



There is no rest as the end of the year approaches. Ku-ring-gai Council has major revisions underway of the Local Environment Plan and well as updates to other aspects of public land management. At the state level the new planning legislation still raises lots of concerns as well as proposed revisions to other environmental legislation. There are several plans currently open for submissions that need consideration.

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GREAT ACHIEVEMENT BY THE BETTER PLANNING NETWORK

Since its inception in August 2012 the Better Planning Network has grown to cover over 430 community groups. It was formed to campaign against unacceptable features of the NSW Government’s proposed planning law changes. BPN has lead a relentless campaign raising awareness with the general public and even the politicians themselves of the potential damaging effects of the proposals.

Corinne Fisher, convener of BPN, has planned a successful strategic campaign and worked tirelessly in recruiting supporters to lobby politicians. The Government has modified some parts of the draft legislation in response to the campaign. The legislation has passed the lower house but appears to be at risk of not being passed by the upper house. For more details see page 4.

At the Nature Conservation Council NSW’s annual conference in October, BPN received the Marie Byles Award for the most outstanding environmental campaign. In addition, Corinne Fisher shared the Dunphy Award for the most outstanding environmental effort for an individual.

END OF YEAR BARBEQUE

STEP invites all members to our end of year get together to be held from 4.30 pm on Sunday 15 December in the park behind Leuna Avenue at the end of The Broadway, Wahroonga. Harry and Neroli Lock will kindly provide the barbeque and hot water. Please bring everything else including chairs.

This is a great opportunity to meet other STEP members and have an informal chat.

If it is wet or very windy we will meet elsewhere. Details will be posted on our website and Facebook by 3 pm on the day.



Corinne Fisher, Leonie Dean and Hannah Fisher with the BPN Award and Jill Green

LOCAL NEWS

Sign on STEP Track Vandalised

STEP was awarded a grant by Ku-ring-gai Council to create and install six signs along the STEP Track in South Turramurra to provide information about the environmental features of the track. Four signs were installed early this year and another two in September.



We were gobsmacked to discover recently that one of the signs has been broken off at its base and removed. It would have required considerable force to induce metal fatigue in the robust steel. It is not possible for a motor vehicle to reach the site. If you notice any suspicious activity, please contact Council.

Habitat Stepping Stones Project

The Habitat Stepping Stones project is now up and running. The official launch was held at the Ku-ring-gai Wildflower and Garden Festival on 25 August. This project was designed by the Australian Research Institute for Environment and Sustainability (ARIES) at Macquarie University and is supported by Ku-ring-gai Council and a NSW Environmental Trust grant.



The aim of the project is to encourage Ku-ring-gai residents to install elements in their gardens or balconies that will help the survival of native wildlife and facilitate movement between wildlife corridors. The elements can be native food plants, water features or shelter, and there are 60 to choose from.

Once residents agree to install a number of these elements their location will be shown on a map on the internet. Discounts will be available at nurseries that sell the required

items. See www.habitatsteppingstones.org.au for more details.

Ku-ring-gai Linking Landscapes Grant

It seems almost certain that Ku-ring-gai Council has won a NSW Environmental Trust grant under a program, called Linking Landscapes through Local Action, aimed at the management of bushland for conservation purposes within the Sydney Basin. The grant amount will be provided via a biobanking agreement.

The grant applies to management in respect of 119 hectares in Sheldon Forest, Rofe Park and Comenarra Creek Reserve

A biobanking agreement is a type of permanent conservation covenant in which funds are invested in an endowment fund (the Biobanking Trust Fund) which then provides an ongoing annual payment to the land manager. This means the bushland would be managed in-perpetuity with an external source of funding. The legislation covering these agreements is the Threatened Species Conservation Act 1995.

The amount of the grant is expected to be \$1.571 million plus Council will contribute \$469,000 over three years. The next edition of *STEP Matters* will provide more detail on the proposal.

It is great news to see such a large sum of money available for bush regeneration and conservation. This area of bushland is badly in need of restoration. It contains the most important remnant of Blue Gum High Forest in the Lane Cove catchment.

In order to implement the Biobanking Agreement, Council needs to update its Bushland Reserves Plan of Management. This will be done in two stages. The first stage is an interim arrangement that will apply for one year prior to a complete review in 2014–15.

Members of the public are invited to comment on the biobanking proposal (by 20 November) and the Bushland Plan of Management (by 4 December).

Details of these proposals are available on www.kmc.nsw.gov.au/exhibition.

