



STEP Matters

Number 132, November 2005

In this Issue

Christmas Barbecue	1
Pottery Sale	1
Young Scientist.....	1
Swamp Wallaby	2
Town Centres	2
New Harbour Walking Brochures	2
President's Report	3
Geosequestration of CO ₂	4
Solar and Wind Energy	5
Nuclear Energy	5
Membership Renewals Due	6
Blue Gum High Forest	6
Propagation of Threatened Plants.....	6

STEP Committee

President

Michelle Leishman

Committee

John Burke
Tim Gastineau-Hills
Bruno Krockenberger
Andrew Little
Neroli Lock
John Martyn
Ann Perry
Jim Wells
Helen Wortham

Diary Dates

4 Dec	Pottery Sale
11 Dec	Christmas Barbecue

Christmas Barbecue

Our annual Christmas barbecue will be held on Sunday 11 December at the rear of Leuna Avenue, Wahroonga.

As usual Harry and Neroli Lock will make their gas barbecue available and there is a beautifully shaded grassy area for a relaxing get-together.

We start at about 5 pm and in the past it has carried on until well after dark.

We look forward to seeing as many members as possible there.

Pottery Sale

Veteran STEP member, Margaret Tuckson AM (see *STEP Matters*, number 122) is having a sale of her earthenware pottery on Sunday 4 December at her home, 108 Lucinda Avenue South, Wahroonga.

Items for sale will include table and domestic ware. Only items for sale will be on view, since it is not intended to be an exhibition of her collection.

The sale will be open from 9 to noon and again from 4 to 6 pm.

All proceeds from the sale will go to Oxfam, one of the international charities which Margaret has supported over many years.

Young Scientist

STEP has continued to support Young Scientist, a competition which is organised by the Science Teachers' Association of New South Wales. This year the awards were presented at Parliament House in Macquarie Street.

STEP donates a \$200 cheque to the secondary student who submits the best personal research project on an environmental issue. The finalists in this research section were of a very high standard this year ranging from a project to generate energy from waves in the Hawkesbury tidal zone to testing the effectiveness of various barriers to snails in vegetable gardens.

In this award category students are required to prepare a hypothesis and then describe how they set up their experiment. After providing their results they then propose how they might have improved on their research model.

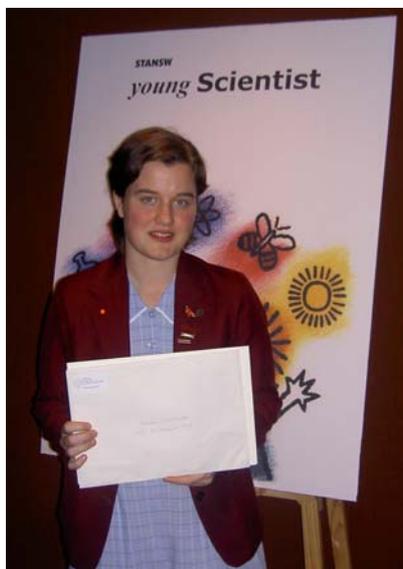
The successful candidate this year was Laura Woollacott, a year 10 student from Roseville College. The title of her project was *An investigation into the pollution stopper and its effects on the water quality of Moores Creek*.

Laura tested the efficiency of a stream barrier system which aimed to trap pollutants before they entered the main catchment system. The pollution stopper was installed by Ku-ring-gai Council.

STEP Inc

Community-based Environmental Conservation since 1978
PO Box 697, Turramurra, NSW 2074

Laura found that the barrier or pollution stopper did not have any effect on the water quality downstream from its location, a fact which was backed up by her personal testing of the creek along various sections.



STEP members, Syd Smith and Jane Guy judged the entries and were highly impressed with the standard of research entries in this section.

Dr Karl gave his usual entertaining presentation and Syd Smith presented a certificate and cheque to Laura on behalf of STEP.

Swamp Wallaby

Sightings of swamp wallabies in the Upper Lane Cove Valley were reported some years ago and have recently been further confirmed by young residents of Alfred Pace, Turramurra.

Since the sightings have spread over years there is reason to believe that a small group exists, rather than a possible stray or escapee. STEP is interested in receiving any further reports of sightings (secretary@step.org.au).

Town Centres

Ku-ring-gai's newly elected mayor, Elaine Malicki, has advised that henceforth most Planning Committee meetings will be open to the public. Dates and times of such meetings are to be advertised on Council's website.

Currently the Planning Committee is dealing with long-term planning for several of Ku-ring-gai's town centres and some of the work in progress has caused considerable interest and possibly concern.

The mayor points out that although the committee does not make formal decisions – these are made in Council meetings – the discussions in the Planning Committee are extremely important to the future of Ku-ring-gai ... STEP agrees.

