS BRANCH

'A Bushlink in the City': The City of Joondalup has created a Bushlink in suburbia by connecting three areas of remnant Banksia bushland and creating artificial lakes along the appropriately named Naturaliste Boulevard.

Location: Naturaliste Boulevard, Iluka

Time: 10.00 am

Meet: Car park, north side of Silver Sands Drive between Naturaliste Boulevard and Patang Vista, Iluka.

Activities: We will follow the wandering pathways looking at the flowering banksias, winter-flowering native plants including Greenhood orchids, birds, waterfowl, reptiles and butterflies.
3 km round trip; easy walking on footpaths; good picnic spots; no toilets.

Contact: Don on 0419 460 301 or dpoynton@iinet.net.au

SATURDAY 28 JUNE

BEACH SWEEP, SOUTH COTTESLOE—with the YOUNG NATURALISTS

Location: South Cottesloe beach

Details: Will be emailed to Young Naturalists' members

Contact: Enquiries to Mike Gregson 9384 8393 or 0466 360 022

KALBARRI LONG RANGE EXCURSION: 18 – 23 SEPTEMBER, 2015

This camp will be held on the banks of the Murchison River at Murchison House Station 14 km out of Kalbarri. For those not wishing to camp accommodation is available in the stone shearers' quarters. There is a bus service to Kalbarri three times a week and we can transport anyone travelling by bus.

We plan to have three full day activities, two half day activities and a free day in the middle.

Activities will include paddling the gorges, walking the bluffs, walking the loop at Nature's Window. There will be both energetic and more relaxed options and heaps of opportunities for 'wildflowering'.

Those coming please advise Diana in the office and contact Glynne for further information.

Glynne Beaver: 9295 5057 or b.glynne@bigpond.com

NOTE: THE PROGRAM IS UPDATED EVERY MONTH ON OUR WEB SITE www.wanaturalists.org.au

IT IS OFTEN AVAILABLE THERE BEFORE YOU RECEIVE YOUR NEWSLETTER.

A tip from our web manager: If you want to see the calendar of events for the whole year, rather than looking in each Branch page for the corresponding 2015 Program of Events, please look in Events Calendar and change from the default Month View to the List View. You can then use the filter to show just your Branch's events. This will always be the most up-to-date information.

NEW MEMBERS

Katrina Budrikis of Beaconsfield

Lou Scompoli of Mt Lawley

We welcome these new members to our club.

ADVERTISING IN THE NEWSLETTER

In order to offset some of the costs of preparing the monthly newsletter we invite environmentally minded companies to advertise in the Newsletter. Here is the opportunity to publicise your business to friends and associates.

Costs are: Full page $200; Half page $100; Quarter page$50; Eighth page $30. Prices do not include GST.

Copy to be sent to Newsletter Editor, Naturalist News by email one week before the advertised closing date.

INSTRUCTIONS TO CONTRIBUTORS

Please send all **contributions** by email in **MS Word format** to Tanya Marwood tanya.m@globaldial.com and to info@wanaturalists.org.au by the nominated closing date.

Articles need to be a **MAXIMUM OF 750 WORDS**.

Photos to accompany articles are really appreciated; I prefer to receive these as a collection of separate files in e.g. **'jpeg' format**, with information on *who took it* and a suggested *caption*.

Many thanks to those who send in contributions: Reports and accounts of Club activities help members appreciate and enjoy the diversity of talks and excursions organized under the Naturalists' Club umbrella. If you require help or advice when planning or writing your piece, please contact the editor. Ideas, constructive comments and suggestions from members are welcome.

The next issue of this newsletter will be **July 2014**.

Please send all contributions by email to tanya.m@globaldial.com and to info@wanaturalists.org.au

Deadline for next issue: Monday 8 June

(Earlier if possible please)