School Habitat Day

Issue 171 (page 2) of *STEP Matters* described the School Habitat Day program which focussed on threats to the survival of the Powerful Owl. Four primary schools in the Kuring-gai area participated with mentoring from year 9 students from Turramurra High School.



The program culminated in a display of presentations on 17 September at Turramurra High School. The students demonstrated their enthusiasm for the project and understanding of the issues involved in preserving the habitat of the Powerful Owl. Their presentations included short plays, books, posters and videos.

Lane Cove – Another Controversial Plan for Bike Paths in Bushland

There are plans for new bicycle paths in the Lane Cove Council area that are causing considerable concern because of the potential damage to narrow and vulnerable sections of bushland. The feasibility of some of these routes seems problematic given the requirements for a bike/walking track to be at least 2 metres wide. They will be traversing steep valleys so that a 2 metre wide track will require significant cutting into the slope with the associated need for costly retaining walls and water flow management. The proposals are contrary to Council policy and the recommendations of council officers.

Two routes are of particular concern:

- Route 2 (Lane Cove Town Centre to Greenwich Peninsula) would go through Lane Cove Bushland Park, celebrated for its rare fungal communities that are listed under both the NSW Threatened Species Act and National Heritage Act. The route continues through more bushland in Gore Creek Reserve, Shell Park and Greenwich Park.
- Route 4 (Longueville to St Ignatius College) would go through the middle of the bushland in Warraroon Reserve, part of a beautiful chain of reserves that incorporates a wide range of plant communities.

Council officers have also recommended amending Route 7 (Lane Cove to Hunters Hill High School) deleting the section going through Tennyson Park that would 'highly impact bushland'.

For details see www.lanecove.nsw.gov.au/Your%20Council/Consultations/BikePlanReview.htm.

Submissions close on 13 November but the deadline may be extended.

STATE GOVERNMENT NEWS

Hunting Legislation Passed

In October, the amendments to the Game and Feral Animal Control Act to abolish the Game Council were passed by both houses of parliament. Hunting in state forests is set to resume later this year after a risk assessment of each forest have been completed. We note that the Game Council website is still in operation and states that hunting in state forests is allowed.

The trial of hunting by volunteers in 12 national parks, all in western regions of NSW, is due to start in December. The Natural Resources Commission will review the trial's outcomes in 2016.

The Minister for the Environment, Robyn Parker, has stated that the timing of the call for volunteer shooters would be based on 'need and the advice' of the National Parks and Wildlife Service and that:

This trial will provide the first detailed scientific information on how volunteers can help reduce pest animals and protect native plants and animals.

The trial will be carried out under strict controls as described in Issue 172 (page 5) of *STEP Matters*. One wonders how many volunteer unpaid hunters will be interested in participating?

Weed Management Review

The Minister for Primary Industries, Katrina Hodgkinson, has requested the Natural Resources Commission (NRC) to undertake an independent evaluation of the effectiveness and efficiency of weed management arrangements in NSW with a view to inform the further development of the proposed NSW Biosecurity Act and other relevant strategies under the NSW Biosecurity Strategy.

The NRC has been asked:

- to assess (based on existing data) the distribution and abundance of weeds across NSW and their impacts and likely trajectories;
- to evaluate current regulatory and institutional arrangements across both public and private tenures;
- to evaluate weed management programs funded by the Australian and NSW Governments;
- to identify and assess viable alternative weed management arrangements.

For the purpose of the review, 'weeds' are defined as both introduced and native species but are limited to terrestrial and freshwater aquatic species only.

As an initial step in the review the NRC has prepared an issues paper now available for public comment based on initial consultation and research. Details are available at <http://engage.haveyoursay.nsw.gov.au/weed-management-review> and submissions close on 6 December.

Planning Legislation and Ecologically Sustainable Development

The State Government has made some amendments to the original draft of the planning legislation in response to the many concerns expressed by the community and, in particular, the Better Planning Network. The Planning Bill 2013 was passed by the Lower House on 30 October. It is not clear that the Bill will pass the Upper House in its current form as the Government does not have a majority of members.

The changed legislation still does not address the fundamental problem that the main objective enshrined in the new planning system is 'economic growth'. Sustainable development is also an objective so it is not clear how the two objectives can be implemented in concert. The Bills promise robust upfront strategic planning but fail to deliver by allowing the Minister and Director General of Planning, wide discretion to override the finalised strategic plans and controls

The draft legislation appears to be consistent with commitments made by all Australian governments back in 1992 to observe the principles of sustainable development, as originally defined by the Brundtland Report in 1987 as development that 'meets the needs of the present without compromising the ability of future generations to meet their own needs'.