Currently there is no capacity for involvement by the public, but hearing the discussion at first hand is better than hearsay.

The next meeting will be on Tuesday 20 December. Check Council's website in case of change.

Mayor Malicki also advised that the twice-monthly question and answer session introduced by the previous mayor will be continued. This allows councillors to ask questions of directors and staff on items of business. These meetings will be open to the public, but not for participation by the public. The meetings will start at 5.30 pm and last half an hour before the formal Council meetings.

New Harbour Walking Brochures

In our last newsletter we reported on the *Harbour Circle Walk* brochure. The North Sydney Walking Volunteers has now produced two further brochures entitled *Harbour to Spit Walks* and *Harbour to Great North Walk*. They are scheduled to be officially launched after mid-November (we have no date at time of printing this newsletter).

In a press release the walking volunteer's coordinator, Bill Orme, said:

From the Harbour Bridge to Spit Bridge there are basically three routes walkers can explore, one of which is a 2 h 45 min walk from the Harbour Bridge via Mosman Bay and Quakers Hat to the Spit Bridge.

This can be done before lunch, and then 3 h walk by the Manly scenic pathway to Manly, and the ferry or bus back to the start.

All three routes embrace harbour views and represent some interesting history spanning Aboriginal times, the First Fleet, fortifications and whaling, as well as magnificent parks, rainforest remnants and bushland.

The *Harbour to Spit Walks* brochure forms a vital link in the overall North Shore walking route including the *Harbour to Great North Walk* and the *Harbour Circle Walk*.

The brochures comprise colour street maps showing the walking routes in red, backed up by stick maps of the routes and approximate times for each route. The reverse side contains descriptions, historical notes, transport connections and general explanations, as well as reference to other publications, including the STEP maps.

North Sydney Walking Volunteers worked closely with the Department of Planning, Sydney Harbour Federation Trust, National Parks and Wildlife, North Sydney Council and Mosman Council in producing these brochures.

Mosman Council funded the project in conjunction with North Sydney Council and the Sharing Harbour Access Program.

Free copies of the brochure are available from council information centres, tourist offices and www.planning.nsw.gov.au/harbour (click on Walking Sydney Harbour).

President's Report

It is with pleasure that I present the President's Report for the year to October 2005.

Maps

This year has seen the launch of STEP's two new maps *Walking Tracks of the Middle Harbour Valley and Northern Sydney Harbour Foreshore*. The maps were launched at Ku-ring-gai Wildflower Gardens last November which was a great event. The speaker (Rob Lang, CEO of the Sydney Harbour Foreshore Authority), the food (wonderfully provided by Jocelyn Chenu) and the venue were all much enjoyed.

The committee has been busy with the publicity and sales of the maps – the end-of-financial year sales are 741 (north map) and 625 (south map), which exceeds our expectations out of a print run of 2000. The new maps have had an added bonus of boosting sales of the Lane Cove map and Field Guide as well as attracting new members from a wide range of suburbs.

Blue Gum High Forest

Another major focus of activity has been the Blue Gum High Forest Group, which is energetically run by Nancy Pallin and Neroli Lock.

After a year of sustained lobbying and hard work, the group has had a major victory – a determination of the Blue Gum High Forest as a critically endangered ecological community under the Federal Environment Protection and Biodiversity Conservation Act. This puts another steep hurdle in front of developers.

In more good news, half of the privately owned Blue Gum High Forest at Rosedale Road, St Ives (adjacent to Dalrymple Hay Nature Reserve) has now been purchased by the State Government for conservation purposes.

Well done Nancy and Neroli.

Walks and Talks

We have undertaken a range of activities this year. We have hosted two talks (Dr Mariella Herberstein, Macquarie University, on spiders, and Michelle Leishman, Macquarie University, on exotic plant invasion on Hawkesbury Sandstone soils), plus of course tonight's guest speaker (Peter Davies and Mary-Lou Lewis, Ku-ring-gai Council).

We had three organised walks: Dalrymple Hay Nature Reserve, Pennant Hills Fire Trail and West Head.

Environmental Education

We have continued to support the Young Scientist Environment Award, which was presented at Parliament House by STEP member and judge Syd Smith to Laura Woollacott for her project *An investigation into the pollution stopper and its effects on the water quality of Moores Creek*.

STEP will be increasing its environmental education program in the coming year. Jane Gye has agreed to be our Environmental Education Officer and she will be responsible for both the Young Scientist award and for a new award to be offered to local schools to implement environmental projects under the new School Environment Management Plan program. We will be offering \$750 per year for three years to help schools implement their plan.

Newsletters

We published five newsletters (numbers 127 to 131) thanks to Bruno Krockenberger (editor) and Helen Wortham (design and layout).

