



AUSTRALIAN

Wildlife

WINTER Vol: 3/2015

\$10 (non-members)



Celebrating a new century of wildlife preservation in Australia

Journal of the Wildlife Preservation Society of Australia Limited

(Founded 1909)

Turtles



Contents

features

7 Brush-tailed rock-wallabies

9 Friends of the Brush-tailed rock-wallaby - *Chris Pryor*

12 A love of wildlife - *Brodie James*

16 Bequest Program for wildlife conservation work

17 A merry neighbour - *Chrissy Banks*

22 Three reasons why we need to talk to our kids about bees - *Biana C. Ross*

23 A first glance at life - *Callum Meney*

25 Beyond the laws of humanity and nature - *Colin Riddell*

31 Turtle controversy: The unjustifiable Indigenous slaughtering of Australia's ancient endangered reptilian mariners under 'Native Title' - *Kit (Amy) Prendergast*



regulars

5 From the President's desk

6 Editorial

43 Book reviews

44 Community Wildlife Conservation Award

45 The Serventy Conservation Medal

46 Membership form



Suzanne Medway AM
Editor
Australian Wildlife



Front cover:

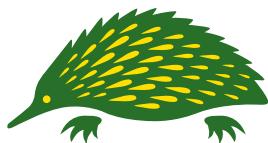
Green turtle (*Chelonia mydas*).

Back cover:

Top: Flatback turtle (*Natator depressus*).
Bottom: Green sea turtle swimming in a coral bank.

Articles and comments expressed in this magazine do not necessarily reflect the opinions of the Editor, Society or members. Articles contributed from outside sources are included for the reading enjoyment of members and to encourage discussion on different points of view.

Articles may be copied or quoted with appropriate attribution.



Australian Wildlife Society

Conserving Australia's Wildlife
since 1909

Australian Wildlife

is the official journal of the Australian Wildlife Society
(Wildlife Preservation Society of Australia Limited).

Founded in 1909, the Society is dedicated to the conservation
of our unique Australian wildlife in all its forms.

Print Post Approval No: PP243459/00117

ISSN 0155-266X

Price \$10 (for non-members)

Membership

Individual Members: \$55

Family Members: \$70

(being husband, wife and children jointly)

Concession: \$50

(pensioner, student, child)

E-mag Members: \$30

(Australian Wildlife magazine will be distributed
via email as a pdf document - no hard copy of the
magazine will be sent)

Associate Members: \$85

(being schools or incorporated or unincorporated
associations with a principal object related to
conservation, nature study or education)

Corporate Members: \$125

(being incorporated or unincorporated associations
not being associate members)

Includes postage within Australia.

Add \$40 for overseas postage

Three Year Membership

Individual Members: \$150

Family Members: \$190

Concession: \$135

E-mag Members: \$81

Associate Members: \$230

Corporate Members: \$340

Includes postage within Australia.

Add \$100 for overseas postage

President

Dr David Murray

Tel: (02) 9556 1537

Fax: (02) 9599 0000

Contact

National Office

Australian Wildlife Society

(Wildlife Preservation Society of Australia Limited)

PO Box 42
BRIGHTON LE SANDS NSW 2216

Tel: (02) 9556 1537

Fax: (02) 9599 0000

Email: info@wpsa.org.au

Accounts: accounts@aws.org.au

Editor "Australian Wildlife":

suzanne@wpsa.org.au

Website: aws.org.au

Correspondence to:

Hon Secretary:
Australian Wildlife Society

PO Box 42

BRIGHTON LE SANDS NSW 2216

Directors 2015

Patron

His Excellency General the Honourable
Sir Peter Cosgrove AK MC (Retd)

President

Dr David Murray

Hon Secretary/Chief Executive Officer

Patrick W Medway AM

Vice Presidents

Dr Clive Williams OAM and Ken Mason

Hon Treasurer

Sash Denkovski

Directors

Chris Chan

Noel Cislowski

Stephen Grabowski

Dr Richard Mason

Sandra Reynolds

Scientific Advisory Committee

Dr Mike Augee - mammology/palaeontology

Bernie Clarke OAM - Botany Bay

Dr David Murray - botanical

Prof Richard Kingsford - environmental science

Geoffrey Ross - wildlife management issues

Jennie Gilbert - marine conservation

Vanessa Wilson - wildlife conservation and management

Notice to our members

The Australian Wildlife Society (Wildlife Preservation Society of Australia Limited) is managed and controlled by an elected board of ten volunteer directors. The Society is a registered company limited by guarantee with ASIC and is responsible for complying with all its regulations.

Any member who might like to consider serving as a director of the Society is invited to contact the national office for more details. The most important qualification to serving as a director is 'a commitment to and love of Australian wildlife'.

The Society holds regular monthly meetings on the first Wednesday of each month in Sydney.

The Editor would like to feature a member's profile in the fortnightly email newsletter and occasionally in our quarterly magazine. Members are invited to consider submitting a short article with a photograph for possible publication.

Our Mission

The Australian Wildlife Society (Wildlife Preservation Society of Australia Limited) is an independent, voluntary, non-profit conservation organisation, formed in 1909, and is committed to the preservation of Australia's precious flora and fauna. We act as a watchdog and provide advice to government agencies and institutions regarding environmental and conservation issues concerning all aspects of wildlife preservation. Our mission is to conserve Australia's fauna and flora through education and involvement of the community. We are dedicated to the conservation of our unique Australian wildlife in all its forms through national environmental education programs, political lobbying, advocacy and hands on conservation work.

Our Society has always known that a conservation battle is never really won until the victory is enshrined in legislation. We have always tried to convince politicians of the necessity to include the preservation of Australia's precious wildlife and its vital conservation habitat in all their planning and environmental issues and discussions.

From the President's desk

Dr David Murray - President

During the period 29 May to 1 June I attended a Conference titled 'Sustainable Farming, Permaculture and Seeds' at Gulgong, hosted by the Castlereagh Seed Savers' Network. Some of the papers presented were not only relevant to producing human food and other plant products, but also to the preservation of wildlife.



My first presentation was about improving soil fertility. I concentrated on the value of compost and how to make good compost. Humus, from compost and manures, provides one of the mechanisms for soil to hold mineral nutrients and make them available to the roots of plants.

I mentioned a recent study from the UK that showed that yields from allotment soils treated with composts were up to eleven times higher than yields from impoverished agricultural soils. Increased food production in the future clearly depends on modifications to current agricultural practices to bring them into line with what allotment holders are already doing successfully.

Warren Jones, from the Australian Beekeepers' Association, warned that recent pesticides were toxic to bees. These pesticide residues can reside in the soil for 15 years. Already the numbers of bees available for crop pollination in Australia were declining, and we need to ban these pesticides, just as has occurred in Europe.

Chris Searle and Trevor Wooley from the Hunter Farm Forestry Network spoke about 'Farming Trees'. Trees can be a valuable and potentially profitable component of any farming enterprise on private land. The potential benefits include: sale of timber and other forest products; production of materials for farm infrastructure, e.g. fence posts; protection of marginal areas such as riparian zones, steep slopes and areas with soil erosion; provision of habitat and corridors for native fauna.

Trevor Wooley described how he had already thinned a 15-year-old forest on his property by removing half the young trees. Those remaining now had room to grow larger and stronger. He emphasised that farm forestry was hard work!

Peter Andrews OAM is well known for his passion for restoring the Australian landscape, especially on rural properties. He concentrates on improving water movement, and encouraging biodiversity. This was the second time that Peter had spoken to us, and his talk was more engrossing than the time before. Peter has described his own experiences in two books: *Back from the Brink* and *Beyond the Brink*. He has also appeared on the ABC's *Australian Story*.

On the third day we toured a number of properties, including a cherry orchard (Craig and Rebecca Stubbs), the Short Sheep Microwinery, Leaning

Oak Wines and Cheeses, and the Royston Petrie Seed Company. The short sheep referred to are a breed of Babydoll Southdown sheep, ideal for grazing among the vines and converting grass and weeds into manure. The winery here is powered by 32 solar panels, which provide the entire energy needs of the owners' residence as well as the winery.

The Leaning Oak's cheese production is both from sheep, and from a variety of goats. The owners told us that sheep produce milk for only five months of the year, hence they quickly expanded their production by adding the goats. Delicious!

If you would like to read more on 'Sustainable Farming, Permaculture and Seeds' follow this link: <http://www.abc.net.au/news/2015-06-02/seed-gatherers-seed-savers/6514466#.VW7noDeH9iw.email>



Seed Savers were given a tour of the Royston Petrie Seeds outlet in Mudgee, one of a shrinking number of small family owned seed companies.

Editorial

Suzanne Medway, Editor "Australian Wildlife"

Few technical writing errors drive editors to distraction like superfluous capitalisation. This eruption of 'capitalitis' is most often seen in references to plants and animals.

I base the editorial content of *Australian Wildlife* on the *Style manual*, first published in 1966 by the Commonwealth Government Printing Office, which provides guidance and recommendations for anyone faced with the task of preparing material for publication in either print or electronic format. The subsequent second to fifth editions were published by the Australian Government Publishing Service in 1972, 1978, 1988 and 1994. The Sixth edition published in 2002 was a substantial revision, in response to the extensive changes in the publishing industry since the previous edition of 1994. Below is a summary:

Common names of plants and animals

Generic names that have become common names, and English derivatives of generic and other names, are lower-cased and shown in roman type such as:

camilia | acacia | streptococcus | amoeba | mammal

Common names are usually capitalised only if they contain proper names:

red-back spider | Norfolk Island pine | Bennett's wallaby

In some specialist fields, particularly in ornithology, there is a **preference** to capitalise common names – for example, Blue-winged Kookaburra, Wedge-tailed Eagle, Spotted Nightjar. However, when lists of common names from different plant and animal groups (including birds) appear together, the dominant convention – that of lower-case letters – should prevail.

In general usage, the names of common breeds of animals generally do not take an initial capital, even if they also refer to a geographical area: labrador (dog) | siamese (cat) | friesian (cow)

Again, however, in specialist literature these and other less familiar names are sometimes capitalised.

Individual species within the categories such as *Australian Dingo* would be capitalised because they are proper nouns. This is one

example I have difficulty with because if I described myself as an Australian woman, I am certain I would not use a capital 'w' for woman. So I have made an editorial decision and the second word in individual species categories will be lower case.

Words that comprise the names of plant species are generally lowercase: 'Timber from the live oak is rarely used for furniture.' Exceptions occur when one or more of the words are named after a person or a geographical location, as in the name of the Sturt's desert pea. (The flowering plant *bougainvillea* is named after French explorer Louis Antoine de Bougainville, but plant names so inspired are still lowercase.)

It is common practice when referring to plants or animals to use the italicised system of Latin-inspired scientific names for life-forms (binomial nomenclature). The first element, the genus name, is capitalised; the second element, the species name, is not (even if it derives from a place name, as in *Grevillea victoriae*, the name of a plant found in Victoria). Such terms, as shown here, are generally italicised.

Binomial nomenclature is, of course, also used for animals, including the singularly curious one designated as *Homo sapiens*. However, as in the case of plant names, animal names are not capitalised ("I spotted a black-tailed cockatoo," not "I spotted a Black-Tailed Cockatoo"), except when an element of the name is a proper noun,



as in Burton's Legless Lizard (*Lialis burtonis*).

The rules are complicated, but there is confusion only when it comes to common names, not scientific names. It's a simple enough matter to get a ruling: Check the Macquarie Dictionary.

The reason I started thinking about capitalisation again was the story I wrote in this issue 'Brush-tailed rock-wallabies'. I asked Chris Pryor, President of the Friends of the Brush-tailed Rock-Wallaby to review the article and make any suggestions. She replied – "The correct name, as used by National Parks and Wildlife Service is Brush-tailed Rock-wallaby (note capitals and hyphens)". Perhaps you can now understand my dilemma.

I made the decision when I first started as Editor for *Australian Wildlife* that I would use the capitalisation rules as outlined above, but Chris edited my article and has contributed her own article on Friends of the Brush-tailed Rock-Wallaby using the capitals and hyphens used by the National Parks and Wildlife Service. In the end, I decided to leave my article as is and respect Chris' use of capitalisation in her own article, hence the two articles have two different interpretation of the name brush-tailed rock-wallaby or Brush-tailed Rock-Wallaby.



Brush-tailed rock-wallabies

Brush-tailed rock-wallabies are the unique and beautiful acrobats of the marsupial world as they leap and bound their way around rocky outcrops and cliff ledges in rugged and steep country along the east coast of Australia. Of the 15 species of rock wallaby in Australia, most have disappeared from their original range and are now considered threatened.

Their conservation is listed as Vulnerable under the Australian Government's Environment Protection and Biodiversity Conservation Act 1999 and as Endangered in New South Wales under the Threatened Species Conservation Act 1995. In Victoria the brush-tailed rock-wallaby is listed as Threatened under the Flora and Fauna Guarantee Act 1998.

The brush-tailed rock-wallabies' most notable feature, as their name implies,

is the distinctively bushy tail. They are medium-sized wallabies with the adults ranging from six to eight kilograms. They are very agile, moving confidently and swiftly around their rocky habitat using their long, thickly furred tail for balance and padded feet for grip.

Brush-tailed rock-wallabies have very distinctive facial markings with a white cheek stripe and a black stripe from the eye to the back of the head. The back legs and tail are all brown; the underbelly fades into a lighter brown or white. The legs, paws, and feet are almost black. Thick fur covers the brush-tailed rock-wallaby including the tail, which is distinctly bushy as implied by their name. This colouration allows them to camouflage themselves well in their habitat and they are often hard to spot.

The average head and body length of this animal is 550 mm with an average tail measurement of 600 mm. Compared to the body sizes of other wallabies, the brush-tailed wallaby is in the middle.

Feeding generally occurs during the night and early morning hours. Brush-tailed rock-wallabies enjoy eating various native grasses in addition to roots and bark as well as the foliage and fruits of shrubs and trees.

Females reach maturity at 18 months and males reach maturity at 20 months. Breeding occurs year-round. Gestation lasts 31 days and the young will be in the pouch about 29 weeks. When the joey leaves the pouch it will continue to suckle for another

Above: Brush-tailed rock-wallaby (*Petrogale penicillata*)

three months. Although breeding is possible immediately after the female gives birth, the embryo will only start development when the previous joey has left the pouch.

The range of the brush-tailed rock-wallaby extends from south-east Queensland to the Grampians in western Victoria, roughly following the line of the Great Dividing Range. However, the distribution of the species across its original range has declined significantly in the west and south and has become more fragmented. In New South Wales it occurs from the Queensland border in the north to the Shoalhaven in the south, with the population in the Warrumbungle Ranges being the western limit.

The population in Victoria is dangerously close to becoming extinct. The decline of this species is due to many things including massive lack of predator control, loss of habitat and inbreeding. It is difficult to reintroduce these animals to the wild due to the changes made to their preferred habitat. Brush-tailed rock-wallabies are nocturnal animals but they appear to enjoy the sunshine when the weather is cool.

Brush-tailed rock-wallabies enjoy dwelling in areas where there are plenty of rocks and caves.

Brush-tailed rock-wallabies are very sensitive about their environment and do not like to be disturbed by humans; in the wild they are cryptic and secretive.

Brush-tailed rock-wallabies are highly territorial over their home range, which is about 15 hectares. They are social wallabies and live in family groups consisting of two to five adults with juveniles and joeys.