However current legislation gives the concept greater precision by using the objective of 'ecologically sustainable development' (ESD). More details of what this means follows. A later edition of *STEP Matters* will give examples of how the concept has been applied in practice.

The previous NSW planning legislation has a main objective of ESD. In 1992, the Council of Australian Governments agreed to adopt Australia's National Strategy for Ecologically Sustainable Development. This defines ESD as:

using, conserving and enhancing the community's resources so that ecological processes, on which life depends, are maintained, and the total quality of life, now and in the future, can be increased.

The agreement also sets out the following guiding principles:

- decision making processes should effectively integrate both long and short-term economic, environmental, social and equity considerations;
- where there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation;
- the global dimension of environmental impacts of actions and policies should be recognised and considered;
- the need to develop a strong, growing and diversified economy which can enhance the capacity for environmental protection should be recognised;
- the need to maintain and enhance international competitiveness in an environmentally sound manner should be recognised;
- cost effective and flexible policy instruments should be adopted, such as improved valuation, pricing and incentive mechanisms;
- decisions and actions should provide for broad community involvement on issues which affect them.

Further details can be found at www.environment.gov.au/about/esd/publications/strategy/index.html.

ANNUAL LECTURE: UNDERSTANDING THE SCIENCE OF CLIMATE CHANGE

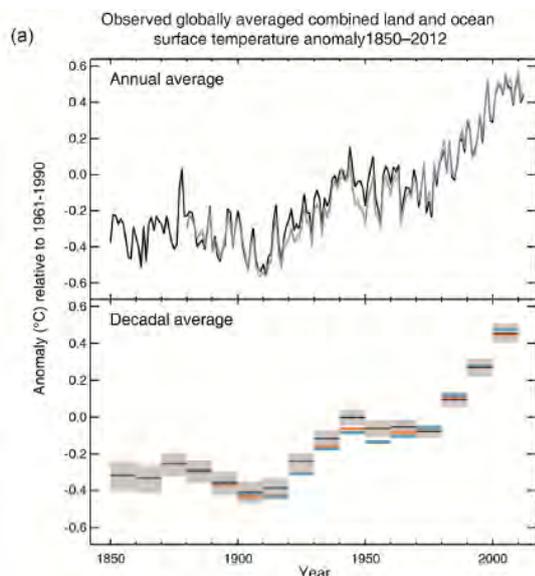
On 21 October, following the AGM, Prof Andy Pitman presented the annual STEP lecture on the subject of Understanding the Science of Climate Change. About 80 people heard a very informative and prescient talk given the smoke still hanging in the air from the Blue Mountains bushfires. The following article summarises some of the major points from the lecture. Slides from the presentation are on our website.

Prof Andy Pitman is director of the Australian Research Council Centre of Excellence for Climate System Science at the University of NSW and has been lead author to the reports by the Intergovernmental Panel on Climate Change (IPCC) in 2001 and 2007. His lecture summarised the findings in the latest IPCC Assessment Report (AR5) on the physical science of climate change and the implications for Australia.

AR5 basically confirms the finding of previous reports but there is more certainty about human influence on the changes that are occurring to the Earth's climate system. While volcanic eruptions, land clearing and solar activity affect climate they do not explain the changes in climate that have occurred. Humans are burning energy to the equivalent of running 200 billion hairdryers over the past 30 years.

Past Trends

Each of the last three decades has been successively warmer at the Earth's surface (see figure) and the last decade has been the warmest in the past 150 years. The global average air temperature has increased by around 0.89°C since the start of the 20th century.



Due to natural variability as demonstrated in the graph, trends based on short records are very sensitive to the beginning and end dates. As one example, the rate of warming over the past 15 years (1998–2012), which begins with a strong El Niño, is smaller than the rate calculated since 1951. This experience is used to argue that warming has stopped. But this is not in the least surprising. This has been a period of reduced radiative forcing (the amount of energy available to drive the climate system) due to the recent solar minimum (a period of low solar activity) and high aerosol levels (these are particles such as sulphur and soot, which block some radiation from hitting the earth) and a double La Niña. The Earth has cooled in the past in similar circumstances. The fact that there was no cooling during this recent period is of great concern.

Global average sea levels have risen by 0.19 m since 1900. The rate of rise is unusual in the context of the last 2000 years.

