



STEP Matters

Number 175 April 2014

In this issue of *STEP Matters* we cover:

STEP Events	1
State Government News.....	2
Our Land, Our Water, Our Future Campaign	3
Tasmania's Forests and Tony Abbott's View of the Environment	3
Vale Alex Colley OAM	4
Trees Help Reduce the Urban Heat Island Effect.....	5
High Speed Rail Should go Ahead.....	5
Killer Climate: Tens of Thousands of Flying Foxes Dead in a Day.....	6
A Walk down the Whale Trail.....	8
STEP Information	9
Order Form.....	10

STEP EVENTS

STEP Talk – Tuesday 8 April – A Zero Emissions Plan for Australia

8 pm, St Andrews Church Hall, corner Chisholm Street and Vernon Street, Turramurra

Our speaker will be Terry McBride, a trained Beyond Zero Emissions presenter on renewable energy solutions for Australia. In 2012 he won the Nature Conservation Council of NSW's Ziggy Megne Award. This award was created in honour of the untiring contribution of Zigurds (Ziggy) Megne for those who champion important causes for a better, more sustainable future.

Terry will describe how Australia could change over to 100% renewable energy in ten years. This plan, called the Zero Carbon Australia 2020, Stationary Energy Plan, has been developed by the University of Melbourne and Beyond Zero Emissions.

Beyond Zero Emissions Inc is a not-for-profit research and education organisation working to design and implement a zero emissions economy for Australia. Its goal is to transform Australia from a 19th century fossil fuel based, emissions intensive economy to a 21st century renewable-energy-powered clean-tech economy.

STEP Walk – Sunday 13 April – Moores Creek to Echo Point Park, Middle Harbour

Time: 1.15 for 1.30 pm start
Length: 2 to 3 hour
Meet: Car park corner Park Avenue and Babbage Road, Roseville
Grade: Medium, some rock hopping over wet rocks may be necessary, walking boots recommended
Limit: 15, bookings recommended
Contact: Andrew Little (9924 7212 after 7.30 pm, aalittle@optusnet.com.au)

This leisurely walk goes through a diverse and attractive area of Middle Harbour and includes Dry Sclerophyll, Coachwood Riparian Forest, Mangroves, Salt Marsh and Littoral Rainforest. If the weather permits we will visit Babbage Falls to see how the changed flow regime of an urban stream can fundamentally alter the viability of Coachwood seeds.



STEP Talk – Tuesday 17 June – NSW Icons under Threat

We will screen two films demonstrating the beautiful places in NSW that are under threat from coal and coal seam gas mining. Then Michael Keats will talk and show photographs about his personal experience of the amazing landscapes in the Gardens of Stone NP and Ben Bullen State Forest. Michael Keats is an avid bushwalker and author of a series of books on the Gardens of Stone National Park.

STEP Walk – Sunday 22 June – Castlecrag, the Legacy of Sir Walter Burley Griffin

STEP Inc

Community-based Environmental Conservation since 1978

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STATE GOVERNMENT NEWS

Marine Parks Still under Threat

In March 2013 the O'Farrell government announced an amnesty on illegal shore fishing in marine sanctuaries and is currently considering making the amnesty permanent in response to pressure from extreme elements of the fishing industry. This move will be deeply unpopular. A Galaxy Research poll of more than 1000 NSW residents in January 2014 found 93% of people support marine sanctuaries and that 70% opposed allowing fishing in these areas.

Scientific studies have demonstrated that marine sanctuaries are essential for the protection of local threatened species and play a major role in rebuilding populations of threatened fish and other species. Less than 7% of the state's waters are currently protected in sanctuaries.

Further Evidence of Damage from Longwall Coal Mining in Sydney's Water Catchment

In Issue 173 of *STEP Matters* John Martyn wrote about threats to Sydney's water catchments posed by underground mining. *The Sydney Morning Herald* reported on 25 February about a recent visit by a representative of the National Parks Association to Waratah Rivulet, which supplies about half of the Woronora Reservoir. He found the rivulet was completely drained. He saw huge cracks in a pool 150 m long that were obviously caused by subsidence from longwall mining.

A spokeswoman for the Sydney Catchment Authority said:

There is no evidence to date to suggest that mining activity has affected storage levels in Woronora Reservoir in a substantial way.