Life is tough for brush-tailed rock-wallabies. They have been deprived of available habitat due to a combination of factors including clearing of native vegetation, exotic plant invasion and changed patterns of fire across the landscape. Impacts such as these on their habitat have caused the brush-tailed rock-wallaby to disappear from much of the southern and western part of its range.

Brush-tailed rock-wallabies must also cope with introduced predators and competition with feral goats, sheep and rabbits. This competition forces them to search for food outside their natural ranges. A century ago, brush-tailed rock-wallabies were considered pests and were extensively hunted for their skins, which caused a massive decline in their numbers from which they have not been able to recover.

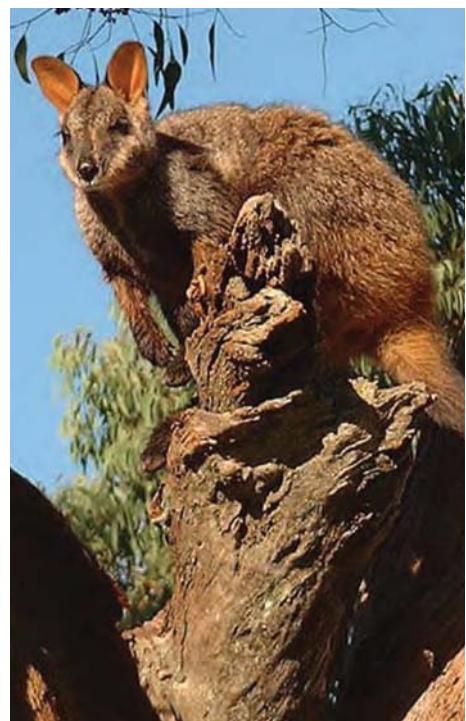
The introduction of foxes has had a major impact on brush-tailed rock-wallabies. Foxes were introduced into Australia soon after European settlement and are now well established over most of the non-tropical mainland, including in rock-wallaby habitat. They are believed to have contributed to the extinction of several small mammal species.

Loss of habitat continues to be an issue for brush-tailed rock-wallabies. Residential and tourist developments adjacent to some colonies are causing habitat modification, making it harder for wallabies to find homes. The overwhelming threat to current wallaby populations is feral animals, mostly the fox: more so than habitat loss, at least in Southern New South Wales and Victoria. The wallabies live in places we don't (escarpments, cliff lines and rock piles), but the small populations and fragmentation of their habitat does make it difficult to impossible for them to disperse and find mates in other colonies.

Our Society has contributed funds to support the survival of this small and vulnerable rock wallaby, but more needs to be done. Management of feral fox populations is crucial and preservation of safe and secure habitat will help in the survival of the brush-tailed rock-wallaby. If you would like to make a donation, please contact the office.



Brush-tailed rock-wallabies enjoy dwelling in areas where there are plenty of rocks and caves.



Brush-tailed rock-wallabies can climb tall trees with their sharp claws and strong legs.



Friends of the Brush-tailed Rock-wallaby

Chris Pryor, President of the Friends of the Brush-tailed Rock-Wallaby

The Friends of the Brush-tailed Rock-wallaby was set up 20 years ago, when Susan Robertson, who lives in Kangaroo Valley in the Shoalhaven, noticed that brush-tailed rock-wallaby (BTRW) numbers were declining while the number of foxes was on the rise. When Susan spoke to Ian Jackett of National Parks and Wildlife Service (NPWS) a fox-control program was set up and, over the intervening years, the decline in BTRW numbers was arrested, and their populations are now slowly recovering.

There are three colonies in and around Kangaroo Valley, with total numbers estimated to be in the range of 30-60 animals. The three colonies are now isolated from each other, due to contraction of their range and reduced numbers. The goal is to increase the numbers to sustainable levels, that is approximately 30 in each colony. It is hoped that occasional fox predation can be withstood with the populations

at this level. The work in the Shoalhaven is part of the overarching New South Wales Recovery Plan for the Brush-tailed Rock-wallaby. There is also a national Recovery Plan.

The plan for the Shoalhaven colonies involves a double-headed approach of intensive fox-control combined with release of captive-bred rock-wallabies. The animals are bred at Waterfall Springs Wildlife Sanctuary, a state-of-the art facility, which achieves outstanding success at breeding these secretive creatures. A small group of 3-5 animals is selected for release approximately twice a year.

NPWS undertakes the releases, which involve radio-tracking over many months and monitoring with remote cameras, as well fox-baiting around the colonies. The Friends facilitates this field work by educating and engaging the community (local landholders' permissions are

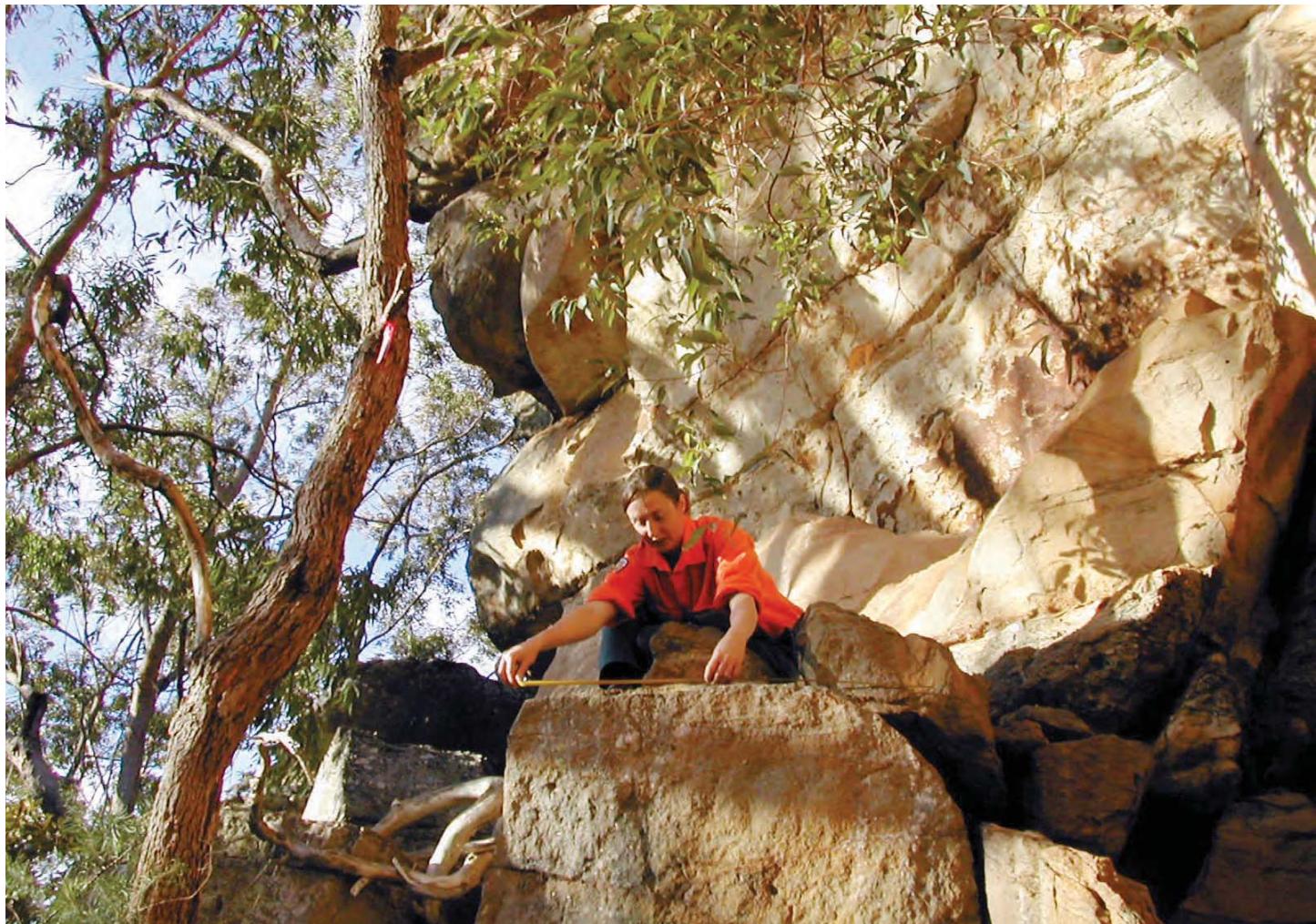
necessary for fox-control on private land), engaging contract fox-shooters to complement the baiting and, most importantly, fund-raising. Education of children is fundamental to conservation ongoing: the Friends are one year into a 3-year program which is bringing biodiversity education to primary and secondary children, using the brush-tailed rock-wallaby as a case-study. This work has been funded by the NSW Environmental Trust. The emphasis is on hands-on learning with direct experience related by an enthusiastic teacher who is part of the NPWS team as well as a member of the Friends.

The Shoalhaven recovery project is only possible because of a powerful collaboration between the Friends, NPWS, the local Shoalhaven community, Waterfall Springs and

Above: September 2012 Release - Friends of BTRW assisting Recovery Project.



September 2012 Release - Friends of BTRW assisting Recovery Project.



NPWS Shoalhaven BTRW Recovery Project – Research and Monitoring.

the Foundation for National Parks and Wildlife, which also raises funds for brush-tailed rock-wallabies.

The Friends' work has just been recognized by the UNAA (United Nations Association of Australia (Victoria), receiving a Special Commendation in the Community category

<http://www.unaavictoria.org.au/awards-programs/world-environment-day-awards/winners-finalists/>

You might like to view the Friends' new documentary (20 minutes) which gives a wonderful run-down of the rock-wallaby project <http://www.rockwallaby.org.au/documentary> or a 2-minute trailer <https://www.youtube.com/watch?v=nuS4KefxQLk>

If you would like to be 'part of the solution' and help the Friends to return these iconic rock-wallabies to sustainability, please go to the website <http://www.rockwallaby.org.au> where you can become a **Friend**, **adopt** a rock-wallaby (the adoptive wallabies all have interesting life-stories to help you choose: you might like to check out Nibbler's story...), make a **donation** or buy some **merchandise**.

Your support is greatly appreciated.



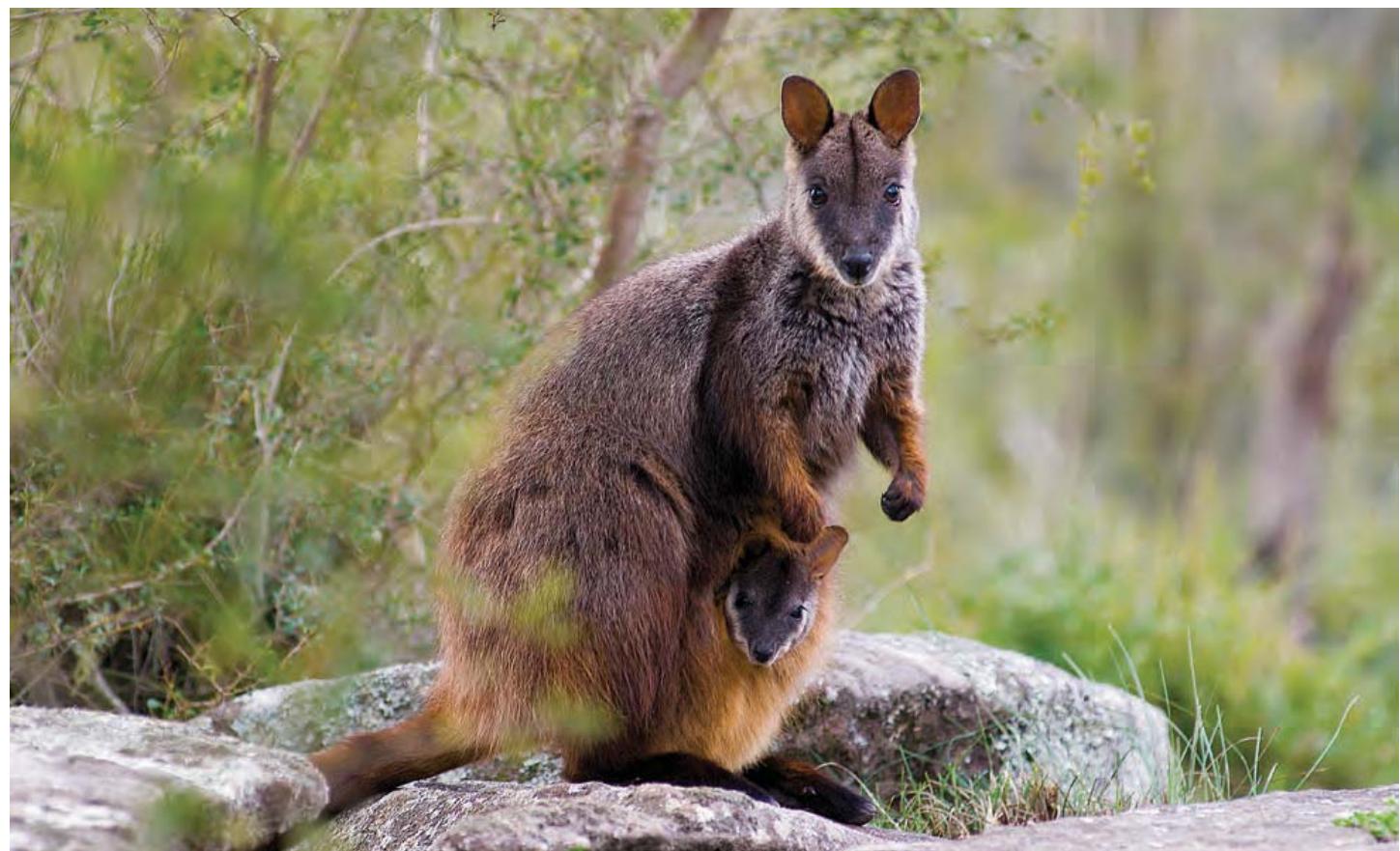
Brush-tailed Rock-wallaby pausing on a rock face in Kangaroo Valley.



NPWS Shoalhaven BTRW Recovery Project – Research and Monitoring.



Eco awaiting the 'word' to go for fox den detection at Bugong Gap Brush-tailed Rock wallaby site.



Brush-tailed Rock-wallaby mother and joey. The vulnerable stage for joeys is when they are stashed in a rock-shelter while mother goes foraging along the cliff-face. The 1-2kg joeys are predated by the foxes who are 5-6kg.

a love of wildlife

brodie james





Fully fledged, and showing it. This pair of juvenile sacred kingfishers photographed in Brisbane in December 2014 has been out of their nest only two days. This is the best opportunity for bird photographers and bird watchers to get a really good look at these colourful birds, as when they are young they are less flighty and more likely to allow you to approach them closely.



© BRODIE JAMES

Small birds with big personalities. In this picture I have captured a striated pardalote. These birds are incredibly small (roughly the size of a finch) and very twitchy, requiring a high shutter speed at times. This particular bird is in the process of building a tunnel in the side of a dirt hill with its five companions. The bird will use the tunnel as a nest for its babies when the weather begins to cool. They are very hard and dedicated workers and even if you are close to the nest they will continue to build their nest and feed their babies. They will also occasionally fly down to the lowest branches of a tree, or into an eye-level bush and get a good look at you before returning back to the top of the gum trees and foraging for food. These birds can be found across most of Australia and are common and easy to find if you know what calls to listen for and where to look. Photographed in Brisbane, Australia.