Future Predictions

AR5 projects future changes based on a range of scenarios of rates of greenhouse gas emissions, called representative concentration pathways or RCPs.

The global surface temperature change is likely to exceed 1.5°C relative to 1850 for all scenarios. Sea level rise is likely to be at least 0.55 m by 2100. For the highest scenario the likely temperature increase is more than 4°C and the sea level rise 1 m. Unless emissions are reduced substantially, we are currently on track for warming of 3.2 to 5.4°C by 2100.

Rainfall predictions are problematic but current expectations are for more extreme rainfall events, storms and cyclones.

Limiting climate change will require substantial and sustained reductions in greenhouse gas emissions. To limit warming to 2°C, the level that the international community has decided is reasonably acceptable and attainable, total emissions since 1850 and into the next century need to be limited to less than 1000 Gt of carbon. We have already emitted more than half of this quota. The limit will be achieved only by cuts of about 3% per annum, ultimately with negative emissions by 2070.

The key message from AR5 is that a significant investment is required in building resilience, minimising vulnerability and planning for the changes that will inevitably occur.

Australia's Situation

The Australian region is particularly susceptible to extreme weather and climate change. Rainfall variation associated with El Niño and La Niña events is likely to intensify resulting in more extreme droughts and floods. Australia is willing to bet a case of Grange that Australia will be warmer both during the night and day. With slightly less certainty, cold days will be rarer and winters dryer. Extreme heat (over 40°C) will be more common as well as more intense rainfall. The number of record hot days at reference weather stations in Australia has doubled in the past 50 years while the number of record cold days has halved.

While the bushfires in NSW in October cannot be directly related to climate change there have been trends that contribute to greater risk of bushfires, namely a long-term drying trend, warmer nights and days and a longer growing season leading to more fuel.

Government response to the climate change issue has been good in Ku-ring-gai with impressive adaptation strategies such as water management and bushfire preparation. NSW is catching up having set up a regional modelling centre (NARCLIM) and a network of scientists but has been slow to recognise climate threats. At the federal level there has been investment in data collection and development of adaptation strategies but current policy is not consistent with the science or the need for emission reduction, but nor are most countries!

FAREWELL WENDY DOUBLE (1940–2013)

STEP member and bushland pioneer Wendy Double passed away peacefully on 30 September 2013, surrounded by her family. She was one of the areas pioneering environmentalists, whose early actions in defending the bushland in the northern region of Sydney have meant that we today enjoy a much better protected local environment than would otherwise have been the case.



Wendy, together with her husband Ken, was instrumental in gathering together a group of concerned Thornleigh community members in 1987 to oppose a proposed rubbish dump in the bushland behind Thornleigh Oval. The rubbish dump proposal was finally defeated and, together with Ken, Wendy went on to form the Thornleigh Area Bushland Society (TABS). Wendy played an active role in TABS, serving as its inaugural president for many years.

One of the key aims of TABS was to form bush regeneration groups so that residents could learn how valuable the bushland is, and keep the vegetation healthy. To assist with this aspect, Wendy completed a bush regeneration course at Hornsby Technical College and later went to Sydney University to study a native plant identification course which helped her to lead informed bush walks in the Lane Cove National Park. Much of her work in identifying local fauna and flora in the area is now to be found in the Hornsby library. It was as a result of the work done by TABS that Hornsby Council adopted its first bushland code of practise. TABS amalgamated with STEP in 2007.

Wendy's interests and activities went well beyond the local environment. She was an accomplished pianist and teacher. She went to University in Melbourne in the late 1950s and was part of the intellectual ferment at that time, mixing with people such as Germaine Greer. She always led a busy life, finding time to complete her Bachelor of Arts while caring for her two young children from her first marriage, Ann and David. She had a life-long love of learning, going back to university later in life and receiving an honours degree from Macquarie in 1998. She was very interested in theories of brain function and consciousness, and as a 63-year-old completed a Master of Arts in 2003. She was also involved in the U3A, University of the Third Age, an interest which continued until her deteriorating health made travel and involvement too difficult.

Wendy found a new husband and partner in Ken Double and they were married in Thornleigh in 1987 in Thornleigh. Together they were involved in many external activities, such as TABS, until Ken's tragic death in 2011.

Living in the natural wonderland that is Sydney's North Shore is a privilege that is not available in many other parts of the world. The scenes that we are lucky to enjoy every day, the bushwalks, the trees, the streams, the birdlife would not be what they are today without the early work of people such as Wendy Double. She will be much missed by her friends, family and fellow STEP members.