The mining company, Peabody claimed that the recent lack of rain was the culprit.

The National Parks Association has called for an independent study of the mine's impact and where the water in the rivulet is ending up. The mining operation was 'going ahead in ignorance'. At stake was the health of part of the water supply to Sydney's 4.6 million consumers.

Weed Management Review

There is a small spark of good news of prospects for improved management of weeds in NSW. The Minister for Primary Industries asked the Natural Resources Commission to review current practices. Their draft report was released recently.

The Invasive Species Council is pleased that many of the key reforms they had been seeking have been adopted in the recommendations in the draft report. The most important change

proposed is to restrict the sale of potential weeds in nurseries. It's called a 'permitted list approach' and would ensure that the only plants that can be sold or moved are those that are safe and unlikely to become weeds. If implemented properly, it will close off one of the main sources of new weeds.

Submissions may be made by 6 April at <http://engage.haveyoursay.nsw.gov.au/weed-management-review>. The Natural Resources Commission will present its recommendations to the Minister in May when the government will decide how to implement them.

The Invasive Species Council has prepared a submissions guide (see <http://invasives.org.au>). They would like many submissions supporting the proposals.

There are areas where the Invasive Species Council considers the report need to be strengthened, in particular:

- The investment in long-term funding for weed management and control needs to be increased. Higher levels of funding are justified by the extremely high environmental and economic costs of weeds (weeds are NSW farmers' most expensive natural resource management problem).
- The treatment of weeds requires a consistent coordinated effort and long-term follow-up to prevent weeds re-establishing using the principles of bush regeneration. The approach of many land managers is to spray and forget and not to assist the return of natural vegetation. In a short period the weeds return, wasting the initial effort.
- Give a high priority to weed threats that are having a devastating impact on NSW's biodiversity in areas with native vegetation.

Tourism in National Parks

An Upper House committee examining tourism in local communities released their report in March. The report says the government should 'investigate further opportunities for tourism development in national parks' following suggestions the highly protected areas were 'underutilised' and that more should be done to encourage visitors. The further development suggested included accommodation, camping, mountain bike trails and fossicking.

This is another assault on the primary purpose of conservation in national parks. Local communities near these parks would miss out on the opportunity to provide accommodation and other services outside the parks.

OUR LAND, OUR WATER, OUR FUTURE CAMPAIGN



With only a year to go before the next state election the Nature Conservation Council (NCC) has launched a campaign to raise awareness of the risks posed by the expansion of coal mining and coal seam gas projects that are being actively supported by the O'Farrell Government. STEP has signed up as a supporter group. The campaign aims to generate pressure from the public to overcome the undue influence of the mining companies and motivate our politicians to tighten the laws controlling mining.

Premier Barry O'Farrell made a promise he would rule out mining in water catchments and protect farmland and our special wild places from the destructive impacts of coal and coal seam gas mining. He has failed on both counts. New applications for coal and coal seam gas exploration could see 80% of the state covered by mining and gas licences. Although these projects may not have a direct impact on city dwellers, the potential for long-term irreversible damage is too great to leave others to do all the fighting.

A forum organised by the NCC on 25 March of scientific and legal experts on coal seam gas highlighted the lack of proper regulatory procedure to ensure that sufficient scientific data is available to demonstrate that a coal seam gas operation will not damage ground and surface water supplies. Landowners are being forced to agree to give access for exploration to CSG companies or take on expensive arbitration that is weighed heavily against them.

TASMANIA'S FORESTS AND TONY ABBOTT'S VIEW OF THE ENVIRONMENT

In a statement to the Australian Forest Products Association meeting in early March Prime Minister Toby Abbott told the gathering he was pleased with the actions of the Environment Minister 'who appreciates that environment is meant for man, not just the other way round'.

The head of the Roman Catholic Church has a very different view. In his inaugural mass Pope Francis made a special plea to world leaders:

Please, I would like to ask all those with positions of responsibility in economic, political and social life, and all men and women of good will: Let us be protectors of God's creation, protectors of God's plan inscribed in nature, protectors of one another and of the environment.