© BRODIE JAMES

Australia's jewel of the jungle. The Australian green tree python (*Morelia viridis*) is personally my favourite species of snake in Australia. The Australian green tree python hatches only yellow eggs, whereas the New Guinea green tree python can hatch both red/maroon and yellow eggs. However, in my opinion the bright yellow of our Australian green tree pythons are the most eye-catching and makes a great photograph. These animals originate from the jungles of the Iron Range in far North Queensland.



My name is Brodie James and I'm a 15-year-old wildlife and nature photography enthusiast from Brisbane. I'm passionate about animals and own six reptilian pets. I first started getting really interested in photography three years ago and that interest has formed into a career goal of becoming a professional wildlife photographer.



© BRODIE JAMES

Tiny temper. The coastal carpet python (*Morelia spilota mcdowelli*) featured in this image looks quite big and intimidating, however in reality this specimen was less than a ruler long and as thick as your pointer finger. Especially at this age, the snakes need to be able to successfully defend themselves against predators as the survival rate for hatchling snakes is low and I would like to think that this animal is going to go a long way with its display of defence in this image. Photographed in Brisbane, Australia



Bequest Program for wildlife conservation work

The Society has a Bequest Program to assist with their wildlife conservation work across Australia. Interested members are invited to complete the bequest form on page 46 in this issue of "Australian Wildlife" and send it to the National Office for processing.

In recent times much of the Bequest Program has been dedicated to our Society's environmental education programs, which are designed to educate the next generation of young Australians about our precious native wildlife in all its forms. There is an urgent need for further wildlife conservation work in this field.

Many families have already included a bequest in their personal last will and testament dedicating funds to the ongoing wildlife conservation work of the Society. You might like to consider including a bequest to the Society in your own will.

Friends of Australian Wildlife Society

The Society has been dramatically expanding its conservation and environmental work program and has embarked on an exciting new chapter in its history of wildlife conservation in Australia.

You can be a part of the Australian Wildlife Society's conservation future by becoming a 'Friend'. Application form is available from our national office.

University Grants Scheme

The Society already offers Wildlife University Research Grants of \$1,000 each for honours/postgraduate students currently studying at any university in Australia, but the new award is aimed at a more significant level and for potentially a larger sum of funding to study wildlife conservation at the University of Technology Sydney.

The aims of this scholarship are: 1) to benefit the preservation of Australian wildlife by supporting applied scientific research with a wildlife conservation focus; 2) to further the Society's commitment to environmental education by supporting science students with a research interest in conservation; and 3) to increase awareness of, and attract new members to, the Wildlife Preservation Society of Australia and its wildlife conservation work.

We can also name a University Wildlife Education Scholarship after any person who is prepared to make a significant donation to this innovative program. We currently have ten national scholarships and a major university scholarship scheme at the University of Technology Sydney. We would be pleased to provide further information to members at any time.

Wildlife Preservation Society of Australia Limited

University Research Grants

The Grants are scholarships offered to Honours or Postgraduate students at Australian universities. Grants are available for research projects of direct relevance to the conservation of Australian wildlife.

The aim of the University Research Grants is to further the preservation of Australian wildlife by supporting scientific research with a conservation focus. To further the Society's commitment to environmental education supporting students with a Research Intern in Conservation and to increase awareness of and attract new members to the Wildlife Preservation Society.

To celebrate 100 years of wildlife conservation in Australia in 2008, two additional annual grants of \$5,000 have been established. These will be awarded to dual recipients who have achieved original results in the research projects for which they received the original grants.

2008 Recipients



Please contact the National Office at any time for further details of the Bequest Program, the Friends of Australian Wildlife Society and the University Grants Scheme.

Wildlife Preservation Society of Australia Limited

University Research Grants

The Grants are scholarships offered to Honours or Postgraduate students at Australian universities. Grants are available for research projects of direct relevance to the conservation of Australian wildlife, or general science.

The focus of the University Research Grants will be to benefit the propagation of Australian wildlife by supporting applied scientific research with a conservation focus, thus further the Society's commitment to environmental education by supporting students with a research interest in conservation and to increase awareness of, and attract new members to the Wildlife Preservation Society.

To celebrate 100 years of wildlife preservation in Australia in 2008, two additional annual grants of \$5,000 each have been established. These will be awarded to past recipients who have achieved excellent results in the research projects for which they received the initial grant.





A merry neighbour

Chrissy Banks

The laughing kookaburra: a rascally bandit with an intense gaze and a bold reputation. But what do we *really* know about this infamous Aussie icon? Quite a bit actually – or at least the biologists, naturalists and birders of the world do. For the rest of us, I think it's safe to say we recognise the kookaburra by sight and sound, although probably only half of us realise 'laughing' pre-empts its name, while the other half only ever refer to it as "that cheeky b*&%# who nicked a banger off the barbie".

It may surprise you then to know there are four species of kookaburra. The spangled and rufous-bellied kookaburras are native to southern Papua New Guinea and the Aru Islands, while the blue-winged and laughing kookaburras both reside in Australia. While the laughing kookaburra's territory is widely spread (local to the east coast and introduced to the south-west of Western Australia, Tasmania and New Zealand), the blue-winged kookaburra is found only in northern Australia and in southern Papua New Guinea. Like the more common laughing kookaburra, the

blue-winged kookaburra also 'laughs', but the sound is less merry and more maniacal with an abrupt finish – a touch of the mad scientist perhaps?

Truthfully, I don't know a lot about the blue-winged kookaburra, and zip about the foreign species (for now), but that's okay, because this isn't a story about all kookaburras. It isn't even a story about all laughing kookaburras. It's a story about one particular family that for a time tolerated my presence and taught me more about themselves in one season than factual research could ever have done.

It all started one morning with a sound I can hardly describe. Try sucking air back through your throat while making a scratchy *aarrr-ar-ar-ah* sound. Do that and you may just come close to imitating the call of the juvenile laughing kookaburra (I got quite good at this, much to the embarrassment of my kids). At the time though, I didn't know what I was hearing. Curious, I slipped out of the house and followed the sound across the road to the park.

Not ten metres from my front door, perched fat as you please on a branch of a western ghost gum, was a kookaburra. Its youth was immediately apparent. Most of the adult feathers had grown in – but there was a certain fluffiness about it, accentuated by remnants of down peeking through the sleeker adult coat. Its tail had the look of an adult's, but stubbier. For a kookaburra it had a chubby face and eyed me with open curiosity. It was the most adorable thing I'd seen in a long time.

"Hello," I said and it tilted its head at me. "You're very cute." He fluffed a little and settled on his perch. I noticed a sibling in the next tree. I approached with a "hi there", but this youngster afforded me a stony stare and then ignored me (all spring I'll have you know!). I returned to the first 'baby'

Above: This adult sits fluffed against the cold. Kookaburras are often curious about humans and can become bold with interaction. This can lead to injuries. If you find an injured kookaburra, information on what to do can be gleaned from www.birdcare.ans.au



After a deluge of rain four kookaburras perch in a paperbark tree to preen. Their colouring offers them great camouflage.



After a season of hunting for their offspring, parents are lean and outweighed by their young. Such devoted parenting ends abruptly at four months.

with a growing inkling; these birds aren't precise clones of their parents or each other; they have individual personalities and quirks – just as we do. Gazing up at the friendly juvenile gazing back at me, I experimented with its call. It 'aar-ed' back at me.

I was hooked and so began a love affair that has changed my view of the laughing kookaburra forever. Charged with curiosity, I dove into research and here is what I learned: They are the largest of the kingfisher family growing between 39-45 centimetres, with a stout body and a thick, strong beak up to 10 centimetres long. Most adults weigh in the region of 455 grams. In scientific 'speak' they are known as *Dacelo novaeguineae*, but it's much easier just to say kookaburra, don't you think?

Generally tenacious by nature, these beautifully plumaged birds live in loose family groups and nest within the hollows of trees. They can live up to twenty years and so the birth rate is low to stay in balance with life longevity. Laughing kookaburras are widely recognised as sedentary (non-migratory) and chicks are raised by the family group. These birds are carnivorous (though don't eat fish) preferring reptiles, small mammals and even small birds. They regurgitate bones and the fur of prey in much the same way owls do, and are said to mate for life. They don't drink water, instead derive enough fluids from their prey.

The head male rings in dawn and dusk with a territorial half-call that if answered by a neighbouring family will turn into a full chorus with all involved. This is boundary setting and is done with utter gusto. Kookaburras have been known as 'the bushman's clock', and Aboriginal legend weaves the tale that the dawn call is a signal for the sky people to start the great fire that illuminates and warms the earth during the day.

Now, while all this is utterly interesting, the truth is, if my fascination hadn't been captured that morning by the plump juvenile then these facts would have remained two-dimensional. It was what I learned through personal experience that gave this knowledge depth, things I could never have learned in a book, or online. It's these things I want to share with you so that you'll understand in greater depth how special a kookaburra really is. So, back to my story.

I visited the juveniles regularly, a couple of times a day in fact, sitting quietly with them, chatting. They grew accustomed to my presence though only my growing favourite showed any interest. I began to hear different inflections in their call and came to understand what each sound meant: intense and loud meant mum and dad are back with food; quieter, more whiny versions meant I'm bored, or lonely. Silence meant I'm sleeping or just sitting here blending in. Yet there was one more sound I had yet to hear, and it would become my favourite.

The first time I heard it, the juveniles had been very quiet. I went out to investigate. They weren't in their usual trees. No matter how much I searched I couldn't find them. On the verge of giving up, I heard a call, very close and behind me. It was an entirely new sound. It was still the usual call, though less complete and gentler in tone. I turned and there was my favourite sitting in a tree looking down at me expectantly. I blinked. Did he just hail me? Unsure, I greeted him. He straightened, fluffed and did a little foot shuffle. I laughed out loud and he bobbed, appearing genuinely pleased to see me.

From that point on things just got sweeter. Like the day he dropped to the ground not a metre from me. This was new – and exciting. I picked up a stick and scratched at the ground. He did the same with his beak. We scratched in the dirt for ages and in case I thought it was a one-off, he did it again another day while my children sat beside me. I had just learned they aren't beyond foraging for grubs.

Then there was the early evening we were visiting. The siblings looked skyward and began to call intensely. Sure enough, in flew the parents. They landed with beaks full of chewed-up meat. The babies went crazy. Oh my goodness, the ruckus! I've never experienced anything like it. Crying, they hurried as best they could, half running, half flapping along the branches, one to each parent. I'd read that kookaburra parents swap chicks half way through a feeding, so watched in wonder as it happened right before my eyes. This was so much better than just reading about it, this was *experiencing* it, being caught up in the moment knowing full well what a privilege it was.



Feeding a chick is messy business and often scraps fall to the ground.



My favourite kookaburra practising breaking up prey by running bark through its beak. Not strictly listed as a bird of prey, kookaburras are carnivorous and capture prey with their feet. They have weak feet compared with 'mainstream' birds of prey though make up for it with a substantially stronger beak.



Left unattended juvenile kookaburras will forage for ground grubs; crickets, worms, beetles, even poisonous centipedes. Sexes are dimorphic (meaning different in appearance) but very similar all the same. The female is larger and has less blue feathers above the tail.

I thought that experience couldn't be beaten, but one morning my favourite called the moment I appeared. "I see you," I assured him. He gave a funny little chortle and flew to another tree. By the time I caught up he was waiting with a long, thin piece of bark in his beak. "What are you doing with that?" I asked and it dawned on me. "Are you practising?" On cue he began running the stick up and down his beak (parents do this to break up bones in prey). I was so amazed. He beat the strip of bark a couple of times on the branch. It snapped in two and fell to the ground. He looked at me and I swear he was puffed up proud.

It was a revelation for me. Juveniles don't just sit around all day waiting to be fed; they practise *skills*! Oh, they're clever chaps! They practise their flight until it's smooth. They practise their landings (without a full tail it's dubious business – quite funny to watch though). They sift through leaves to snap at bugs and practise breaking up

'prey'. By this stage I was so deeply in love with them I felt parentally proud every time they achieved something new.

Then came the terrible storm. Late November 2011 Perth was hit by a storm I haven't seen the likes of since living in the tropics. Lightning and thunder didn't let up all day. Rain lashed the house. All I could do was pray the juveniles would be all right. They hadn't experienced anything like this. I imagined they'd be scared. In the end, I slipped into my rain jacket and raced across the road. I found both 'babies' huddled miserably on a branch flanked by their parents. Reassured they were doing okay, I stayed indoors. It was a good decision. Toward late afternoon lightning struck the telephone pole beside my home. The entire house shook under the force of it. The power blew. The phones fried. And the kids and I hit the deck. I could only imagine how terrifying it must have been for the kookaburras.

The next morning was eerily quiet. There was no dawn chorus. Not a single bird made a sound and we have many species in our park. The park itself was a mess. Debris littered the ground. I was worried and went looking for the juveniles. They weren't in their favourite trees. I called. No answer. No happy shuffling of feet. I kept looking. Eventually I heard my favourite calling out. I found him perched further along the park, his aloof sibling beside him and one other juvenile with them. This one looked ragged and had a stunned appearance. I could only assume it had been spooked off its perch in the storm and was lost. It sat apart from the other two and seemed anxious. Mum flew in with an empty beak. I ran back to the house, cut up slices of raw chicken and took them to her. I tossed a piece on the ground and stepped back. She dropped down, snapped it up and flew back to the branch. After giving it a good beating, she fed it to my favourite. And so it



Dinner time: my favourite clambering in for a meal. Parents mince prey for their offspring. Babies are born bald and are called *pulli* (sing. *pullus*). They are fed small amounts of minced food. Portions are increased with size.

went. Three pieces went down his gullet. Then three went to the sibling. Now, I'd read that kookaburras will feed a chick outside the family if need be, so watched with great interest to see what would happen next. And yes, three pieces went to the ring-in. There had been no discrimination. "You're a good mum," I told her.

As I returned to the house I saw dad flying in. He landed on our roof for a brief breather and I could see why. In his beak was the biggest lizard I think he could carry. It was enormous, bigger than he was by half – but then he *did* have an extra mouth to feed. I gave him a salute for a magnificent effort and went indoors to a chorus of excited crying coming from the park.

And so life returned to normal and things progressed for the juveniles. Their flight became smoother, the landings better. Their cry took on an adult chortle. It was becoming

clear they'd soon be independent. I felt sad about that. The time I'd shared with this family was coming to a close. In the end it happened sooner than I'd expected. One day, no matter how much the juveniles cried out, the parents didn't fly in. It was heartbreak to listen to. I went over to be with them a while. They were clearly agitated, almost distressed.

The next day, I flew out for a month suspecting they'd be gone when I returned. They were. The park seemed horribly quiet, no dawn and dusk chorus, no juveniles calling. It didn't matter that other birdsong filled the air; I'd lost something special. I missed the family. I'd read that pairs nest in the same area each season and that families stuck together, but I hadn't seen hide nor feather, so could only hope so.

Time passed and I missed my favourite. I'd often think about him

and wonder how he was faring. Occasionally I'd check the empty trees in case he was there. He never was. Then, one day walking back with the kids from school, a young kookaburra flew in low to the park. We stopped. He looked at me. Looked at the ground. I drew close. He snuck a peek at me and I began to smile hardly daring to believe. "Hello. Is that you?"

He gave a little foot shuffle. My kids cheered and I felt utterly, ridiculously happy.