BALD HILL CLAYSTONE: DOES IT SEAL AND PROTECT WATER CATCHMENTS FROM COAL MINING?

Dr John Martyn has recently become STEP's representative on the NCC's Protect Sydney's Water campaign. In this article he explains one of the reasons for concerns about mining under Sydney's water catchment

The potential threat to Sydney's southern water catchments posed by underground coal mining has been of concern for many years. There is much coverage available on-line (e.g. www.habitatadvocate.com.au/?tag=woronora-special-area) in which a major hotspot has been Waratah Rivulet which drains into Woronora Dam between Darkes Forest and Helensburgh. More recently the focus has extended to the Cataract Dam catchment, and this area was recently featured on ABC's 7.30 program (www.abc.net.au/news/2013-08-30/extended-version-of-mining-impacts-on-sydney/4926460).

But the deleterious surface and near-surface effects that longwall coal mining can create has been shown to extend beyond the water catchments to embrace Thirlmere Lakes near Picton, whose alarming drop in water levels had also been the subject of a 7.30 program (www.abc.net.au/7.30/content/2012/s3419966.htm). Both programs should still be accessible on-line, and are an eye-opener to watch!

What are the Likely Surface Effects of Longwall Mining?

When you mine something at depth, the level of support for the overlying rocks is obviously reduced: this is an unavoidable physical fact! When the roof of a vast, empty chamber, formerly filled by a coal seam, is (deliberately) allowed to collapse as mining moves on, a zone of fracturing extends into the overlying rocks. Its form depends on the nature of these rocks and the size of the cavern.

Fracture intensity typically decreases upwards, and any effects at the land surface above are likely to result not from the deep fracturing but from a gentle sagging. However, the sagging is not a benign effect and may result in secondary fractures being generated as surface rock slabs are compressed horizontally in the sag, and override each other; open cracks may also form, especially on the shoulders of the sag.

These effects are beautifully pictured in several of the on-line sites: slabs of sandstone have been broken and have arched upwards or have attempted to piggyback onto neighbouring slabs; fissures and cracks have opened up. Such effects may pass unnoticed over the ridges and hilltops, but in a stream bed they are very obvious and can result in the swallowing of the water: the drying-up of the stream in other words.

Tilting of the land surface may also affect a stream's flow, and destabilisation may trigger rockfalls in steep-sided valleys and gorges.

On the ridges and plateaus the fracturing may not be obvious through the vegetation cover, but the drying out of upland swamps has already been observed and, these being the kidneys that source and purify our drinking water, their loss is insurmountable.

Where does the Lost Water Go?

Obviously downwards; but how far? There have been claims that the water may emerge further downstream along a creek line and still make it to the reservoir, but these are often challengeable. It might also be claimed that the water cannot leave the catchment of a particular valley, but this too is now questionable: and this is where the Bald Hill Claystone comes in.

The Bald Hill Claystone forms a layer up to tens of metres thick, which lies from a few metres to a few tens of metres beneath the base of the Hawkesbury Sandstone (which forms the Woronora Plateau catchments). It consists mostly of the clay mineral kaolinite, stained reddish-brown by the iron oxide hematite, and one might expect it to form an impermeable layer, an aquitard or even an aquiclude, that would prevent aquifers and streams in Hawkesbury Sandstone country from leaking away to greater depths. This had always been the assumption that supported the mining of coal seams beneath the Woronora catchments. The endangered upland swamp communities of this plateau should also be unaffected. But it has emerged in recent years that the assumption is almost certainly wrong.

Bald Hill Claystone is NOT Impermeable

If you view the Bald Hill Claystone in the cliffs of Long Reef, or elsewhere for that matter, you will see that it is actually anything but a nice, compact, impermeable layer of clay. You will notice that it is brittle and crumbly and has many small faults and fractures and numerous joints (see picture). These faults and joints are also expressed as tessellated pavements across the adjacent rock platforms.



Faulted and fractured Bald Hill Claystone at Long Reef Point

This characteristic of the claystone layer was highlighted in a 2012 study by highly regarded geotechnical engineer Dr Philip Pells who, at his own expense, researched the cause of the alarming sinking of the water levels of Thirlmere Lakes. His work was the focus of the ABC's 7.30 program of 31 January 2012. He clearly had little doubt that the loss of water was caused by disruption in the balance between the aquifers above and below the Bald Hill Claystone, and that this imbalance emanated from longwall mining of the Bulli Coal Seam at Xstrata-owned Tahmoor Colliery (even though the longwall mining does not extend beneath the lakes, or even within a kilometre of them). The claystone may only leak slowly, but, according to Dr Pells, it can leak especially if aquifers beneath it are depressurised; and the effects, though subtle, can be long-lived, profound and wide-reaching!