Representation

STEP is represented by Neroli Lock on Ku-ring-gai Council's Bushland Catchments and Natural Areas Advisory Reference Group. John Burke has represented STEP on the University of Technology Sydney Consultative Committee.

Committee

The committee has seen a few changes this year.

Our treasurer, Thérèse Carew, resigned suddenly but we have been most fortunate to secure the help of Jim Wells to help get our finances back in order. Jim's help has been invaluable and he has instituted a few changes to make our operations more efficient as well as finding us a new auditor. I am very pleased that Jim has agreed to take on the role of STEP's treasurer.

Long-time committee member Jenny Schwarz resigned in August as she has now moved to Hobart – we miss her and wish her all the best.

Ron Howlett also resigned during the year.

I have agreed to continue as president in the short-term but will be resigning in April when I start a new job. John Burke will be joining the committee after an absence of more than a decade.

Thanks to all other continuing committee members and other helpers for their contribution through the year.

Editor's Note:

At the AGM Andrew Little volunteered to join the committee. We warmly welcome him.

The Coming Year

The challenge for STEP in the next year will be to recruit additional committee members – the current committee members are stretched too thinly and we need some new ideas and energy.

We are in the fortunate position of being in a healthy financial state due to the sales of our maps and field guides and in the coming year we will be developing new environmental initiatives that use these resources.

Any members with good ideas please come and see me!

Geosequestration of CO₂

The title is intimidating, but the translation is simple enough. It means locking up carbon dioxide (CO₂), a greenhouse gas, in a geological formation.

The concept of geosequestration encompasses CO₂ capture, transport, injection, storage and monitoring. The technology for capture, transport and injection are well established, not so that of long-term storage and monitoring.

Geosequestration would mainly be applicable to large-scale sources of CO₂ generation.

CO₂ Capture

The main sources of CO₂ are power generation and production of hydrogen.

In power generation (pulverised coal-fired) the CO₂ appears in the flue gases and the most widely used technology for CO₂ capture is chemical absorption by a solvent, forming a stably bonded compound which can be removed.

A large future source of CO₂ is the production of hydrogen (as a future transport fuel).

Currently hydrogen is also produced in gasification of coal to form a combination of carbon monoxide and hydrogen, from which the carbon monoxide is reacted with water to form CO₂ and hydrogen. This process is currently used in some gas turbine power generation plants and is likely to be the process used in future large scale hydrogen production.

In this case the CO₂ can be captured at point of origin.

The technology is proven.

CO₂ Transport

In Australia the most likely transport method is by pipeline. Transport is less likely by rail, truck or by tanker ship.

Transport by pipeline is currently in use in various locations in Canada and the USA, over distances up to 325 km. It is used for the purpose of enhanced oil recovery, transporting CO₂ from power generation sources to oilwells where it is injected under pressure to force the remaining oil to the surface.

CO₂ lends itself particularly well because in its 'supercritical/dense' physical state it has a higher density than either in gaseous or liquid form and therefore is well suited to pipeline transport.

Proven technology.

CO₂ Injection

CO₂ injection has been used since 1972 for the purpose of enhanced oil recovery. It involves injecting the gas into a geological structure which has the right attributes for permanent storage.

Once again the technology of injection is well known and proven.

CO₂ Storage

Suitable geological formations require a porous and permeable reservoir rock overlain by an impermeable cap rock which forms a trap.

There are some variations such as solubility trapping, where the CO₂ dissolves into fluids which are present in the reservoir rock, or mineral trapping where it reacts with minerals in the rock.

A current example of geosequestration is in operation at a gasfield in the North Sea off the coast of Norway, where a proportion of the gas yield is CO₂ which is separated and injected into an adjacent geological storage structure under the sea.

A study in Australia has looked at a hundred sites of sedimentary basins, of which the majority have been assessed as potentially suitable.

Some sites are now being evaluated in detail.

Monitoring

Monitoring requires a complex system of methodologies including petrophysical, seismic and surface geochemical, to track movement of any CO₂ or leakage to the surface.

Risks

The risks of geosequestration relate to the storage phase rather than the capture, transport and injection phases: leakage, induced seismicity, CO₂ migration or catastrophic CO₂ release.

The current examples of CO₂ for enhanced oil recovery involve smaller quantities and shorter time periods and therefore do not provide the required level of understanding of effective management of the long-term storage of CO₂.

Summary

Geosequestration could play a part in reducing greenhouse emissions during the time period when fossil fuel will continue to be used because alternatives have not reached the capacity to replace fossil fuels.

Australia has reasonably stable geological structures which could serve the purpose of CO₂ storage.

Further information at www.co2crc.com.au

Acknowledgement

The information in this article has been derived entirely from an article by John Kaldi, Storage Program Manager, CO2CRC and Australian School of Petroleum, Adelaide University, published in *AIG News*, No. 80, May 2005.