I hear them now setting their boundaries and while I've been known to groan, "Oh, do shut up," (especially at 4:30 in the morning) I'm actually pleased, because I'm grateful they're there. I understand them now. They aren't our pets. They're wild and free. Yet they let me share a little part of their lives, and it was a learning experience I'll never forget. I couldn't love them more.



Still showing signs of downy and a stubby tail, this juvenile is currently as big as its parents in length but heavier after substantial seasonal feeding. A kookaburra's adult beak is black on top and brown-tinged beneath, getting paler with maturity. A juvenile's is all black. The beak is strong to break up bones of prey and dig for grubs.

THREE REASONS WHY WE NEED TO TALK TO OUR KIDS ABOUT BEES

BIANCA C. ROSS

The world is 'abuzz' with the plight of bees. From farmers to flower growers, these little creatures are in big demand. But they are in trouble, and the recent attention of their population decline is for good reason: bees are essential to our world, as we know it.

We need to talk with our children about bees because:

1. Food production relies on bees to spread pollen. This natural pollination is crucial to forests and crops, and two thirds of Australia's agricultural output is dependent on bees. Their population decline is causing serious problems, and in some countries, such as China, farmers are taking pollination into their own hands, literally, and pollinating crops themselves.
2. As well as producing food, bees are fundamental to food security. Their activity creates biodiversity in food crops as well as native forests, allowing natural ecosystems to adapt and thrive.
3. Some foods rely 100 percent on bees for survival. Without bees, some of our most popular crops would disappear. Apples, blueberries, onions and pumpkins all need bees to produce food.

So, why is the bee population declining? There is much debate on this topic. Climate change and the use of pesticides are said to be contributors to the problem. And, studies show these small creatures are already too busy to satisfy our demand for food, so bees deserve undivided attention and immediate action.

What action can we take to help our bees? By helping our children understand the critical role bees play in our lives, we can raise awareness of the problem and children can play an active role in helping solve the emergency. We need to engage our children in a positive way, so they feel they can play a role to assist the bees' plight.



Bianca C. Ross is the author of the children's book series *Herbert Peabody*, published by Farinet Pty Ltd. See www.herbertpeabody.com for details.

Firstly, we can explain the important role flowers play in attracting bees. The colour of the petals and the pollen on the stamen will fascinate children, and pointing out the different parts of the flower helps them learn something new.

We can show our children budding fruit and vegetables in the veggie patch, and explain how the plants grow food for us to eat. And where there are flowers, there are bees, so they can see first-hand the work that goes on.

Visiting a farmers' market is another way we can teach our children about seasonal produce and the different crops that bees help produce. Children will learn direct from the farmers that the freshest produce changes throughout the year, and that bees bring about a large variety of food. And, small-scale farmers are less likely to engage in monoculture production,

offering a larger variety of plant species for bees to pollinate.

Visiting your local garden nurseries is a great experience for children and allows them to see and touch the many plant species that rely on bee pollination.

And, if you are a honey connoisseur, you may be able to establish your own hive. Check with local council and consult credible bee keeping associations for more information.

By helping children understand the fundamental role bees play for our food, we assist the survival of these amazing creatures, and that is a sweet thing indeed.

Sources: Marcelo, A. and Lawrence, D., 2009; Wheen Bee Foundation study; Berkeley University of California study; Victorian Apriarists Association Inc.

First glance at life

Callum Meney



This joey's head emerging from its mother's pouch was a moment I am very glad I photographed. This young wallaby still has about six weeks until it dares to venture any further. Young wallaby joeys will eagerly stick their heads outside their mother's pouch to get used to the outside world.



Wallabies are herbivores and feed on grass; they will also feed on plants but do so much more rarely than on grass. Wallabies are extremely social animals staying in 'mobs' in the wild and are rarely ever alone.

At a wallaby sanctuary south of Sydney, a young female agile wallaby (*Macropus agilis*) was showing off a large bulge in her pouch.

As I got down to photograph the mother, I was surprised to see a little head poking out of her pouch to take

a look around. The joey only took a few minutes to take a glance and then disappeared back inside the pouch.

Wallaby joeys will generally poke their heads outside the pouch from about five months old and will be almost covered in a thin layer of fur at this stage.

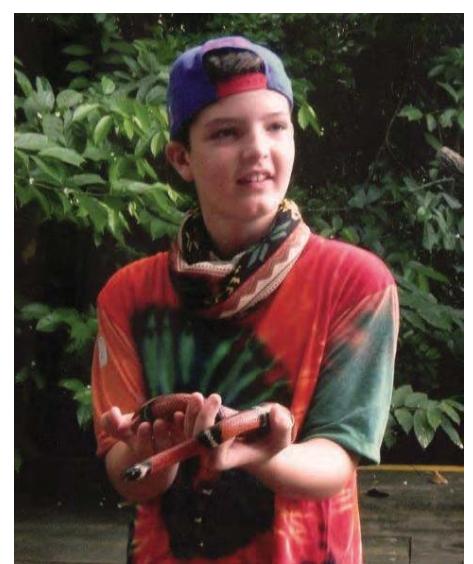
Wallaby joeys will start to take their first steps outside their mother's pouch when they are about six months old. After nine months the young joey will most likely be pushed away from re-entering its mother's pouch but will still feed from her until it is about a year old.



Wallabies are naturally curious animals and this one took a great interest in my camera and lenses.



This male wallaby grooms and cleans its hands after a very grassy meal. Male wallabies also groom their fur to attract a female to mate with.



My name is Callum Meney and I am 14 years old and in year 9 at school. Ever since I was very young I have had a love of animals and as I have become older I have developed a love of photography. My passion is to combine the two to document the lives of wildlife.



Beyond the laws of nature and humanity

Colin Riddell, Co-ordinator, Turtle and Dugong Campaign

One of the problems that we have increasingly encountered is cruelty and slaughter carried out in the name of indigenous cultures under the justification of tradition. My position is that there is never any cultural or traditional justification for inflicting cruelty and death upon sentient beings. However, the killing of dugongs and sea turtles, especially when they are endangered, cannot be justified in the name of Aboriginal culture. The world has changed and the life of every sea turtle and dugong is precious in a world of 7.5 billion people gobbling resources up without thought or compassion.

For too long now, the contentious issue of hunting endangered and vulnerable species under the *Native Title Act 1993* has been swept under the rug: too taboo, too prickly and too sensitive for most politicians or animal welfare groups to discuss publicly. It was for this reason I started the Turtle and Dugong Campaign to highlight the indiscriminate, inhumane and uncontrolled hunting of these vulnerable and endangered listed species and a campaign to win them better protection.

Don't get me wrong, I will be the first person to stand up and fight for

preserving cultures and traditions. It's important we respect minorities and allow them to keep practising centuries-old languages, field skills, cooking, music skills and other crafts. However, a line needs to be drawn when it involves the slaughter of vulnerable and endangered animals such as our precious sea turtles and dugongs and sadly, this is exactly what is happening across Australian shoreline on a daily basis.

Soon after commencing the campaign in August 2009 I was joined by Bob Irwin, the father of the late Steve Irwin and arguably Australia's greatest conservationist. Bob deemed the issue so critical that he has since spent the majority of his working conservation time helping me to highlight the sad plight of turtles and dugongs, which are on the brink of extinction in Australian waters. I was then joined by Sea Shepherd veteran Rupert Imhoff who had at the time just returned from his fourth trip to Taiji and was in the midst of planning a campaign for Sea Shepherd to intervene in the slaughter of 95,000 Cape fur seals in Namibia. Rupert has also recently led a ground team in the Faroes for the Sea Shepherd Conservation Society and is now assisting Sea Shepherd volunteer Nicole McLachlan as she leads the Australian shark campaign to reduce this slaughter.

Rupert chartered a boat using his own funds (A\$22,000+), and was able to spend a full two weeks living undercover and alone within the Indigenous communities of the Torres Strait, completely at the mercy of a cover story that he was nothing more than a Melbourne-based university student writing a paper on traditional hunting methods.

Using a hidden high-definition spy camera in his sunglasses, Rupert was then able to document heinous acts of cruelty to back up what I had long been campaigning against. It was the ammunition I needed to take the issue nationally. He filmed green sea turtles, listed as Vulnerable, suffering unforgivable and slow agonising deaths as they lay on their backs for days in the sun. He also filmed dugongs being hunted by men in far from traditional motorised boats who would then spear the dugong, tie it to the back of the

Above: A dugong gutted for what, cheap meat?



This is a dugong cut up after being speared, chased and drowned. What an end to an IUCN Red Listed species. But in Australia many thousands end up like this under the farce of 'native title' hunting. No one is starving in Australia.

boat and then force its head down into the water so that it died a slow and horrible death by forced drowning.

In other footage, Rupert filmed a green sea turtle tied to a tree in the sun. After suffering for two days as it desperately clung onto life and gasped for air it was then finally bashed over the head with a concrete block and

its flippers were hacked off one by one, followed by its shell. Shockingly, this turtle was a mature-aged turtle. Before they began butchering its flippers off, they made a small cut in her underbelly and confirmed she had up to 125 eggs in her. These were going to be the next generation of turtles, but despite this they decided to kill her right there and then.



Captured turtles are often left in the sun and tied up by the flippers until they are killed. Many die due to sun exposure.

Morally, anyone with a conservative mind would have let that turtle go and given her the chance to breed up another generation of turtles. Up until then, no one had effectively managed to document any clear footage of 'traditional hunting' methods and very few wanted to discuss it publicly out of fear of being labelled a racist. When Rupert questioned these men about the methods used to kill the turtles, they replied on camera "that's how they have always done it". The concrete block was meant to 'stun' the animal prior to it being butchered alive. Clearly, they do not hold much respect for animal welfare when they resort to and widely condone such archaic and outdated killing methods as the footage shows.

Don't be fooled by the haters. These were no isolated incidents. There have been many stories emerging from beaches right across Australia of people witnessing sea turtles being butchered alive in the most horrific of circumstances.

Current government policy clearly is not working. The indiscriminate and unmonitored slaughter of vulnerable mature-aged breeding turtles needs to be stopped! Controls need to be put in place and animal welfare should be respected at all times!

The hunting and take of endangered turtles and dugongs in Australian waters is not happening on a small scale. Thousands of the animals are suffering brutal deaths on our beaches 365 days of the year. There is no 'hunting season' which so many other protected species is afforded. They can be, and are, hunted at any time of the day, any day of the week. There are no controls whatsoever. No monitoring and no bag limits. It is a fact that already many areas along the east Queensland coast have become 'locally extinct' where only 10-15 years ago, dugongs and turtles once flourished. It's a sad state of affairs and the situation is becoming critical.

Credit needs to be given where credit is due. The Mandaburra clan south of Innisfail near Cairns proactively enacted their own moratorium on the take of dugongs and sea turtles. After noticing a rapid decline in both species back in 2004, the elders moved to impose a self-governed 10-year moratorium on the take of any further

animals. They have since extended this moratorium, as they have seen no recovery of either species. We hail the Mandaburra clan as examples of Indigenous leadership who understand what the term conservation means. We encourage other Indigenous communities to follow their lead.

In the spirit of the *Native Title Act 1993*, it was always intended that the animals would be hunted for traditional and cultural purposes. That is, if a family member were to die or get married, a hunter would go out and kill a turtle and share it amongst the community for the funeral or wedding. They happily admit they will throw a turtle or dugong on the barbecue as often as they can.

Further to this, many of you will be shocked to learn Rupert secretly filmed the rangers in a number of communities, actively hunting and killing turtles and dugongs. The appointment of head-hunters as sea rangers makes a complete mockery of the decades-old government policy of Indigenous self-management. We therefore call on the government to ensure independent rangers be introduced into these communities – rangers who will uphold the integrity of their job description and act with the animals' best interests at heart.

The turtle and dugong campaign is also supported by a large number of tourist operators. The slaughter of innocent turtles and dugongs is our government's dirty little secret. As a nation, we exploit these animals by plastering them all over Tourism Australia posters, flyers and TV ads, effectively luring millions of international visitors to the Great Barrier Reef each year. At the same time, Tourism Australia doesn't dare tell these international tourists that while you're having a pleasant snorkel with a turtle, you may at any moment witness that very turtle being speared through the head, dragged to the beach and butchered alive. It sounds absurd and extreme, but the reality of the situation is this is happening... and frequently!

Tourism operators are at boiling point and they are supporting our campaign in droves by demanding government action on the issue. Steve Davies, the owner and operator of Big Cat out of Cairns, regularly



Dugongs are speared and chased until they can swim no more. Then they are held by the tail and drowned. This can take a long time and is a prolonged and excruciating death.



Another sea turtle killed at Green Island, which is classified as a marine park. Nowhere is off limits to so-called traditional hunting.



This turtle was speared and captured after being chased to exhaustion.

Sea turtles and dugongs: they share similar habitats and evoke a calming emotional response when imagined or spoken of. However, these majestic marine creatures are a listed threatened species throughout Australia. From plastic pollution to the increasing natural disasters that impact on nesting sites and food sources, sea turtles and dugongs do it tough.

Colin Riddell is tenacious and tireless in his fight for greater protection of these animals, and he's been at it every day since August 2009. Colin coordinates the Animal Coalition, a collaboration formed by the Bob Irwin Wildlife & Conservation Foundation Inc. to stop the killing of threatened wildlife species by any means, for any reason.

Currently, sea turtles and dugongs are among up to fifty Australian species that are hunted and inhumanely slaughtered in large numbers, under the guise of traditional hunting practice. In March 2012, Colin exposed covert footage that captured the black market trade of Australian wildlife meat on the ABC's 7.30 Report. Rupert Imhoff, Research Officer for the Bob Irwin Wildlife & Conservation Foundation Inc., collected this footage in the field whilst observing the daily slaughter of wildlife. Following the coverage, there was national outrage that the Federal Government sanctions the killing of endangered species through legislation. The community loudly sought amendment to the Native Title Act 1993 to stop the killing.

The Animal Coalition recently learnt of a success, when the Federal Government announced that it had passed an amendment bill to triple the penalties for the commercial trade of turtle and dugong meat. This would not have been possible without Colin Riddell's tireless advocacy. It seems now that we are also on the eve of good news for threatened wildlife species, as the Federal Government has indicated that draft legislation is being prepared that would protect all marine and bird life throughout the protected areas of Australia which currently remains unprotected. This news is a direct result of the Animal Coalition's advocacy, and we thank our members for their support.

In their advocacy to protect voiceless threatened species, the Animal Coalition has recently gained the support of Sea Shepherd International and its founding member, Captain Paul Watson. The Animal Coalition continues to grow and now incorporates 34 organisations on its campaign.

While we are hopeful for change, the Animal Coalition will not stop campaigning until Australia's voiceless threatened species are protected from all forms of hunting. If your Australian organisation is concerned about the protection of wildlife against all forms of hunting and wants to join the Animal Coalition, please contact us by email: secretary@bobirwinwildlife.com

You can watch the ABC's 7.30 Report, and read more about the campaign here: <http://www.bobirwinwildlife.com/nobody-should-be-allowed-t.../>

Read about the new penalties associated with the commercial trade of dugong and turtle meat here: <http://www.abc.net.au/.../penalties-for-hunting-threa.../6089652>

Greg Johnstone
Secretary & Koala Coordinator
Bob Irwin Wildlife & Conservation Foundation Inc.

has to deal with crying and upset international tourists who have just witnessed turtles listed as Vulnerable being speared in front of them. To add to the pain, this is happening in so-called Green Zones. A Green Zone is defined as a no-take zone, a place deemed so pristine that neither you nor I can even remove a shell from, let alone catch a fish for dinner. It's a place often marketed to tourists for its pristine and untouched environment. Yet current legislation allows for the take of threatened sea turtles and dugongs under Native Title rights. I have been passed video evidence of these insidious acts occurring in full view of tourists and I have in turn passed these on to our environment minister Greg Hunt for reviewing, who has agreed these laws need to be reviewed.