The serious effects of longwall mining are a major reason behind the recent establishment by the Nature Conservation Council of the Protect Sydney's Water campaign, launched on 10 Sept (<http://nccnsw.org.au/media/coalition-more-50-groups-forms-protect-sydney's-water>). It was just before the launch that the ABC's 7.30 program highlighted the cracking and subsidence of Hawkesbury Sandstone, the disappearance of streams, the drying of swamps and the death of plants in the Cordeaux Dam catchment. This program focused on the views of internationally-renowned geomorphologist Dr Ann Young, that water supplies and ecological communities are being put at significant risk by the untrammelled pursuit of coal through longwall mining. Furthermore, although the effects are somewhat grudgingly acknowledged by people in authority, they are being underplayed or overlooked, and that they are unfixable and irreversible.

KU-RING-GAI FLYING-FOX RESERVE

The Ku-ring-gai Flying-fox Reserve is an excellent example of what can be achieved by well-resourced and persistent bushcare efforts. The Flying-foxes have benefitted but they are still under threat. More information can be found on the Ku-ring-gai Bat Conservation Society website, www.sydneybats.org.au.



The grey-headed flying-fox, the most commonly-seen bat in the Sydney region, is a large nectar and fruit-eating bat which roosts during the day in large treetop colonies. It is listed as a threatened species (vulnerable to extinction) at state, federal, and international levels. Numbers are declining – from many millions in the 1930s to less than 450,000 in

2004, with an estimated 30% decline in population between 1990 and 2000. Nectar and fruit-feeding bats are vital to forest regeneration as pollinators and dispersers of rainforest seeds.

The bushland valley in Gordon east of Rosedale Road has been home to grey-headed flying-foxes since the 1960s with reports of occupation in the 1940s. This camp, now known as the Ku-ring-gai Flying-fox Reserve, is a vital link in the network of camps used by flying-foxes as they move throughout their range.

In 1985 an ecological assessment by Robin Buchanan (now vice-president of STEP) identified that the roosting habitat of the flying-foxes in Gordon was threatened by the death of canopy trees and by weeds. The trees were dying because of increased water flow from nearby streets and houses with its associated elevated nutrient content, nutrients from bat droppings and damage caused by the bats. The weeds such as lantana, privet, morning glory and trad were preventing the germination and survival of new canopy trees. Without intervention there would not be any tall trees remaining and, therefore no suitable habitat for the flying-foxes, within 15 to 30 years.

In 1991, the Reserve was protected by a Conservation Agreement by the NSW Minister for Environment and the mayor of Ku-ring-gai. The Conservation Agreement is attached to the title of the land and operates in perpetuity. It commits Ku-ring-gai Council to restore and maintain the habitat of the grey-headed flying-fox in the reserve and the minister to assist with provision of technical advice and financial assistance to ensure provision of education opportunities and interpretation for the public.

Management Plan

In response to the drastic ecological assessment a habitat restoration project has been in progress since 1987. The Ku-ring-gai Bat Conservation Society (KBCS) and an enthusiastic band of bushcarers work jointly with the Council on project guided by a Management Plan. An updated Plan was approved by the Councillors in August following a period of public exhibition and receipt of submissions.

The Plan enables development and implementation of a 10 year roosting habitat/tree canopy replacement plan. It commits Council to substantially increase inputs into the habitat restoration project with assistance from KBCS.

To alleviate pressure of residents affected by the noise of the flying-foxes a cage (used in February and March for release of rehabilitated juvenile flying-foxes) will be moved and an alternative site will be found for their release. Council has also committed to the strategic removal of trees on the boundary of the

Reserve close to Taylor and Waugoola Streets This will be somewhat less than the proposal from one councillor to create a 100 m buffer zone with no trees at all! As the Reserve is mostly 150 m wide this would destroy the entire bushland. Perhaps flying-foxes, other fauna and flora and other human neighbours would not be very impressed.