Tony Abbott's mantra seems to be very different. He has been busily undoing the Labor government's measures to reduce our greenhouse gas emissions. Now he wants to increase our emissions by encouraging the destruction of old growth forests. He told the forest industry gathering that too much land is 'locked up' in national parks. But these parks are not locked up; in addition to the essential ecological services that they provide, they are open for all residents and visitors to Australia to enjoy. Australia has only 13% of land in protected areas compared with the benchmark set by the Convention on Biological Diversity for 17% of terrestrial ecosystems to be protected.

It has taken many years for the Tasmanian Forests Intergovernmental Agreement to be finalised. The final stage of the agreement was passed by the Tasmanian Parliament in December 2013. It provided for 170,000 ha of forest to be added to the World Heritage area. Now the Abbott government wants to tear up the agreement and has asked the World Heritage Commission to delist 74,000 ha.

The government claims that this forest is degraded having been logged previously or it contains replanted timber. This argument is disputed by conservationists on the grounds that the 'degraded area' is only a small part of the 74,000 ha and that worked forests do not necessarily detract from World Heritage values. They were included in the additional area to simplify the boundaries.

The delisting is not a simple process and is hugely embarrassing for Australia's reputation on the environment. It will also be a retrograde step for economic reasons. Following completion of the agreement Forestry Tasmania is currently applying for the Forest Stewardship Council certification. Producers that attain certification are able to provide consumers of wood products with an assurance that they were sourced from sustainably managed forests and include only plantation timber, not old growth forests. This will open up new markets for Tasmania's forestry products.

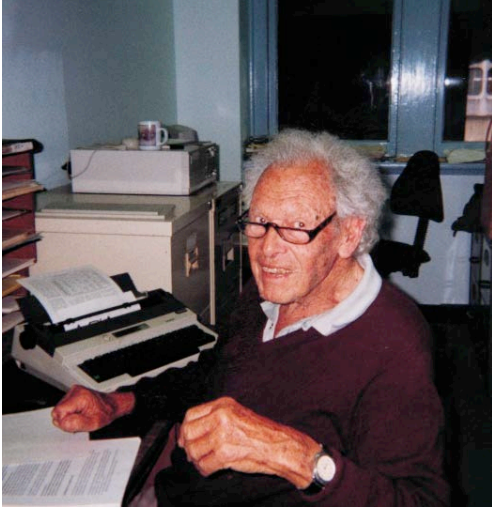
The agreement also provides a financial package of \$277 million to:

- support logging contractors to leave the industry following the decision of Gunns Limited, to exit native forest harvesting;
- protect and manage new forest reserves;
- fund regional development projects; and
- fund mental health counselling and community wellbeing projects.

It will be such a shame to undo all this good work for the small number of timber industry jobs that may be created. In the long term many more jobs are likely to be created in the tourism industry.

VALE ALEX COLLEY OAM

The information for this article came from the obituary written by Keith Muir published in The Sydney Morning Herald and on the Colong Foundation website.



Alex Colley's love of wilderness led him to become a conservationist who made a major contribution to the preservation of the Greater Blue Mountains and its declaration as a World Heritage area. Alex died in February at the age of 104.

Alex was born in Lithgow on 1 August 1909. His father was the bank manager there. He began his bush walking adventures as a little boy on family picnics in the Gardens of Stone region around his home and grew to become one of the legendary Tiger Walkers. He joined the Sydney Bush Walkers Club in 1936 and soon became one of the club's stalwart members taking up several executive positions for a period that totalled sixty years.

In 1939 Alex became secretary of the Federation of Bush Walking Club's conservation bureau and was conservation secretary of the Sydney Bush Walkers for 36 years. He served as secretary of the Turrumurra Branch of the Liberal Party from 1963 to 1979 and while in that role secured, with fellow Liberal members, a unanimous vote of the Party's State Council in favour of saving the Colong Caves in the southern Blue Mountains.

His professional career was as an economist, serving ultimately with the Sydney Area Transportation Study until 1974, when at the age of 65, he 'retired' so that he could become a full-time conservationist with the Colong Committee (now called the Colong Foundation for Wilderness), which he joined in 1968. He officially retired from the Board in April 2008.

Through the early 1970s the main campaigns were saving the Boyd Plateau from being planted with exotic pine trees and the Colong Caves from limestone mining were the objectives of the Committee. These objectives were achieved in 1975 and a year later Alex became the Committee's Secretary. For the

next decade Alex worked to preserve the State's rainforests within national parks before they were logged, particularly those in the Border Ranges.