Despite all this, there is some good news and hope for the future but the clock is ticking. After releasing Rupert's footage nationally on ABC's 7.30 Report, a large nationwide outcry occurred (led by some of our nation's biggest organisations such as Sea Shepherd Conservation Society, Animals Australia, Australian Wildlife Society, Queensland RSPCA and a host of others). The Queensland state Liberal National Party agreed to alter the *Animal Protection Act 2001*. In doing this, they effectively closed the loophole, which exempted the Indigenous people from animal cruelty laws. It is a huge win for all animals, not just the vulnerable or endangered listed ones. If you would like to watch the national exposé, you may watch the 7.30 Report here – <https://www.youtube.com/watch?v=zFBzAnBCno>

Furthermore, Bob Irwin, Rupert Imhoff and I have successfully negotiated in a number of private meetings with Australia's environment minister, the honourable Greg Hunt, the following law changes:

Tripling of penalties for poaching and trading of endangered turtles and dugongs was blocked in the Senate, since passed with the assurance of the Greens' Senator Larissa Waters.

The ban on hunting of turtles and dugongs in Green Zones (has not happened as yet).

Restricting the transportation of turtles and dugongs outside the communities where the animal was caught (not happened yet).

A two-year moratorium on hunting of all sea turtles and dugongs listed as Vulnerable or Endangered Australia-wide so that a proper population survey can be undertaken. (We now believe this is totally inadequate.) (This has also not happened yet)

To show his commitment, the environment minister confirmed these privately negotiated laws in front of national media and we intend to hold him to task. Please let Greg Hunt know you support the much needed law changes. This is our chance to save these two remarkable species for future generations. If we don't do it now, we may never be able to.

I would also like to remind everyone to stay on topic. This is not a racial issue. This is not about 'us vs. them'. It's about the protection of two iconic and rapidly declining species. It is about putting animal welfare above the greed of people. These animals are listed as Vulnerable and Endangered for a reason. We have moral obligations to protect them. It is the right thing to do and it's another piece in the global war to protect all of the planet's vulnerable and endangered species. As Australians, we not only have a national obligation to protect animals listed as Vulnerable and Endangered, but also an international one.

For far too often we have heard the argument "the indigenous people have managed these populations for thousands of years". We do not disagree with this statement. Back when the Indigenous population was small, demand for turtle and dugong was limited. Populations have now become bigger and with this there is an increase in demand on a decreased number of dugongs and turtles. Even with controls and bag limits, the take of turtle and dugong is no longer sustainable. Thousands of years ago the

Indigenous population also hunted these two species using dugout canoes and sail boats. These days we have documented Indigenous people using motorised speedboats, modern spears, large nets and search lights. The animals do not stand a chance like they did back in time and modern tools have allowed for much greater catches. According to a reliable and trusted eyewitness, in one night an entire family of 22 dugongs, including babies, were wiped out when they entered Jackie Jackie Creek. In another instance 12 were butchered within 48 hours on Horn Island. For a dwindling species on the edge of extinction, no one can argue that this decimation of entire families in one hit is 'sustainable hunting'.

We rightly tell the Japanese not to hunt endangered fin whales in the northeast Pacific waters. (Reliable estimates of current and historical abundance of fin whales in the entire northeast Pacific are currently not available. While reliable estimates of the minimum population size and population trends are available for a portion of this area, much of the North Pacific range has not been surveyed. A 2002 shipboard line-transect survey of the entire Hawaiian Islands Economic Exclusion Zone resulted in an abundance estimate of 174 fin whales (Barlow 2003). As of the 2004 Hawaii stock assessment report, this was the best available abundance estimate for this stock.)

But it would be hypocritical of us to not clean up our own backyard at the same time.

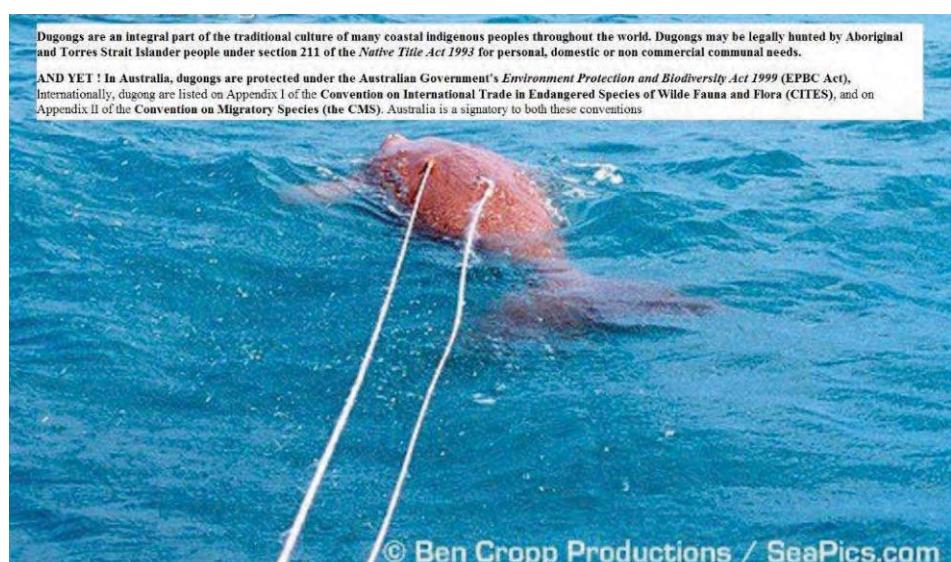
With the help of Sea Shepherd, we intend on ensuring the coalition government uphold their commitments to better protect these species and enact the laws that have been promised.

Sea Shepherd Australia helped us launch an Animal Coalition on board the *MS Steve Irwin*, with Bob Irwin and of some of the largest environmental conservation groups in Australia.

All these groups agreed to this simple but powerful statement – **"We therefore call for an urgent change to the Native Title Act 1993, so that any endangered or vulnerable animal or marine life is excluded from hunting by any means, for any reason."**



This ancient and beautiful creature was gutted and left to die to shock tourists in a marine park off Cairns.



How is this any less cruel than whaling, if not worse?



A tragic end to a majestic dugong species destined for extinction.

Current members of the Coalition are:

- Animals Australia
- Australian Anti Shark Finning Alliance
- Australian Freshwater Turtles
- Australian Wildlife Protection Council
- Australian Wildlife Society
- Australians for Animals
- Barristers Animal Welfare Panel
- Bat Conservation & Rescue Qld
- Cairns Turtle Rehabilitation Centre
- Cedar Creek Wombat Rescue
- Durong Dingo Sanctuary
- Earthrace Conservation
- Fourth Crossing Wildlife
- International Anti Poaching Foundation
- Koala Hospital Port Macquarie
- Koala Preservation Society NSW Inc.
- KoalaTracker
- Melbourndolphin
- National Animal Rescue Groups of Australia Inc.
- North Queensland Crocodile Protection Society
- ORRCA – Marine Mammal Rescue & Research
- OZARK Australia Wildlife Carers Network

- Queensland Koala Crusaders
- RSPCA Queensland
- Save Australian Dugongs & Turtles
- Save Fraser Island Dingoes
- Sea Shepherd Australia
- Southern Ash Wildlife Shelter
- The Ochre Project
- Tree Roo Rescue
- Twinnies Pelican & Seabird Rescue Inc
- Western Australians for Shark Conservation
- Wildcare Inc.
- Wildlife Protection Association of Australia
- Wombat Awareness Organisation
- Voiceless

We will pursue this goal to the end, because if we don't the end may be for the animals!

We initially asked for a moratorium, but due to the breeding cycles it would have to be fifty years minimum. In light of that, we demand a total ban on killing both species.

We also have a petition running until the next election which you can sign at <http://www.thepetitionsite.com/.../dugongs-and-sea-turtles-s.../>

Please write to the Honourable Greg Hunt, Minister for the Environment, thanking him for the commitments to better protect turtles and dugongs – greg.hunt.mp@aph.gov.au

Sea Shepherd calls for a total ban on the hunting of sea turtles and dugongs

In Sea Shepherd's campaigns in defence of the oceans, we have been granted the privilege and honour of flying the Aborigine flag. We do this to show support and respect for a culture that goes back tens of thousands of years that lived in peace and harmony with the natural world. However, endangered green turtles and vulnerable dugongs are in big trouble due to loss of sea grass habitat, ocean pollution and also hunting. It's time that there be a complete ban on all hunting to give these majestic animals a chance to recover. Given three out of every four breaths come from a healthy ocean and a given a healthy ocean is one rich in biodiversity, there can be no dispensation for the killing of endangered species."

Jeff Hansen
Managing Director
Sea Shepherd Australia



Sadly killed for a fee: a horrific end to a dugong that can live to 70-odd years.



TURTLE CONTROVERSY

THE UNJUSTIFIABLE INDIGENOUS SLAUGHTERING OF AUSTRALIA'S ANCIENT ENDANGERED REPTILIAN MARINERS UNDER 'NATIVE TITLE'

KIT (AMY) PRENDERGAST, ZOOLOGIST AND CONSERVATION BIOLOGIST

Chelonians – turtles and tortoises – are one of the most endangered groups of animals on Earth. Since they first evolved some 220 million years ago, these shelled reptiles have braved climatic changes, shifting continents and sea levels, and the mass extinction caused by an asteroid impact approximately 66 million years ago that killed off another entire reptile group – all the non-avian dinosaurs. Yet today chelonians are highly threatened with extinction. A scientific report released by Turtle Survival Alliance in 2011 stressed the precarious plight facing chelonians today. Significantly, it identified hunting as the greatest threat imperilling this amazing group of reptiles.

These archaic chelonian lineages have survived for hundreds of millions of years, yet in Australia, permitting archaic traditional hunting by

Indigenous people is causing these ancient mariners of the sea to decline. Scientists are concerned that allowing this inhumane and unnecessary practice to continue under the name of 'culture' may lead to Australia losing its populations of these wonderful marine reptiles.

AUSTRALIA'S AMAZING MARINE TURTLE POPULATIONS

There are seven species of marine turtles in the world, all of which are recognised internationally as being threatened with extinction. Australia is privileged to have our waters and beaches visited by six of these species: the flatback turtle (*Natator depressus*), green turtle (*Chelonia mydas*), hawksbill turtle (*Eretmochelys imbricata*), leatherback turtle (*Dermochelys coriacea*), loggerhead turtle (*Caretta caretta*) and Olive Ridley turtle (*Lepidochelys*

olivacea). All six species occur in various regions throughout northern waters in Australia, around Western Australia, the Northern Territory, and Queensland, as well as Torres Strait.

For millennia, these oceanic reptiles have migrated to feed in the ideal conditions our coastal waters provide, and make momentous journeys to nest on our beaches, where the eggs develop and tiny turtles hatch. They then make their way out to traverse

Above: Green turtle with barnacles on its carapace. These barnacles are epibionts: organisms that live on the surface of another living organism. Large animals are important living substrates for diverse epibionts, including barnacles, as well as algae, other invertebrates and even remora (sucker fish). The epibionts benefit from their host, but they have little impact and are generally harmless to the turtle.



Green turtle (*Chelonia mydas*)

the world's oceans before returning to their birth sites to breed and lay their own clutches contributing to the perpetuation of their species lineage. Australia is a key area for turtles, providing the largest marine turtle nesting areas in the Indo-Pacific region. Our beaches support internationally recognised, large nesting populations of green, hawksbill and loggerhead turtles – few of which remain in the world. Significantly, Australia has the *only* nesting populations of the flatback turtle. Hence, preservation of Australia's amazing turtle populations is incredibly important on a global scale.

THE LIFE HISTORY AND LEGACY OF MARINE TURTLES

Marine turtles have been traversing the world's oceans for over 200 million years. They are uniquely adapted to a marine existence, possessing a range of physiological and physical adaptations, including forelimbs modified as flippers. However, they retain features from their terrestrial ancestors, including the inability to breathe underwater, and the need for females to return to land to lay their eggs.

Marine turtles have an incredible life history. Under the light of the moon,

the tiny hatchlings (being often a mere 5 centimetres or less in length) emerge from their underground nests *en masse*, to scramble across the shore towards the waves. Once they enter the surf, they begin a swimming 'frenzy', actively swimming out to deeper offshore regions, to then drift on ocean currents, feeding and hiding within seaweed mats and other flotsam in the upper layers of the ocean. Because baby turtles are seldom observed again until they are about 5-10 years old, this period of the lifecycle is known as the 'lost years'. After this mysterious decade or so of drifting in the ocean currents, juveniles, still only a mere 20-40 centimetres, migrate to inshore foraging areas. Prior to reaching adulthood turtles face many natural dangers and mortality from predators is high. When they finally reach reproductive maturity, at about 20-50 years of age, males and females undergo an epic migration, covering up to 3,000 kilometres. They possess the remarkable ability to navigate back to the very same coastal waters around where they hatched despite not having returned there for almost half a century. It is believed hatchlings imprint upon wave directions, currents, light polarisation, and the earth's magnetic field, and use these cues to navigate back to their nesting beaches when they are ready to breed and produce their own hatchlings. Mating takes place in offshore waters about a month or two prior to the first nesting attempt, typically in summer. Both sexes mate with multiple partners, with the female storing sperm from multiple males to fertilise her eggs. Once mating is over, males embark upon the long journey to return to their feeding grounds, whereas female turtles remain to make fortnightly forays onto land, hauling themselves up and laboriously dragging their way up the shore to lay their eggs. A female selects an ideal site (where sand is not too dry and free of obstructions) to lay a clutch, digging a large pit with her fore-flippers, then excavating a vertical chamber with her hind-flippers into which approximately 120 (varying according to species) leathery-shelled eggs are laid. She then infills the egg chamber with her hind-flippers, and covers up the pit using both fore- and hind-flippers. Once her task has been completed, she finally returns to the surf exhausted after this epic act of contributing to the continuation of her species, only to return again following about two weeks of recuperating in the shallows, until, depending on the species, a total



Hawksbill turtle (*Eretmochelys imbricata*)

of three to seven clutches of eggs are laid over the breeding season. Once the breeding season is over, females join the males in returning to their distant foraging grounds. Such an effort means any given turtle does not make the journey every year; a female does not nest again until she has acquired enough energy and resources to undertake another nesting event, which may be up to 10 years later (in the case of loggerhead turtles).

AUSTRALIA'S MARINE TURTLES IN TROUBLE: LEGALLY LISTED AS THREATENED WITH EXTINCTION AND YET EXPLOITED BY INDIGENOUS HUNTERS

Australia has the world's worst track record for species extinctions, both historically and in recent history. There is increasing recognition of the need to take all measures necessary to reduce mortality and increase survival rates of the many imperilled species in Australia, and fortunately steps have been made to do this. Yet all this is negated by how the Australian government turns a blind eye when it comes to halting Indigenous butchering of turtles – one of the greatest, yet most easily resolved threats jeopardising turtles.