Numbers of Flying-foxes

Counts of all flying-fox camps in the Sydney region are being undertaken by the Botanic Gardens Trust as required under their approval for dispersing the camp in the Gardens. Over recent decades the number of camps has increased but the total numbers of animals has not. This suggests the animals are reducing the energy costs of finding food by reducing travel times. The following numbers have been counted in Ku-ring-gai Flying-fox Reserve in recent months. Movements between camps throughout their range is the cause of variations in 'counts'.

- June 16,870;
- July 8,947;
- August 4,210; and
- September 16,644.

Currently the camp is split either side of Stoney Creek with the majority in the gully close to Taylor Street because the trees are very tall and get plenty of sun. The most likely reason for the split is the deterioration of trees in between.

Progress with Habitat Restoration

Following intensive bushland weed treatment by volunteers and contract bush regenerators, one-third of the Reserve is now considered recovered and is under a maintenance regime. The regenerating canopy is closing and a multi-layer native understorey has replaced the dense weed infestation. Excellent regeneration of understorey and ground stratum plants has occurred, with planted canopy trees flourishing. However a bushcarer's job is never done!

A very important objective is to protect existing native trees in the Reserve so that flying-foxes, owls and other fauna have a place to roost. The native silkpod vine (*Parsonsia straminea*) is vigorous and its wind-blown seeds spread easily. It strangles trees and can cause them to fall. Therefore this vine is culled leaving less vigorous species to provide habitat.

The damage to the trees along Stoney Creek has been primarily caused by a severe infestation of madeira vine (*Anredera cordifolia*), a weed of national significance, around the junction of major sewers. From its distribution, this weed was probably brought into the valley as tubers in soil when the sewers were laid in 1927.

After much experimentation, Council has finally found a suitable herbicide mix effective in killing this virulent weed and is making good progress towards eradicating it in the Reserve.

Another objective is to maintain habitat complexity from ground covers up to the tree tops. Much of the native vegetation is being 'mown' by swamp wallabies except where it is protected by guards such as mesh around young trees. Over the last two years, bushcarers have experimented with light-weight fencing to create habitat patches. The latest fencing style is now effective in excluding wallabies. Seed either stored in the soil or delivered by birds or bats is now beginning to germinate and colonise the 'wallaby enclosures'.

So far, from seed in the soil there are:

- three native grass species;
- herbs and twiners *Veronica plebeia*, *Schellhammera undulata*, *Glycine sp.*, *Sennecio minimus*;
- shrubs *Dodonaea triquetra*, *Ozothamnus diosmifolius*, *Pultenaea flexilis*.

From seed spread by fauna there are:

- trees such as blueberry ash, sweet pittosporum;
- shrubs *Breynia oblongifolia*;
- creepers *Hibbertia dentata*, *Solanum prinophyllum*.

In addition to the natural regeneration 15 turpentine and 15 *Callicoma serratifolia* have been planted and are growing well, safe within their fences.

Currently, birds are in full voice so the bushcarers are enjoying the calls of golden whistlers, yellow robins, grey fantails, spotted pardalotes, fantail cuckoos, a grey-shrike thrush, white-throated tree creeper and the yellow-tailed black cockatoo.

The Future

The flying-fox camp moves around the Reserve as seasonal conditions change. Although the bushland was previously dominated by sclerophyll species, seeds of native trees more common in rainforests, such as figs and lillypillies brought by flying-foxes and birds, and the higher nutrient levels are contributing to the development of a closed forest. This rainforest-type habitat will be more sustainable for the flying-foxes in the future. They will need more shelter in future with the likely increased incidence of very hot days.

More action by all landowners to remove invasive weeds is urgently needed. Some weed species could be eliminated from the valley if everyone participated.

PRESIDENT'S ANNUAL REPORT

The past year has seen plenty of new developments, some good but others with ominous implications for Sydney's bushland and the environment in general. The driving force behind current issues is the usual factor of the mantra of economic growth. The main issues are mentioned in this report and more details have been provided in past issues of *STEP Matters* that have been sent to members and are on our website.

Committee

The achievements of STEP rely upon the active work of the in providing ecological and land use information for understanding what is going on in our neighbourhood and input to submissions. Once again Helen Wortham has done a great job of keeping our records together, organising events and proof-reading our publications.

Steve Procter has stepped down as treasurer. He has done an excellent job of keeping track of our finances. Jim Wells, a former treasurer still provides invaluable assistance with our accounts. Frank Budai who has been a member of STEP for over 10 years has volunteered to assume the role of treasurer. He has extensive experience in managing the accounts of several charities and other volunteer organisations.