The Colong Committee became a foundation for wilderness protection in 1985 and has carried out this mission with efficiency and effectiveness, thanks largely to Alex. Also in that year, the Colong Foundation gained the support of the newly appointed NSW Environment Minister, Bob Carr, for a Wilderness Act. Over two million hectares of wilderness have since been declared under this Act, and many of these protected areas are due to the efforts of the Colong Foundation.

Under Alex's guidance, the Colong Foundation worked to fulfil Myles Dunphy's wilderness vision of a Greater Blue Mountains National Park, securing the Nattai and Gardens of Stone National Parks in 1991 and 1994. Ultimately the Greater Blue Mountains was inscribed onto the World Heritage list of properties in 2000, a campaign which Alex worked on for 14 years.

Alex's efforts were not without recognition. On achieving World Heritage listing for the Blue Mountains, then Premier Bob Carr wrote to Alex stating that:

The World Heritage decision caps your work of a lifetime. Few people get to deliver anything as grand as the vast protected areas of the Blue Mountains to future generations. Without Alex there would be little wilderness protected in this state. We owe Alex a lot.

Alex was someone who achieved much, but did so with modesty, humour and good spirits. He also inspired many to achieve their best and was a shining example of selfless service for environment and community. His common sense approach to conservation work of undertaking only what you can effectively perform, while holding true to your vision formed the basis of his positive outlook. As a result, the Colong Foundation, although a small organisation, almost always achieved what it set out to do, even when initially its objectives appeared impossible.

In 1984 he was awarded a medal of the Order of Australia, he became Hawkesbury-Nepean Catchment Leader of the Year in 1998, received a Senior Australian Achiever Award in 2000, a Centenary Medal in 2001 and the *Australian Geographic* Conservation Award in 2001 all for tirelessly campaigning for the preservation of wilderness. He was, however, proudest of being enrolled into the Allen Strom Hall of Fame because it was from his colleagues. This award was given to him by the Nature Conservation Council of NSW in 2006 for his lifetime of service to conservation.

TREES HELP REDUCE THE URBAN HEAT ISLAND EFFECT

The recently released State of the Climate report from the Bureau of Meteorology and CSIRO highlighted that the duration, frequency and intensity of heatwaves have increased across large parts of Australia since 1950. People living in our major cities feel additional stress from heatwaves because of the heat island effect.

Cities are generally a few degrees warmer than nearby rural areas due to the urban heat island (UHI) effect. This is primarily caused by the hard and impermeable materials such as concrete and asphalt that absorb and release significantly more of the sun's energy than soils. Using more impermeable materials also means there is less moisture available for evaporation that has a cooling effect. Dark materials like asphalt also absorb more of the sun's energy than lighter surfaces. A secondary cause of the UHI effect is due to waste heat from cars, industry and air conditioners.

A search on the internet reveals a lot of research is currently being carried out into the UHI and methods of reducing its impact. Monash University and the City of Melbourne are monitoring temperature and human thermal comfort (humidity, air movement and mean radiant temperature) in streets selected to represent varying tree canopy cover and building configurations. Greening Australia is working with Dr Andy Pitman from the ARC Centre for Climate System Science to model the likely change in temperatures in western Sydney that could result from various policy measures such as street trees and roof colours.

Using urban climate models a team from the CSIRO has predicted that Melbourne's suburban areas were around 0.5°C cooler than the CBD, with leafy suburban areas up to around 0.7°C cooler than the CBD. Parklands such as a grassland, shrub land or sparse forest were found to be between 1.5 and 2°C cooler than the CBD.

The researchers also found that significantly increasing vegetation coverage in the CBD would have a big cooling effect. Doubling CBD vegetation coverage was predicted to reduce temperatures by 0.3°C while 50% green roof coverage of the CBD area was predicted to reduce temperatures by 0.4°C temperature. Combining the two options would result in a 0.7°C reduction from normal CBD temperatures – making CBD temperatures the same as a leafy suburban area. Increased vegetation can also lower energy use due to reduced use of air conditioners.

Already several Australian local councils have implemented policies to increase tree cover. Sydney City Council has launched an urban forest strategy to lift the city's shade cover from

15.5% to 27% by 2050 through targeted programs for trees located in parks, street and private spaces. Private groups will be eligible for matching grants of up to \$10,000 to offset the time and work involved in planting shade trees.