All marine turtle species are listed as threatened species and thus afforded legal protection at international, Commonwealth and State levels. In most countries, including Australia, killing of endangered species is illegal. Recognised as being threatened with extinction, all of Australia's marine turtles are listed under the *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act). The leatherback, Loggerhead and Olive Ridley turtles are each listed as Endangered under the EPBC Act, and the green, hawksbill and flatback turtles are each listed as Vulnerable. However, some species are placed in a more serious threat classification by the International Union for Conservation of Nature (IUCN): the green turtle is listed as Endangered, and the conservation status of hawksbill and leatherback turtles is Critically Endangered – the most severe of all categories.

Data on accurate numbers and trends for these long-lived, migratory marine reptiles is hard to collect, and these listings are based assessments as a whole. For many species, genetic studies have revealed a species actually



Leatherback turtle (*Dermochelys coriacea*)

comprises a number of genetically distinct, relatively isolated and unique lineages. Each lineage thus must be conserved and protected, for its loss would represent a loss of a significant, unique portion of the species' genetic diversity. As each species is subdivided into unique populations, this also means that each unit has far fewer numbers than when failing to recognise that the species as a whole represents a number of distinct populations, each with the potential to evolve in future into a new, distinct, separate species. For example, in Australia, there are seven regional populations of green turtles that nest in different areas from the southern Great Barrier Reef, across northern Australia, to Ningaloo in Western Australia, with minimal genetic exchange between regions. These seven regional populations represent genetically distinct populations, with their own migratory and nesting patterns, and thus each requires being managed and conserved independently. Moreover, these populations can be

further subdivided into 17 genetically distinguishable breeding stocks from individual rookeries or groups of rookeries more than 500 kilometres apart, with each representing a management unit. Likewise, there are three major populations of hawksbill turtles nesting around Queensland's Great Barrier Reef (GBR) and Torres Strait, on the Arnhem Land coast, and on islands off northern Western Australia.

Being listed as a member of a threatened species, turtles are afforded the necessary protection under the EPBC Act such that any activities that may result in killing, injuring, taking or trading these species is illegal – and rightfully so ... unless you're an Aboriginal or Torres Strait Islander. Indigenous Australians are exempt from the law that is in place to safeguard our natural heritage simply because of 'tradition'. Race should never be an excuse for differential treatment – this is recognised for most other activities in Australia, and yet, on the



Olive Ridley turtle (*Lepidochelys olivacea*) hatching



Like many victims of Aboriginal hunters, these three sea turtles have been cruelly left to die slow, painful deaths before their bodies are butchered and are needlessly consumed.

basis of race, these listed, endangered species "may be legally hunted by Aboriginal and Torres Strait Islander people under section 211 of the *Native Title Act 1993* for personal, domestic or non-commercial communal needs."

Federal, State and Territory legislation listing these species as threatened *should* provide these species with protection, yet by excluding Aborigines from observing the laws governing endangered species protection, this undermines the goals of legislation in place to alleviate threats and aid in the recovery of endangered species.

TURTLES DECLINING AT THE HAND OF HUNTERS

Indigenous hunters will kill any species of turtle, however green turtles are the favoured turtle species for consumption. The beautiful marbled tortoiseshell pattern adorning the carapace of hawksbill turtles also causes them to be killed by Indigenous people who prize

their beautiful shells, taking away the life of the turtle simply so they can take its shell to be fashioned into cultural trinkets known as 'bekko.' All species are suffering declines under the unjustified slaughter by Indigenous people.

Clearly antithetical to conservation principles, despite researchers noting declines in populations that have been surveyed, Indigenous people continue to massacre green sea turtles. At Raine Island of the GBR – the world's stronghold of green sea turtles – numbers are declining, and to make matters worse, nesting success has been reduced to less than 10 percent owing to recent nest flooding. Scientists are also concerned about the decline in size of nesting adults, increased intervals between breeding events, and absence of increased numbers of turtles in their foraging grounds – all clear warning signs of a species under threat. Long-term survey information for green turtle populations in the Gulf

of Carpentaria, Northern Territory and Western Australia are absent; ironically Indigenous people in these regions have noted reductions in turtle numbers yet unfortunately this has not impelled any sort of conservation ethic and their hunting continues unabated.

The population of hawksbill turtles for which data has been collected is declining; numbers of breeding females have been dropping 3–4 percent every year for the past decade. Researchers have identified Indigenous harvesting for this species' meat, eggs, and beautiful shells as being lucidly unsustainable, contributing to this decline in the world's most significant nesting population of this internationally critically endangered species.

In a single generation, eastern loggerhead turtles have declined by 86 percent, and whilst there is insufficient information on the Western Australian population, researchers are also concerned about this population's long-term persistence.

Olive Ridley turtles are declining worldwide, and despite data on harvesting levels being forthcoming, scientists are concerned about the known harvesting of turtles and their eggs by Indigenous people. Likewise, data on trends in flatback turtle numbers has not been obtained, yet researchers have expressed concern over the unknown numbers of flatback turtles and their eggs harvested annually by Indigenous people, and posit this is likely resulting in flatback turtle declines. Whilst largely owing to their large size and rarity, leatherback turtles are seldom targeted by Indigenous people; nevertheless, hunters will kill this species if the opportunity arises, and given its international recognition of being critically endangered, clearly any extra source of mortality is unsustainable and will do nothing to help halt let alone reverse this species' decline. Reported killing of leatherback turtles and especially harvesting of their eggs by Indigenous people is believed to significantly impact this species.

THREATENING PROCESSES IMPACTING TURTLES AND THEIR MITIGATION

The defining characteristic of turtles, and a key illustration of the wonders of evolution, is how these reptiles evolved a body enclosed in a shell derived from their ribs. This hallmark of evolution by natural selection provides protection



Turtle on a BBQ with intestines pulled out.

against natural predators, yet tragically this defensive structure provides no protection against the ruthless hunting efforts and spears of Indigenous Australians. Turtles' natural armour that has protected them from predators throughout millennia is no match against Aboriginal and Torres Strait Islander hunters. Turtles are one of the most gentle of creatures; no turtle has ever harmed, let alone killed a human. Lacking any sort of natural weaponry – structures like sharp claws, horns, and even teeth – turtles have no chance to defend themselves against their killers, and if targeted by a hunter, death is inevitable.

From the start of their life as eggs, a turtle must brave a number of adversities. Nests may be inundated by random storms or dug up by native predators such as goannas. After an incubation period of 7–12 weeks, baby turtles emerging from eggs that have successfully developed to term dig their way out of their underground chamber, an effort which lasts two or more days. Emerging as a group, in the cool of the night they then must traverse the dangerous exposed route across the shore from the nest to the sea, where many are picked off by a range of shoreline predators, including dingos, birds such as gulls, goannas and crabs. Once entering the water, hatchlings are prey to large fish and sharks. The protection afforded by a shell, and the large size of adult turtles (with leatherback turtle females averaging a massive 1.6 metres in length and weighing 300–600 kilograms) means predation is rare, with sharks being the only non-human predator that can kill turtle adults. Despite significant numbers of turtles being taken by these natural predators each year, the persistence of turtles for hundreds of millions of years indicates that they can easily survive such natural sources of mortality.

Marine turtles face a barrage of anthropogenic (human-caused) threats. Many turtles are fatally entangled in fishing gear; along with the disruption of marine food webs, trophic cascades, extinction of both target and non-target fish, and the fact that humans have no biological requirement to consume fish, the deaths of turtles snared in fishing gear is another reason to boycott fisheries. Discarded fishing nets are another source of mortality when turtles get entangled in them.



Captured sea turtle turned on its back to die a slow and painful death.

Turtles also suffer from marine debris and plastic pollution that fills oceans, pointing to how it is vital we recycle all plastic items and dispose of plastic items responsibly. Turtles die when getting entangled in rubbish entering the ocean, as well as when ingesting it. Jellyfish are consumed by green turtles, Olive Ridley turtles, hawksbill turtles, flatback turtles and especially leatherback turtles, whose diet remarkably consists predominantly of jellyfish. This makes these marine turtles vulnerable to dying as a result of consuming plastic bags, mistaking them for their jellyfish prey.

Boat strikes are another source of mortality. Fortunately scientists, via

satellite tracking, have identified major migratory routes of turtles. To avoid fatal collisions, what is now needed is for governments and sea vessels to ensure their routes do not cross those of turtles.

When hatchlings emerge from their nests at night, they instinctively are attracted to light; this positive phototactic response throughout most of marine turtles' evolutionary history has been adaptive by orientating them in the right direction to navigate towards the moon over the sea, away from the dark, shadowy sand dunes. However, artificial lighting installed at most beaches and emanating from



Sea turtle eggs in nest. Aborigines prevent turtle recruitment by stealing and eating the eggs that turtle mother's lay



Indigenous hunters have no respect for the sentient animals - here they can be seen standing on the bodies of captured sea turtles.

humans' landward coastal development structures disorientates hatchlings, causing them to instead move towards the land rather than the sea, where they are killed by predators or die of exposure. Studies have identified artificial lighting types - low-pressure sodium lights - that are less likely to affect hatchling movements, and have recommended lights be placed further away from the beach, shields be installed to prevent artificial light reaching critical nesting beaches, and ideally that light-zones be established at nesting sites.

Shark nets have caused a substantial number of turtle deaths; fortunately scientists have recently developed Eco Shark Barriers that can provide a non-lethal means of excluding sharks from beach areas, with the collateral benefit of preventing the many non-target species, including turtles, from being killed by shark nets.

Oil spills, dredging and pollution of turtle habitat from sewage, pesticide, heavy metal and fertiliser run-off from the land, are other sources of turtle mortality. Clearly, proposals to dredge and dump in the GBR must be prevented if great damage to turtles and their ecosystems is to be avoided.

Climate change is another dire threat. Marine turtles have temperature-dependent sex determination, where the sex of the embryo is determined by incubation temperature: cooler incubation temperatures produce males, whereas warmer temperatures produce females. If turtles are unable to adapt to increasing temperatures under climate change, skewed sex ratios can increase the risk of population declines. Moreover, when incubation temperatures are too high, this causes the embryos to die. Higher temperatures can also increase infection of the eggs by

parasites and other pathogens. Global warming is also causing sea levels to rise due to expansion of water and melting of glaciers and polar ice-caps. Sea level rises will drastically reduce the extent of beach habitat in which turtles lay their eggs. Reduced recruitment and hatchling success is also likely under predictions of increased storm surges, which inundate nests, causing the embryos within the eggs to drown. Both rising sea levels and increased storm-caused erosion will reduce nesting habitat.

Altered salinity levels, acidity levels, temperature, and oceanic circulation patterns under climate change are also likely to alter marine food webs, with unknown but potentially detrimental consequences for the abundance, distribution, and nutritional value of turtles' prey items. Increased temperatures and other climate changes that have already occurred and will continue in future have already been linked to declines in their foraging habitat, for example by causing coral bleaching and mass mortality of seagrass meadows. Green sea turtles are also likely to be impacted by climate change owing to their sensitivity to changes in air pressure and water temperature (the Southern Oscillation Index) which determines their temporal breeding migration patterns.

Clearly, climate change is a grave threat to marine turtles. We can go some way into avoiding drastic climatic upheaval by switching to non-fossil fuel energy sources, reducing our carbon footprint by using clean energy sources, and importantly, by reducing greenhouse gas emissions by adopting a plant-based diet owing to how greenhouse gas emissions from livestock account for the single largest greenhouse gas emission sector, and additional emissions accrue through clearing land for livestock, transport and storage of meat products. However, we are already committed to some degree of climate change due to a lag in the climate feedback system.

All the above threats are complex, and solutions to counter these threats take planning, coordination, and money to implement. Fortunately, scientists have collected data and devised means to help turtles combat these threats, identifying key research and management actions necessary to stop the decline and support the recovery of marine turtles, aimed at maximising their long-term persistence.

But these conservation strategies will be rendered ineffectual if turtles continue to be slaughtered by Indigenous Australians. Not only is this source of mortality severe, it is the easiest and fastest to correct. The ending of legalised killing of turtles by Aborigines and Torres Strait Islanders for tradition and an agreement by Indigenous people for an infinite ban on harvesting turtles and their eggs will do a world of good for securing the persistence of Australia's turtles.

Fortunately, scientists have identified key actions required to address these other sources of mortality, and progress has been made in implementing actions to ameliorate these threats and sources of mortality, and enhance sea turtle survival. However, whilst tackling these other threatening processes is important, the impact of Indigenous hunting on turtle numbers is the most severe and thus most critical to abolish if we are to maximise the chance of turtle recovery. For example, accidental bycatch of turtles by the fishing industry is the largest source of mortality other than Indigenous hunting. Yet, unlike the situation with Indigenous hunting, at least governments have responded to the recognition of this threat and consequent action has greatly reduced bycatch mortality. The compulsory use of turtle excluder devices recently developed by scientists has meant prawn nets no longer pose a threat to turtles. Capture rates are only 0.007-0.009 turtles per trawl, and captured turtles are unlikely to die since the duration of trawls are generally not long enough to result in drowning. Likewise, baiting for feral predators at nesting beaches has virtually eliminated this source of mortality. Yet Indigenous hunting, which depletes turtle populations by an order of magnitude more, is allowed to continue under Native Title. Likewise, scientists have identified key breeding beaches, and accordingly these rookeries are designated as protected habitat. Sadly, this does nothing to afford the turtles' clutches protection from Aboriginal and Torres Strait Islanders taking the eggs. Harvesting of eggs therefore is a grave threat and severely impairs recruitment. Not only do Aborigines take eggs from nests, they also brutally catch gravid females at sea, slice open their abdomens to obtain the eggs, then, having deprived them of their precious clutches, leave the mothers to die slowly. Clearly, the taking of eggs for



Captured sea turtle overturned on its back before it is eventually slaughtered.

the unnecessary reason of consuming them as part of a 'traditional' diet is unjustifiable.

EXTENT OF THE SLAUGHTER AND RISKS TO TURTLE POPULATION PERSISTENCE AND VIABILITY

Researchers have identified Indigenous harvesting as a major threatening process, occurring at a magnitude which marine turtle populations cannot sustain and contributing to their decline. Marine turtle scientists

and conservation experts are gravely concerned about the threat indigenous harvesting is imposing upon marine turtles. Bob Irwin, a veritable wildlife conservation expert and father of renowned Australia naturalist Steve Irwin, has expressed his grave concerns about the threat Indigenous hunting is posing upon marine turtles and the need to prevent the massacres of these endangered species permitted under Native Title, stating: "Whilst we are all aware of the natural disasters facing



Under the Native Title Act 1993, "Traditional Owners have the right to take marine resources, including hunting of marine turtles for personal, domestic or non-commercial communal needs and in exercise and enjoyment of their native title rights and interests."



Butchered sea turtle meat and eggs

marine turtles such as cyclones, floods etc., not to mention rubbish left in our oceans by humans, I feel the greatest effect on the long-term survival of these endangered creatures is the unmonitored hunting of turtles by indigenous Australians."

Due to the unregulated nature of traditional hunting permitted under the *Native Title Act*, and the wilful ignorance of the government that ensures scientists are denied the ability to quantify this source of mortality, precise figures on the number of animals killed for traditional purposes are not available. Tellingly, Indigenous hunters are reticent about the numbers of turtles and their eggs they take. However, the data that researchers have managed to gather indicates this source of mortality is far from inconsequential, and this cause of mortality has the

potential to significantly jeopardise the persistence of turtle populations in Australia. The annual toll for green sea turtles, the main species targeted for their flesh by Aboriginal hunters, is 20,000 individuals in and around the Torres Strait Peninsula Zone alone. Australia consequently has the undesirable distinction as the country that hunts more green turtles than any other on the planet. Across Australia, it is likely that 100,000 turtles are killed by Indigenous hunters ever year, representing a mass massacre of these threatened species.