Editor's Note:

John Kaldi states that the purpose of his article was purely to provide some information on the main issues of geosequestration.

Solar and Wind Energy

Some interesting information regarding solar and wind energy is contained in *EcoVoice* (Issue 17, February 2005).

A third of the world's population uses kerosene based lighting costing up to \$10 per week.

For approx \$100 this could be replaced by an environmentally friendly lighting system based on solar energy. This would produce environmental and social benefits including:

- fewer dry cell batteries being disposed into and releasing heavy metals into the environment;
- reduced greenhouse gas emissions; and
- reduced firewood collection and disturbance of catchment areas.

Wind energy offsets all the energy used in its construction and installation within six months.

The cost of wind energy will match fossil fuel energy by 2020.

Australia's renewable energy target is one-tenth of that set by Europe.

Nuclear Energy

The last issue of STEP Matters (number 131) contained an article expressing a view about the state of the nuclear energy debate. In response it has elicited a contribution from Les Nicholls, a long time member of STEP.

With reference to Bruno Krockenberger's article on nuclear energy, the website www.uic.com.au provides up-to-date technical information together with the use of nuclear power worldwide. Much of the information on this website is at odds with Bruno's comments on safety, waste disposal, plant obsolescence, construction times and financing.

Nuclear power has already contributed to the reduction of greenhouse gas emissions and will do more as new plants come on-line providing base-load electricity. In spite of this and the expanding use of renewable alternatives, CO₂ emissions will continue to increase rapidly until carbon-based fuels are exhausted. It is understandable that the Australian states with large and readily accessible reserves of good quality coal for export should oppose uranium mining.

As a matter of interest, a prototype 500 MW nuclear fusion power plant is being built by a consortium of countries at Cadarache in Southern France. This plant is not expected to be operational for 30 years whereas new generation fission stations are coming on-stream in as little as five years with a license to operate for 60 years.

Editor's Note:

Because of the potential impact of climate change on bushland conservation, the debate on alternative energy, including nuclear, is of importance to STEP. Further contributions on this subject are very welcome.

	Unit cost	Number	Cost (\$)
Membership (only complete if 05 is shown on address label on next page)			
Single (per financial year)	\$16		
Family (per financial year)	\$20		
Life	\$200		
Field Guide to the Bushland of the Upper Lane Cove Valley	\$30		
Maps of Walking Tracks (cost of maps to non-members is \$20)			
Lane Cove Valley	\$15		
Middle Harbour Valley. Sheets 1 and 2 Bungaroo and Roseville Bridge	\$15		
Middle Harbour Valley. Sheets 3 and 4 Northbridge and North Harbour	\$15		
Donation (donations of \$2 or more tax deductible)			
E-mail address		Total cost	

Membership Renewals Due

If the year '05' is printed underneath your address at the bottom of this page, your membership is due for renewal.

Please complete the form at the bottom of page 5, indicate any changes needed to the address label, and mail the completed form and payment (by cheque made payable to STEP Inc) to:

The Treasurer
Step Inc
PO Box 697
Turrumurra, NSW 2074

You can also use the form to order any of our publications.

Blue Gum High Forest

We are happy to report that 100 Rosedale Road has now been secured for conservation since it was purchased by the NSW State Government's Infrastructure Development Corporation as a trade off for destruction of a 0.33 ha patch of Blue Gum High Forest associated with the Hornsby Station upgrade.

The land is due to be transferred to the NSW Department of Conservation.

Further approaches have been made to State and Federal Governments regarding the remaining lot at 102 Rosedale Road.

Propagation of Threatened Plants

Recently when Peter Davies and Mary-Lou Lewis (Ku-ring-gai Council) talked at the STEP AGM the question was asked: Why doesn't Ku-ring-gai Council's Nursery sell threatened plants? After asking nursery staff to respond to this query, this is Mary-Lou's reply.

In terms of legislation, as separate from best practice, we would need licences to propagate a threatened species, particularly as it would be from wild stock. We don't have this specific licence at the moment.

- Habitat protection and proper management are the only long-term methods to ensure species survival.
- Increasing numbers of plants that are rare (not that rarity and threatened necessarily correlate) can assist in disease transmission etc.
- Following on from that, it can stuff up the genetics, which is usually enough to finish it off (e.g. *Ibex* is now extinct thanks to that).
- There is usually no reason why propagating and planting more plants of a species helps it in any way. The species is under threatening processes, and planting more doesn't stop those processes from being enacted.

Depending on the species, others reasons may apply, with some being more relevant than others.



If undelivered return to:
STEP Inc
PO Box 697
Turrumurra, NSW 2074

Print post approved
PP246764/00011

SURFACE
MAIL

POSTAGE
PAID
AUSTRALIA