A National Urban Forest Alliance has been formed with a vision of promoting thriving, sustainable and diverse urban forests that create a healthy ecosystem valued and cared for by all Australians as an essential environmental, economic and community asset. See www.nufa.com.au.

HIGH SPEED RAIL SHOULD GO AHEAD

This article is written by Dr Stephen Bygrave who is CEO of Beyond Zero Emissions. BZE is launching its high speed rail study on 9 April at Melbourne University and 30 April at the University of New South Wales.

What goes up must come down. At least in the case of airplanes, that's true. But as airplanes keep going up, so do greenhouse gas emissions – these emissions stay in the atmosphere and do not come down. High speed rail (HSR) on the other hand, is on the up and up and can run without contributing to greenhouse gas emissions.

Europe has had HSR since the 1960s. China, Japan and Korea all have high speed rail. India has this year announced it is investigating the feasibility of building HSR.

Australian governments have for over 30 years toyed with the idea of building a HSR line on the east coast and there are finally moves underway to set aside the corridor in which a system could be built. This follows the previous federal government's \$20 million HSR implementation study which found a significant economic benefit to Australia returning \$2.30 for every \$1 invested. Think-tank Beyond Zero Emissions has just completed a two-year study into HSR in Australia which shows that rail can not only dramatically reduce transport emissions, but also be built for \$30 billion less than the most recent government study.

HSR stacks up for five key reasons: emissions, economics, regional development, convenience and comfort.

Emissions

Aircraft manufacturers and airlines have been steadily improving fuel efficiency and this has lowered the emissions per passenger kilometre significantly. But the growth in air travel at the same time has meant that emissions from air travel are still increasing.

Australia does not account for the full impact of our aircraft emissions. Emissions at cruising altitude have an enhanced greenhouse effect (radiative forcing) – but this is not accounted for in the National Greenhouse Gas Inventory.

The UK's Department of Environment and Climate Change guidelines do account for the radiative forcing amplification caused by combustion of fuel at altitude: the effect is approximately double the equivalent emissions at ground level as considered by the Australian NGGI.

What this means is that, even when burning biofuels, the extra radiative forcing at altitude will be approximately equal to today's misleading account. And HSR can be run on renewables.

BZE's motivation for recommending HSR is that it runs on electricity, which can be supplied by 100% renewable energy more easily than any other motive force for travel. Air travel, on the other hand, cannot be zero emissions with currently available technology.

If the HSR network proposed by BZE were constructed, it would use around 2.2 terawatt hours of electricity in 2030. That sounds like a lot, but in fact, it's roughly equal to what was consumed in the voluntary GreenPower initiative, nationally, in 2012.

Economics – HSR will Pay for Itself

Many say the costs are too high. But let's compare the costs of HSR versus roads. Australia currently spends \$18 billion annually on roads. Our research shows that we can build a HSR system in Australia for the equivalent of five years of expenditure on roads. With government financing, like many other key infrastructure projects, a HSR project could repay the capital investment in around 40 years, in monetary terms.

This finding is different to the previous government's study, which made the assumption that HSR tickets would only compare with today's lowest cut-price airfares, and that electricity prices for traction power will skyrocket beyond the electricity industry's wildest dreams.

In addition, the costs involved with building and maintaining airports are substantial. The costs associated with the second airport at Badgerys Creek is estimated at \$2.3 billion. HSR would mean that Sydney Airport would see around three million fewer domestic passengers in 2030 than it does today, minimising the need and expense of a second airport.

Regional Development

BZE's HSR study models Australia's regional transport patterns in detail – how many people travel where, when and what proportion are likely to use the HSR service if it were available.

BZE's proposed route connects 12 major regional towns and the cities of Brisbane, Gold Coast, Newcastle, Sydney, Canberra and Melbourne. About 45% of the regional travel in Australia occurs within this corridor. 60% of Australia's population would be within one hour of a HSR station.

Building the HSR would also bring jobs to regional areas.

Convenience

The experience with HSR in Europe is that it competes very effectively with trips taking less than four or five hours and for distances between 450 and 950 km. This is because HSR does not need the time to catch a taxi to the airport, to check in luggage, go through security and wait for the flight. HSR goes from city centre to city centre and minimises the need for other forms of transport to and from the airport.