In the name of 'traditional hunting', Aborigines are free to kill as many animals as they want, via the most abhorrent of methods. For the rest of Australian citizens, such hunting and practices rightly result in criminal prosecutions, yet for the Indigenous

population, they are condoned in the name of 'traditional rights'.

The threat of Indigenous people hunting turtles to extinction is driven home by the fact that they have done so in the past. There is sound evidence that Aborigines drove the biggest mass extinction in Australia's history, causing the extinction of a suite of fantastic megafauna that once roamed across Australia as a result of hunting and burning the land. Researchers analysing a 'turtle graveyard' concluded Indigenous people also hunted to extinction an amazing giant horned chelonian, known as a meiolaniid – a now extinct family of terrestrial chelonians that evolved during the time of the dinosaurs in the supercontinent of Gondwana (of which Australia was part). In a mere 300 years – a blink of an eye in evolutionary terms – Indigenous people slaughtered these chelonids to extinction. Even having evolved horns on their head, spikes on the back of their shell and a big club on their tail as a defence against dinosaurian predators, this armoury was no match against Indigenous hunters, who, according to the lead author of the study*, palaeontologist Dr Trevor Worthy from the University of New South Wales, would have used similar inhumane tactics as hunters today to kill and dismember these great beasts, spearing them in the neck and overturning the turtles, sealing their fate. (*'Megafaunal meiolaniid horned turtles survived until early human settlement in Vanuatu, Southwest Pacific' by White et al. 2010 <http://www.pnas.org/content/107/35/15512.full>)

The fact that Aborigines wiped out a suite of mammals and reptiles, including a chelonian, underscores the very real threat their 'traditional hunting' has on the persistence of turtles that still survive today, especially in light of how Indigenous hunting with their use of modern vehicles and weapons is now far more successful.

A complete, infinite ban on turtle hunting and taking of their eggs is required. This is because the life history of turtles makes recovery a long, slow process. All marine turtles grow slowly, and some species do not even reach sexual maturity until they are half a century old! When turtles are decimated by a chance catastrophic event, such as a major storm, disease or oil spill, it will take a long time for the species to recover and for numbers to be restored

to previous levels. Their ability to sustain natural mortality events throughout their evolutionary history testifies their resilience, but only when numbers are not being depleted annually by Indigenous hunting.

At their current numbers, turtles are at risk of inbreeding, depression, extinction from chance events and disease outbreaks. Hence, it is vital to not only reverse the current decline, nor even to maintain turtles at their current numbers. Rather, recovery requires turtles to increase their numbers.

TURTLES: KEY PLAYERS IN MAINTAINING HEALTHY OCEAN ECOSYSTEM – PROVIDED THEY ARE PRESENT AT ECOLOGICALLY VIABLE DENSITIES

Turtles are keystone species in marine ecosystems. The various species perform critical functions by grazing on seagrass, sponges, jellyfish, benthic organisms, and by supporting and transporting various marine creatures that interact with marine turtles. Yet if marine turtles are to effectively fulfil these vital roles they perform in maintaining the health of the oceans, all turtle species must be maintained at high numbers; their needless slaughter under the guise of tradition jeopardises the health of our oceans by risking marine turtles to become ecologically, locally, or even globally extinct.

Recovery of turtles to viable population sizes is not only important to prevent their extinction, but important for entire marine ecosystems. All sea turtles provide habitat to a range of encrusting organisms, known as 'epibionts' that make a home on the shells of turtles! More than 100 species of epibionts have been recorded to occupy loggerhead turtles shells. Turtles also allow the dispersal of epibiont species as they hitch a free ride when turtles migrate through the oceans. The epibiont community on sea turtle shells in turn provides food for a range of animals such as cleaner fish. Small fish can be found milling beneath turtles, where they are provided safety against being taken by larger fish predators. Sea turtles also serve as 'resting platforms' for tired sea birds that roost on turtle shells when the turtles come to the surface to bask.

Over the past few decades there has been an alarming increase in jellyfish blooms, with concerning ramifications to ecosystems, industry and tourism.



Hunters use both barbaric traditional hunting practices, as well as modern technology ie powerboats, to hunt turtles.

Few species of animals are capable of feeding upon jellyfish, yet marine turtles consume jellyfish, especially leatherbacks. Consequently, this rise in jellyfish blooms may be partly attributable to sea turtle declines; conversely, if turtles are allowed to increase in abundance, they may serve a vital role in controlling jellyfish and reducing jellyfish numbers.

Green turtle grazing of seagrass provides small-scale disturbances important for maximising biodiversity, enhances productivity and nutrient content of

seagrass, and has been demonstrated to promote overall productivity of seagrass beds. In regions where green turtles have declined to such an extent that they have become 'ecologically extinct' this has been accompanied by mass seagrass die-offs. Because green turtles consume seeds of seagrass, they can also act as agents of seed dispersal for these aquatic plants.

The beak-like jaws of hawksbill turtles are adapted to their unique diet of sponges; by consuming sponges, hawksbills prevent sponges from



Loggerhead turtle (*Caretta caretta*)

outcompeting corals, allowing corals to colonise and grow, and thus hawksbills are important in the maintenance of coral reef ecosystems – one of the most biodiverse ecosystems on earth. Loggerheads with their powerful jaws are adapted to foraging for hard-shelled prey like molluscs buried just beneath the ocean floor, and through their foraging activities, loggerheads play an important role in the aeration and nutrient cycling of ocean-floor sediments.

THE INHUMANITY OF INDIGENOUS HUNTER HARVESTING TECHNIQUES

There is no such thing as 'humane' killing – the term is an oxymoron, for there can be no greater act of inhumanity than taking away the life of a sentient being. Moreover, the means by which Aborigines and Torres Strait Islanders massacre turtles are of the most inhumane imaginable. The gruesome slaughter of turtles by the hands of Indigenous hunters has been recounted by Mark Baker (a journalist for The Age Newspaper); observing an Aborigine killing a turtle:

"The blood ebbs in billowing clouds of crimson. In the shallows, a giant green sea turtle lies stricken in its upturned shell, its flippers gouged from the sockets above the carapace and tossed into the water. A marauding reef shark edges closer. The hunter runs his knife in an arc around the perimeter of cartilage and tears off the plastron, the soft breastplate shell, as dispassionately as

if he were peeling the lid from a can. The female turtle, its internal organs exposed to the sun and swarming flies, writhes in silent agony. The choicest cuts of flesh are hacked slowly from within the seething cavity. Then the eggs, the liver and finally, the long coils of silvery grey intestine plump with undigested seagrass. After 10, maybe 15 minutes the butchering is done, but still the violated animal clings to life. It draws its straining head up from below the waterline, mouth gaping and eyes blinking in a final vain protest. The hunter reaches down and snaps the neck back into the emptied shell, then casts it adrift like a toy sailboat, back out to sea and the waiting sharks."

Such a horrific practice is commonplace. In some communities, ridiculous cultural beliefs dictate that the animals are butchered *whilst still conscious* so that its "spirit returns to the sea". As such, a turtle is still conscious when the hunters start to dismember it, commencing by hacking off the front flippers at the shoulder joints to avoid injury to the butcher, then severing of the hind-legs, followed by an incision to lift the plastron. The turtle inevitably perishes whilst suffering this excruciatingly painful 'traditional' procedure. In other areas, turtles are killed by delivering blows to their heads – captured in video footage of Aborigines killing turtles in Western Australia. In Torres Strait, the most common method used to kill turtles involves hunters going out in a *motorised* dinghy to find a victim. A hunter then

either jumps on the back of the victim and uses a steel hook to hook the turtle's neck, or the turtle is harpooned from the boat. Hunters then typically assess how much fat the animal contains by lacerating the inner base of the hind leg. If deemed to be not fat enough, the hunters will discard the victim, leaving it to die a slow, painful death. A turtle with adequate fat levels is hauled onto the boat, and kept alive for extended periods out of water, deprived of food, water, and shelter from the elements, until the Indigenous people decide to consume it, which may be weeks later. The victims are often packed into enclosures, and are restrained by having a flipper hacked off – while the animal is still conscious, or are turned on their backs, suffering from intense pain owing to increased blood pressure to their brain.

TURTLE RECOVERY: POSSIBLE... IF INDIGENOUS PEOPLE STOP THEIR MASSACRES

Recovery is certainly possible, as evidenced by the wonderful success stories of turtle populations in other countries where turtles are free from being butchered.

For example, in Hawaii, evidence has revealed that numbers of green turtles have dramatically increased, from less than 100 nesting females per year to about 500 females per year in just 40 years, as a result of good management involving protecting nesting habitat, reducing turtle deaths from fisheries, and, critically, illegalising the capture and killing of turtles. This points to the failure of Australian governments in adequately conserving green turtles here: despite similar actions involving successful habitat protection and strategies to reduce bycatch, the slaughter of this species by Indigenous people has meant unlike in Hawaii, green turtles have failed to recover and instead have continued to decline.

ALLOWING TRADITIONAL HUNTING OF THESE GLOBALLY ENDANGERED SPECIES: SHAMEFUL ON THE INTERNATIONAL STAGE

Turtles are migratory species, and thus they are both valued, and managed, by multiple nations across the globe. It is tragic and shameful for Australia's international reputation that our country is willing to jeopardise the time, money, and dedication of conservationists and communities in other countries that have dedicated

their efforts to conserving marine turtles that also grace our waters. Permitting Aborigines and Torres Strait Islanders to kill turtles and harvest their eggs clearly ignores how “to truly protect sea turtles around the world, many different countries and cultures must cooperate and share responsibility”, as recognised by the Sea Turtle Conservancy. In the United States for example, under the *Endangered Species Act*, the designation of marine turtles makes it illegal to harm, harass or kill any sea turtles, hatchlings or their eggs. This must apply to marine turtles in Australia’s waters as well, and apply to *all* Australians. Everyone – Indigenous, non-Indigenous, both recently immigrated vs. Australian citizens from countless generations before – must participate to engage in practices that alleviate the threats, and promote the recovery of marine turtles.

INDEFENSIBLE ‘JUSTIFICATIONS’ FOR INDIGENOUS HUNTING

Just as race is no excuse for being denied the right to vote, equal pay, education, work, and health care, race is also no excuse for being exempt from laws fundamental for the protection of Australia’s natural heritage.

Under the *Native Title Act 1993*, “Traditional Owners have the right to take marine resources, including hunting of marine turtles for personal, domestic or non-commercial communal needs and in exercise and enjoyment of their native title rights and interests.”

But what about the rights and interests of the sentient creatures they kill? Or the rights and interests of the rest of the people of Australia who value turtles and the ecosystems they contribute to?

Another pertinent fact is that for all people, there is no biological ‘need’ to consume the flesh of turtles, nor any other animal for that matter. And clearly, killing turtles to use their shells as mere trinkets and ‘traditional’ artefacts is not a need but rather a cultural fancy. In reality, the hunting of marine turtles does not constitute a ‘personal, domestic or non-commercial communal’ *need*, but rather a non-essential desire. What *is a need* is the protection of marine turtles from this significant source of mortality.

There is a persistent myth that Indigenous people are ‘at one’ with

nature and, having existed in this land for countless generations, live in an idealistic state of harmony with nature, having only a benign influence upon the native species they interact with. Whilst alluring, this myth is thoroughly contradicted by evidence. Across the world, hunting of wildlife species for ‘bushmeat’ is a major cause of the decline, endangerment and even extinction of multitudes of species. Turtles have especially fared terribly from hunting. In our supposedly developed, progressive, First-World country, the fact that such outdated and barbaric practices are allowed to continue is shameful.

Numerous studies have revealed Indigenous people do not possess some special ‘conservation ethic’. Quite the contrary, conservation scientists have expressed their grave concern about the wanton destruction of Australia’s wildlife by Indigenous hunters. Despite conservationists and scientists advocating a cooperative management plan with Indigenous people to protect and conserve Australia’s turtles, this has largely met with an indifferent response by Aboriginal and Torres



Green turtle (*Chelonia mydas*)

Strait Islander communities, who fail to acknowledge and act responsibly when presented with the evidence of their detrimental impact upon the conservation status and welfare of these species. As stated by Dr Colin Limpus, marine turtle conservation expert from the University of Queensland, Indigenous people “just see this as another food source that they can go and get whenever they like and that will be forever”.

A claim used to attempt to justify the ‘traditional’ slaughtering of turtles is that the Indigenous hunters respect turtles. Photographic evidence of Aborigines striding the backs of dead turtles, and of grinning hunters next to their newly slaughtered turtle victims that have suffered slow, inhumane deaths clearly contradicts this claim. Moreover, it matters not to the victim whose life has been taken whether their murderer respected them or not. And fundamentally, there can be no greater disrespect than denying a sentient being their life, and respecting their right to a continuing existence, free to live their lives without being butchered simply to continue an outdated tradition.

Another erroneous claim is that Indigenous people should be allowed to continue killing turtles and their eggs on the basis that this provides a necessary part of the diet of Indigenous people. Countless scientific studies by nutritionists recently have underscored that not only do humans (of all races) not need to eat meat, it is in fact detrimental to our health. Indigenous Australians often suffer poorer health than much of the non-Indigenous Australian population. Hence, it is in their best interest to stop consuming turtles given that they, like every other human being, can obtain all their required nutrition from a plant-based diet, whilst also benefitting from the reduced risk of disease associated with meat consumption.

Some claim that Indigenous people, with their relatively low population sizes, ‘traditional’ methods of hunting, and ‘ecological knowledge’, harvest turtles at sustainable rates. The evidence soundly contradicts this. When a species is recognised as being threatened with extinction, *every* death counts. No level of hunting can be considered ‘sustainable’.

FUNDAMENTALLY UNETHICAL

Fundamentally, even if turtles were not threatened with extinction, whether Indigenous hunting occurs at ‘sustainable’ levels or not is not the critical issue. Sustainable harvesting only applies to non-sentient resources (e.g. materials like timber, plants, metals etc.). Turtles are not mere inert resources to be consumed or exploited for food or traditional activities; rather, each turtle is a sentient being.

The unethical nature of killing turtles is underscored by many biologists, evolutionary scientists, psychologists, ethologists, and philosophers’ studies highlighting that vertebrates, such as turtles, are conscious beings. The current scientific consensus is that all vertebrate animals are sentient beings, possessing the ability of being aware of sensations and emotions, feeling pain and suffering, and experiencing a state of wellbeing. Consequently, our humanity’s behaviour towards animals should be guided by this recognition of their sentience. The behaviour of Aborigines who slaughter marine turtles clearly is incongruent with this.

THE NEED TO ABOLISH OUTDATED TRADITIONS: CULTURE IS NO EXCUSE FOR ETHICAL TRANSGRESSIONS

Throughout history, across all cultures, traditions have changed and evolved as society has moved forwards. Today, in our progressive society, it is no longer acceptable to engage in ‘traditional’ cultural practices such as slavery, foot-binding of young girls, or denying women or people of colour equal rights. Similarly, many Australians join progressive countries across the globe whose citizens are rightfully outraged and are calling for an end to the exploitation of sentient, endangered species brutally slaughtered for traditional trinkets in various cultures, such as rhinos for their horns, elephants for their tusks, tigers for their pelts, and pangolins for their scales. In most countries, such needless slaughter for traditional fancies is illegal, and is recognised as poaching. Hence, it is thus shameful that in Australia such ‘traditional’ slaughtering is not only occurring, but is allowed to occur, under the *Native Title Act*.