We urge all members to consider nominating for the committee. We are always on the lookout for people with experience that can contribute to our work. We also welcome members who are willing to help out with a particular project or issue.

Publications

This year we launched another publication thanks to the enthusiasm of John Martyn for the natural world and photography. This time he has produced a book entitled *Understanding the Weather: A Guide for Outdoor Enthusiasts in Southeastern Australia*. John's books and maps are an invaluable source of funds for STEP's activities. Our other publications continue to sell steadily despite the increasing prevalence of ebooks and map apps.

Accounts

Our finances remain sound. We incurred the cost of publication of the Weather Book during the year so had a small decline in net assets. The book was launched in June so the income from sales will commence this financial year.

We have maintained our Environment Protection Fund that provides for Deductible Gift Recipient (DGR) status for donations. The purpose of the fund is to support STEP's environmental objectives. This fund now comes under the requirements of the Australian

Charities and Not-for-profits Commission. We received a total of \$715 in donations in the past financial year.

Hugh Roberts and Michelle Leishman have been serving on the Committee of Management of the EPF as independent members who have been appointed to positions with broader responsibilities to the community than just the STEP committee. Hugh Roberts has recently resigned from the committee after many years of service. We appreciate the huge contribution that Hugh, with his legal expertise and past role as treasurer, has made to the operations of STEP.

Electronic Media

Our website remains an important source of information about our activities and contains copies of our submissions to local and state governments on current issues and development proposals.

We have finally moved further into the digital age by setting up a Facebook page and a Twitter account. Links are on our website (www.step.org.au). We are very grateful for the brilliant work of Trish Lynch in managing the Facebook page and John Burke's incisive tweets. So please 'like' us on Facebook and 'follow' us on Twitter to demonstrate the level of interest in our work and discover links to other likeminded organisations.

Education

We continue to support the Young Scientist Awards run by the NSW Science Teachers Association with a prize in the environmental sustainability category. It is encouraging to see the quality of the innovative ideas presented in the student's projects.

Talks

We organised four public talks this year on the Great North Walk and the Wildwalks website, John Martyn's Weather Book, Ku-ring-gai Council's water management programs and tsunamis. Professor Ian Lowe delivered a wide ranging and informative lecture on the challenge of a sustainable future last November.

Walks

STEP organises a walk every month or two (seven since our last AGM) with a focus on the beauty of Sydney's bushland and environment. We aim to encourage new walkers so most walks are not very arduous. We thank Frank Freeman, Andrew Little, John Martyn and Jill Green for organising and leading walks this past year. If you have a request for a walk please let us know.

Newsletter

Our newsletter, *STEP Matters*, is our main means of communicating events, our activities and issues with our members. We have a focus on local issues and welcome alerts from our members of local events and developments for inclusion in future editions and, of course, feedback on articles is always welcome. The newsletter helps maintain the high profile of STEP. For this reason we have resisted pressure to send out copies by email where they can easily be lost amongst the huge volume of email that seems to hit us all. Past editions are available on our website.

Environmental Issues

The major issues for STEP over the past year have, once again, been threats to national parks from proposed mountain bike, horse riding trails and other uses that conflict with their chief purpose of conservation. State wide we continue to be concerned about development of mines and coal seam gas projects with inadequate research and precautions to prevent environmental damage that will harm future generations. Hanging over our heads is the State Government's new planning system with legislation to be finalised very soon. Some amendments have been made to the original drafts but growth and

developer interests still seem to be being given undue priority over community and the environment. At the local level the sale of community land and the revision of the Ku-ring-gai Local Environment Plan are current being monitored closely.

The recreational hunting in national parks issue has provided one significant piece of good news. The Game Council has been abolished and the State Government is changing the original recreational hunting proposals to ensure close supervision of hunters and selection of hunting areas. The actual implementation is still unclear and subject to the results of a trial in some national parks.

Outlook for 2014

The Abbott Coalition government has threatened to pass several federal environmental control powers to the States and will overturn the Labor Government's climate change policies. We expect to have a busy year responding to the detail of the new policies that, from information available so far, appear to significantly weaken protections

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Donation (donations of \$2 or more are tax deductible)			
Total cost			\$

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 with full-colour illustrations.

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.



<https://www.facebook.com/STEP.Inc.Sydney>



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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.

STEP Committee

Jill Green — President
Robin Buchanan — Vice-president
Frank Budai — Treasurer
Helen Wortham — Secretary
Andrew Little
John Martyn
Don Davidson
Anita Andrew



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