With Sydney to Melbourne being the fifth busiest air route in the world and Sydney to Brisbane the 13th busiest, HSR along the east coast of Australia remains a very real solution to reducing transport emissions and increasing the number of transport options for travellers.

Madrid to Barcelona used to be the busiest air shuttle route in the world. Since HSR has been built in Spain, the busiest European city route is now ranked 49th busiest in the world (and it isn't Madrid to Barcelona).

Comfort – It will make Travel Pleasant and Safe

The non-monetary benefits of HSR, and some monetary benefits not accounted for in our study, include long-term employment, enhanced connectivity for regional towns, significantly reduced greenhouse emissions, less road accidents, less aircraft noise over cities and more.

Rail travel allows passengers more seat room and comfort. Passengers can walk up and down the aisles or to the restaurant. Rail offers private showers and bathrooms. These are only a few of the qualitative factors to consider.

The mode shift from air and road to HSR won't just happen because of emissions or travel cost. It will happen because HSR is also more convenient and more comfortable for so many trips. Like most good ideas, its time is bound to come.

KILLER CLIMATE: TENS OF THOUSANDS OF FLYING FOXES DEAD IN A DAY

This article was written by Justin Welbergen, Senior Lecturer at University of Western Sydney, Dr Carol Booth, Science writer and editor of Wildlife Australia and John Martin, Ecologist, Royal Botanic Gardens, Sydney. It was published in The Conversation on 25 Feb 2014 (<http://theconversation.com/au>).

This summer we have seen one of the most dramatic animal die-offs ever recorded in Australia: at least 45,500 flying foxes dead on just one extremely hot day in southeast Queensland, according to our new research.



While flying foxes are often portrayed as noisy pests, they are protected native species and declines in their populations have significant environmental ramifications as they spread seeds and pollinate native trees.

The mounting toll from repeated mass die-offs across eastern Australia is also significant because of what it tells us about the growing dangers we face from extreme heat.

Falling from the Sky

At the beginning of this year, a severe heatwave developed over much of the central and eastern interior of Australia.

On January 4, northwest winds blew the heat to southeast Queensland, which is home to black, grey-headed and little red flying foxes.

Record temperatures were recorded at nine locations, including Nambour (42.9°C), Beerburrum (43.4°C) and Archerfield (43.5°C). The hottest was Beaudesert, in the Gold Coast hinterland, where temperatures hit a withering 44.6°C.

Soon, social media outlets were abuzz with sightings of mass flying fox deaths, while news sites reported thousands of dead falling from the sky.

We coordinated a massive data-gathering effort to work out the extent of the die-off, visiting colonies between Gladstone in Queensland to the NSW border, and collating numerous reports from state and local government, wildlife care groups and concerned citizens.

More than 45,500 Dead and 1000 Orphaned

The carnage we found was horrific. Some colonies had more dead than live animals, with thousands of corpses piled on the ground and hanging in trees. Council workers removed wheelie bins full of bodies and wildlife carers were swamped with more than 1000 orphaned young flying-foxes.

Our current minimum estimate is that at least 45,500 flying-foxes died that day, in 52 of the 162 colonies we assessed. All three species – black, grey-headed and little red flying-foxes – were affected.

However, the more tropical black flying fox was by far the hardest hit (which was in line with previous findings), representing 96% of the dead. These deaths represent about half of the black flying fox population present in the region before the January heatwave, as estimated in

surveys coordinated by the Queensland Department of Environment and Heritage Protection.

The Mounting Toll from Extreme Heat

This was not an isolated event. In 2008, Welbergen and colleagues showed that between 1994 and 2008, more than 30,000 flying foxes have died in 19 such events in Australia.

Since then, flying foxes have been dying from extreme heat almost every year. The worst deaths have happened during the heatwave that precipitated Victoria's Black Saturday bushfires in 2009, which left more than 5000 dead, and in the first weeks of 2013's 'Angry Summer', which left more than 10,000 dead.

This year's die-off in southeast Queensland, the largest on record, was followed by others in Victoria and South Australia.

The threat to Australian flying foxes from extreme heat events is growing. According to the Intergovernmental Panel on Climate Change's 2012 Special Report on Extremes it is 'very likely' that the number of warm days has increased since the 1950s and it is 'virtually certain' that the frequency and magnitude of extreme heat events will increase through this century.