In other countries, including those that are much worse-off economically than Australia, Indigenous people working with conservation biologists have led

the way in showing how together turtles species can be protected by embracing a new tradition – one of protection, not persecution. Such Indigenous people can be proud to claim their involvement in protecting and safeguarding species that they share the land and waters with. This adoption of a new Indigenous tradition of protecting turtles, rather than continuing to participate in an outmoded, unethical, and damaging tradition of hunting must be adopted by Indigenous communities of Australia.

PROTECTING AUSTRALIA’S TURTLES INTO THE FUTURE

Irrespective of culture and race, hunting and killing Australia’s turtles is *not* justified scientifically nor ethically. Exceptions for the vital preservation of Australian wildlife should not be granted on the basis of outdated and inhumane cultural traditions.

If turtles are to survive for generations to come, the tradition of Aboriginal killing of turtles must die. These marvels of evolution that inhabit Australia’s coastal waters must be spared from the needless butchering that is allowed to occur under the *Native Title Act*. To ensure the protection of our natural heritage, all Australians – both Indigenous and otherwise – must embrace a culture that respects the lives of turtles. To ensure the protection of marine turtles, the Australian government must update its dangerous legislation that permits Indigenous people to be excluded from statutes regarding hunting threatened species, and instead enforce an infinite moratorium on Indigenous slaughtering of these amazing reptiles and the future generations contained in their eggs.

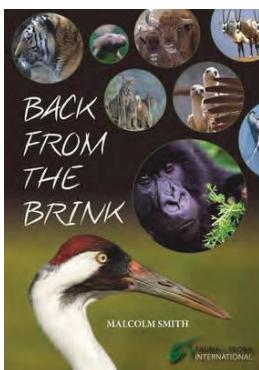
To protest against and help end this unjustifiable carnage by Indigenous hunters of Australia’s threatened wildlife under Native Title, please contact the Minister for the Environment, Greg Hunt, and Warren Entsch (Federal Member for Leichhardt based in Cairns) at the following email addresses:

**greg.hunt.mp@environment.gov.au
and warren.entsch.mp@aph.gov.au**

Please also add your name to a petition by Turtle and Dugong activist Colin Riddell:

<http://www.thepetitionsite.com/329/007/213/dugongs-and-sea-turtles-still-being-slaughtered-in-australia-under-native-title-/>

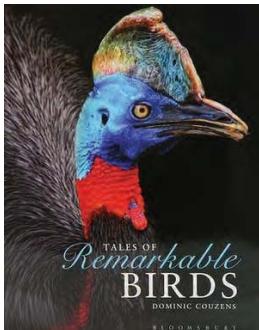
Book Reviews



Back From the Brink by Malcolm Smith

Back from the Brink is an antidote to a world that seems full of stories of wildlife doom and gloom. Amongst all the loss of habitat and the animal and plant species that are in spiralling decline, it's easy to forget that there are a huge number of positive stories too; animals threatened with extinction having their fortunes reversed and their futures secured. This is the story of some of these successes and the care and consideration that humans need to share to make our planet a richer place for us all.

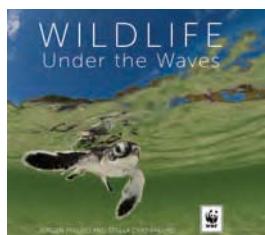
Publisher: Whittles Publishing | **RRP:** \$56.99



Tales of Remarkable Birds by Dominic Couzens

Throughout the bird world, examples of strange and seemingly inexplicable behaviours abound. This book divides the world by continent and takes a series of extraordinary stories from each to illustrate a great diversity of bird behaviour. Each continent has around five or six stories, each examining the truths and the mythology behind each example. This is an intriguing book from an author with an ability to engage with his audience.

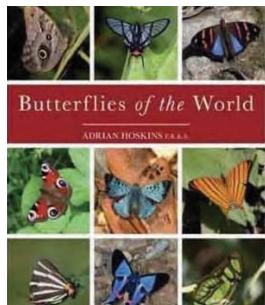
Publisher: Bloomsbury **RRP:** \$39.99



Wildlife Under the Waves by Jürgen Freund and Stella Chiu-Freund

This book features a collection of stunning images and is a showcase for the work of one of the world's greatest underwater wildlife photographers, Jürgen Freund. It includes beautifully composed and rarely seen images illustrating the full diversity of marine life, from mighty whales and graceful turtles through to huge shimmering shoals of fish and riotously coloured corals, anemones, crustaceans and sponges. The 120 superb images were taken in locations around the world, and with strong representation from certain favoured areas such as Asia, Australasia and the Pacific. Jürgen and Stella Freund have travelled the globe documenting and highlighting the richness and the importance of the world's oceans. Their dedication to conservation has seen them work extensively for many years with WWF, the leading organisation in wildlife conservation, and Jürgen is recognised as a Fellow of the International League of Conservation Photographers for his outstanding work, contribution to conservation and his ethical approach to photographing wildlife.

Publisher: New Holland Publishers | **RRP:** \$29.99

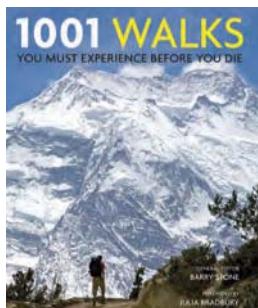


Butterflies of the World by Adrian Hoskins

This is a lavishly illustrated book covering the butterflies of the world, with informative text

written by an expert author who has spent many years watching and studying lepidoptera around the world. Opening chapters cover the evolution, anatomy, lifecycle, ecology and taxonomy of the world's butterflies. The bulk of the book comprises chapters offering comprehensive coverage of each of the world's butterfly families, from the spectacular swallowtails, apollos, morphos and birdwings through to the cryptic browns, whites, skippers and hairstreaks. The pages are illustrated with hundreds of stunning colour photographs showing more than 350 images taken, mainly by the author, from locations around the world.

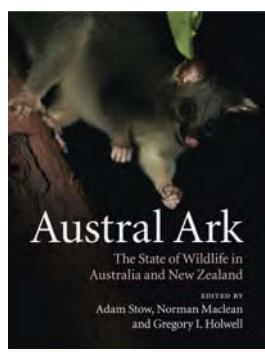
Publisher: New Holland Publishers | **RRP:** \$35.00



1001 Walks You Must Experience Before You Die

The ever-increasing passion for recreational walking is given fresh impetus with the creation of each new national park and wilderness area, the construction of every new walkway, and the clearing of another fresh, never-before-trodden trail. The exponential growth of pathways and woodland walks, the utilisation of canal banks and disused railways being converted around the world to mixed-use walk and cycle ways, means we now have unprecedented access to our cities and to ever-increasing tracts of our rural heritage. *1001 Walks You Must Experience Before You Die* is the perfect guide to the world's most exhilarating walks.

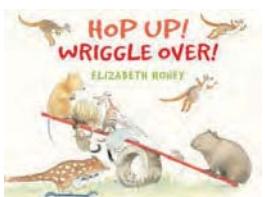
Publisher: Pier 9 **RRP:** \$49.99



Austral Ark: The State of Wildlife in Australia and New Zealand

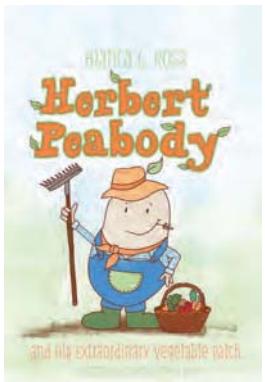
Australia and New Zealand are home to a remarkable and unique assemblage of flora and fauna. Sadly though, by virtue of their long isolation, and a naive and vulnerable biota, both countries have suffered substantial losses to biodiversity since European contact. Bringing together the contributions of leading conservation biologists, *Austral Ark* presents the special features and historical context of Austral biota, and explains what is being conserved and why.

Publisher: Cambridge University Press **RRP:** \$69.95



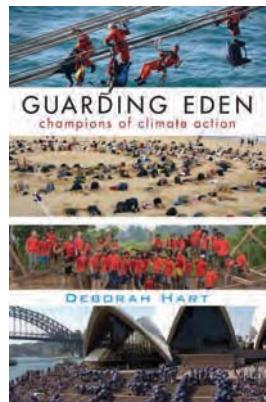
This is a delightful children's book from Elizabeth Honey that introduces children to a frolicsome family of unique Australian animals. Elizabeth is an artist who illustrates her own books and her playful humour, originality and energy strike a chord with children everywhere. Join in with the satisfying sounds and familiar expressions as the young animals zip, boing and bounce their way through the day.

Publisher: Allen & Unwin **RRP:** \$19.99



After a career in food marketing author Bianca saw a disconnect between children and their understanding of where food comes from. Bianca made it her mission to change things and after much research Herbert Peabody was born! This beautifully illustrated book sets out to teach children the importance of vegetables, the significant role bees play and the importance of environmental sustainability.

Publisher: Farinet Pty Ltd **RRP:** \$18.95



Guarding Eden: Champions of Climate Action by Deborah Hart

Guarding Eden tells the personal stories of 12 ordinary people who were so concerned about climate change that they altered their lives to do something about it. *Guarding Eden* makes an issue as complex and controversial as climate change feel human and deeply real.

Publisher: Allen & Unwin **RRP:** \$17.99



Australian Wildlife Society

Community Wildlife Conservation Award

The Australian Wildlife Society Community Wildlife Conservation Award is an annual award to a community conservation group that is making a major contribution to wildlife preservation in Australia.

Our Society is very conscious that we need to join together with other conservation groups to save and protect all native Australian wildlife populations in all its many and varied forms across Australia.

The Australian Wildlife Society wants to recognise and help these conservation groups continue with their good work on behalf of the whole community. Our Society knows that many organisations and thousands of volunteers are already working tirelessly to save our threatened species, as well as the humble and more common Australian species, and the precious wildlife habitat in which they live.

The Award

Our Society will present a crystal trophy and a cash award of \$2,500 to the winning conservation group that is helping to save our precious Australian wildlife.

Nominations

Nominations for the Australian Wildlife Society Community Wildlife Conservation Award should be made in writing to be received by our Society by 31st December. Nomination forms can be downloaded from our website at www.australianwildlife.net.au. Completed nomination forms can be sent to the Australian Wildlife Society by email to info@australianwildlife.net.au or faxed to 02 9599 0000 or mailed to PO Box 42 Brighton Le Sands NSW 2216

Selection Procedures

The decision on the granting of each year's award will be decided by a full meeting of the Council of the Australian Wildlife Society.

For further information, please contact the National Office on Tel 02 9556 1537.

Founded in 1909 and dedicated to the conservation of Australia's unique wildlife





Australian Wildlife Society

The Serventy Conservation Medal

The Australian Wildlife Society created the Serventy Conservation Medal in honour of three members of the Serventy Family.

In memory of Dr Vincent Serventy AM, who was a member of the Wildlife Preservation Society of Australia for more than fifty years, President for thirty years and was the President of Honour. Over the sixty years of his environmental work in Australia, and internationally, Vin worked to realise his vision of a world whose people understand that we do not own this earth, but are trustees for its future, and that we should live in harmony with nature. He has justly been called the '*father of conservation in Australia*'.

In memory of Lucy Serventy who seventy years ago became a Life Member of the Society and so began a lifetime interest in conservation.

In memory of Dr Dominic Serventy, who as the elder of the eight strong Serventy clan, played a leading part in encouraging their interest in natural history. He is regarded as among the world's greatest ornithologists.

Our intention is to award the medal to those who labour as a volunteer in the conservation field for a love of nature and a determination that is should be conserved.

Medal Design

The medal has been designed by Australia's foremost sculptor Stephen Walker. The Australian Wildlife Society also gives a cash reward of \$1,000 to the winner. Many conservationists in the past have suffered financially for their devotion to the cause. This cash award will be some tribute for their dedication. The bronze medal will be a constant reminder that the conservation movement has remembered their work in the past, just as history will remember the same achievements in the future.

Nominations

Nominations for the ***Serventy Conservation Medal*** should be made in writing to be received by our Society by 31st December. Nomination forms can be downloaded from our website at www.australianwildlife.net.au. Completed nomination forms can be sent to the Australian Wildlife Society by email to info@australianwildlife.net.au, or mailed to PO Box 42 Brighton Le Sands, or by fax 02 9599 0000.

Selection Procedures

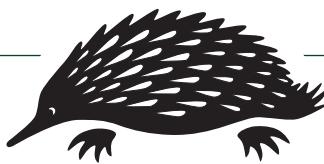
The decision on the granting of each year's medal will be decided by a full meeting of the Council of the Australian Wildlife Society.

For further information, please contact the Secretary of the National Office on telephone 02 9556 1537 or by email info@australianwildlife.net.au

Founded in 1909 and dedicated to the conservation of Australia's unique wildlife



Membership Form



WILDLIFE PRESERVATION SOCIETY OF AUSTRALIA LIMITED

PO Box 42 Brighton Le Sands NSW 2216

Membership

Become a member of the Wildlife Preservation Society Limited

Simply fill out this form.

Name:.....

Address:.....

City/Suburb:..... Postcode:

Telephone:..... Fax:

Email:

Membership category (please tick)

- Individual: \$55
- Family: \$70
- Concession (pensioner/student/child): \$50
- E-mag (emailed as PDF, no hardcopy will be sent): \$30
- Associate (library, school, conservation groups): \$85
- Corporate: \$125
- Life: \$1,000

(Includes postage within Australia. Add \$40 for overseas postage)

Three year membership (please tick)

- Individual: \$150
- Family: \$190
- Concession (pensioner/student/child): \$135
- E-mag (emailed as PDF, no hardcopy will be sent): \$81
- Associate (library, school, conservation groups): \$230
- Corporate: \$340

(Includes postage within Australia. Add \$60 for overseas postage)

Payment details (please tick)

Direct Debit Cheque Money Order Mastercard Visa

Card Security Code (CSC) _____

Card Number:.....

Amount \$.....

Name on Card:..... Expiry:.....

Donation \$.....

Signature:.....

Total \$.....

Mail to the: Wildlife Preservation Society Limited

PO Box 42, Brighton Le Sands NSW 2216.

Email: accounts@aws.org.au Website: www.wpsa.org.au

Direct debit: BSB: 062 235

Account No: 1043 2583

Account Name: Wildlife Preservation Society of Australia

Note: All cheques to be made out to the Wildlife Preservation Society of Australia

Consider - A Bequest

Another way which you can support the work of the Wildlife Preservation Society of Australia (Australian Wildlife Society) is to remember us in your will.

If you would like to make a bequest, add the following codicil to your Will:

I bequeath the sum of \$..... to the Wildlife Preservation Society of Australia for its general purposes and declare that the receipt of the Treasurer for the time being of the Society shall be complete discharge to my Executors in respect of any sum paid to the Wildlife Preservation Society of Australia Limited.

"The challenge to the present adult generation is to reduce the increasing pressures on the Earth and its resources - and to provide youth with an education that will prepare them emotionally and intellectually for the task ahead.

Turtles



Flatback turtle laying eggs



Baby turtles heading towards the ocean after hatching