Bat Squads

Flying foxes play an important ecological and economic role in the Australian landscape, including pollinating trees and dispersing seeds, which has been found to promote the resilience of native ecosystems to environmental change.

But unfortunately for flying foxes, and the ecosystem services they provide, recent political and legal changes have reduced protection for them.

In 2012, the Queensland Government reintroduced permits to allow shooting of up to 10,500 flying foxes in orchards, in the process exempting them from humaneness requirements that apply for other native wildlife. New South Wales also allows shooting, although it is meant to end mid-year except under 'exceptional' circumstances.

Apart from great white sharks, the two flying foxes declared 'Vulnerable' under national environmental laws (spectacled and grey-headed flying foxes) are the only nationally threatened species for which regular culling is permitted.

The Queensland Government now allows – and encourages – local governments to disperse flying foxes from urban colonies or destroy their roost sites without assessment. In December the Queensland Government announced it would legislate to allow culling in flying fox colonies.

And there will soon be fewer constraints, with the federal government, as part of a drive to reduce environmental regulation, proposing to delegate to state governments decisions about developments and other actions likely to affect nationally threatened species.

The political heat around flying foxes has also intensified. Contrary to the advice of his health department, the Queensland premier has claimed that flying foxes are a major health hazard and threatened to send in 'bat squads' to regional cities and towns where the government thinks local councils are not doing enough to remove flying foxes.

Canaries in the Coalmine

We know that heatwaves can be deadly for humans, as we have seen again in Australia this summer, as well as in the past in Europe and elsewhere. Heat-related die-offs also occur in other wildlife, including koalas, Carnaby's black cockatoos, budgerigars, zebra finches, bumblebees and butterflies, although such events are generally difficult to document.

Because flying foxes live in colonies, it is comparatively easy to determine the impacts of extreme heat events on the species as a whole. As such, flying foxes are excellent 'bioindicators' of die-offs in species that have more cryptic or solitary lifestyles.

It is now clear that many of the environmental, social and economic impacts of climate change will arise from shifts in the regimes of extreme weather events, rather than from gradual changes in climate means. The impacts of extreme heat events on flying foxes provide a disturbing window into the future of Australia's wildlife in a warming climate.

A WALK DOWN THE WHALE TRAIL

Former President of STEP, Barry Tomkinson, describes a great way to experience nature in South Africa

The Whale Trail is a five day coastal walk in South Africa that is well known for its diverse fynbos vegetation, magnificent sand dunes and whale watching opportunities. The trail meanders through the breathtaking De Hoop Nature Reserve three hours drive from Cape Town, allowing one to enjoy the abundance of local endemic plant species as well as the company of a variety of rare and endangered animals. The trail starts with two days of fairly challenging (grade 4) hiking over the Overberg Range of mountains to reach the pristine south eastern coastline, with one of the largest Marine Protected Areas in Africa.

My wife Penny and I had long planned to return to South Africa to 'do' the Trail, a hike of approximately 56 km. We did so in early September 2013 with ten others, mainly from South Africa but including a neighbour from

Sydney. Not everyone in the group had met previously, so we were a little uncertain as to how the five day group dynamics would pan out, especially as we had to cater for a variety of eating requirements and wondered whether we had brought enough (or too little) by way of provisions.

De Hoop Nature Reserve forms part of the world's smallest and most threatened plant kingdom – the Cape Floral Kingdom. Fynbos is the dominant vegetation within this kingdom – largely confined to nutrient poor soils in the winter rainfall of the Western Cape. Fynbos is adapted to fire and drought and is characterised by four growth forms:

- Proteas – tall shrubs with large leaves
- Erica's – heath-like shrubs
- Restios – wiry, reed-like plants which are always present in fynbos
- Geophytes – bulbs that store moisture in fleshy underground organs



De Hoop also supports a diversity of animal groups, including 86 mammal species. These include the rare bontebok and Cape mountain zebra, as well as eland, grey rhebuck, baboon, yellow mongoose, caracal and the (occasional) leopard. The marine environment is likewise home to a variety of life forms, including marine mammals such as dolphins and seals and the southern right whale. During our walk along the coastal fringe we were constantly accompanied by whale calves and mates, with up to a dozen at any time sporting in the water close to where we were walking.

At least 250 species of fish occur in the Marine Protected Area and more than 260 species of birds have been recorded, including the last remaining breeding colony of the rare Cape vulture.

The weather leading up to our walk was not promising. Cape Town has a Mediterranean climate, which means winter rain and winds (it is not known as the Cape of Storms for nothing). This last winter has been particularly cold and wet and the week leading up our departure on the walk even saw moderate snow falls across the region. Luckily for us all we enjoyed a mainly dry period over our walk, which made the experience so much more pleasant. Overnight accommodation is in well planned and equipped huts with bunk beds, but you need to bring all of your own bedding, food and drink.

Day one was a fairly difficult climb which tested the less fit amongst us. It included two peaks, the highest being the summit of Potberg mountain (611 m). The views from the top were stunning and everywhere along the trail we passed many Erica and protea species that grow nowhere else in the world. We were glad to finally arrive at our hut at Cupidoskraal in the late afternoon and no one was tempted to go for a swim in the nearby lake – it was really chilly.

Day two was a 14 km walk along the crest of the Potberg through rich fynbos countryside and with lovely views over the Indian Ocean and the verdant nearby Breede river valley. The trail then continued through hills which contained more limestone and as a result the type of fynbos changed as well as it adapted to the soil difference. It was interesting to note that the valley is subject to an active alien plant eradication programme, including many of what they term 'Australian weeds' (Port Jacksons figs). The eventual approach of the coast was welcome, with the two A-framed huts at Noetsie being situated in an idyllic setting just above the crashing seas of the Indian Ocean.

Day three is rated as an easy 8 km walk along the magnificent coastline, although some of our party felt it was a bit harder than that. We were fortunate that we started out at low tide, which allowed us to walk mainly along the shoreline and to navigate the various headlands at sea level. There was plenty of time for walkers to swim at various places along the way, but the fresh wind deterred even the more hardy souls from doing so. Clear tidal pools and caves were to be found all along the route and the water was crystal clear. Some of us climbed the ladders leading down the cliff edge at Stilgat cave. There are wonderful tidal pools down there and if the weather had been warmer it would have been a marvellous place to snorkel. We also spent many hours watching the whales cavorting in the ocean nearby as well as the plethora of sea birds circling overhead on the thermals, before arriving at our overnight hut at Hamerkop.

Day four is a relatively easy but tiring 11 km stroll mainly along the beach and we explored many more beautiful rock pools containing rich marine life. The intertidal pools on the wave-cut rock platforms and coral reefs were a remarkable sight. The beach side vegetation is also rich and varied, particularly the brightly coloured vygie plants which are to be found in abundance in this area. We also sighted a surprising number of coastal bird species, including endangered oystercatchers and white breasted cormorants. Our escorting southern right whales were a constant and comforting presence; for by the fourth day we had still encountered no other hikers but we somehow managed to survive the shock of it all quite well. There is a lot to be said for less rather than more population. We finally reached the overnight hut at Vaalkrans, which is

perched high on top of the cliffs, right next to a tidal entrance rock platform. The noise of the crashing and clashing surf and the wind was quite special.

The final day was a short 7 km walk through coastal thickets to Koppie Alleen, allowing plenty of time for the photographers amongst us to grab photos of the bottle nosed dolphins frolicking in the waves and, of course, our last shots of the southern rights. Up to 50 of these have been sighted at this spot at one time and we were certainly not disappointed with the ten or more who farewelled us. The group took reluctant leave of each other, as we had formed a congenial relationship over the five days, and made our way back to our respective destinations.



STEP INFORMATION

STEP Matters

The editor of *STEP Matters* for this edition is Jill Green, who is responsible for all information and articles unless otherwise specifically credited. The STEP committee may not necessarily agree with all opinions carried in this newsletter, but we do welcome feedback and comments from our readers, be they STEP members or not.

All issues (from when we began in 1978) can be viewed online, usually in full-colour.

Feedback

Send complaints, praise, comments or letters to secretary@step.org.au. Please feel free to share your copy of the newsletter with friends, neighbours and business colleagues.

New Members

New members are always welcome to join STEP and to make themselves available for the committee should they wish to do so. The effectiveness of STEP is a factor of the numbers of members we have, so please encourage your like-minded friends and neighbours to join.

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