# STEP Matters

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### STEP Committee



### Diary Dates

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| 26 August | Talk on Native Bees |
| 31 August | Walk to Bantry Bay |
| 12 October | Walk to Middle Harbour Creek |
| 28 October | AGM and Talk |

### Walk to Bantry Bay

Date: Sunday 31 August
Time: 10 am
Place: End of Currie Road, Forestville
Grade: Moderate (steep, rocky and slippery in places)
Contact: Gerald Holder (9416 4820)

Reviewed in our last newsletter.

### Talk on Native Bees

Date: Tuesday 26 August
Time: 7.45 pm
Place: St Andrews Church Hall (Vernon Street, South Turramurra)
Contact: Jenny Schwarz (9869 8039)

Did you know that there are more than 1500 species of native bees in Australia? They range in size from 2 mm up to 24 mm and some of the bigger ones are bright and colourful. Most are solitary but a few prefer the social way of life. And only a few will sting you. Come to our next talk and find out more about native bees.

Dr Michael Batley became interested in Australian native bees four years ago after he retired from a career in chemistry teaching and research at Macquarie University. He is co-author of a field guide to native bees of the Sydney area and currently an honorary research associate in the Entomology Department of the Australian Museum.

In his talk he will show us some of the hundreds of species of native bees that live in the Sydney region, from the big and beautiful to the shy and inconspicuous. Bees are often seen but not recognised. Simply knowing what they look like can help us become aware of a new and varied world of interactions in our bushland.

The behaviour of the bees is as varied as their appearance and familiarity of their life histories can help us preserve suitable environments in which they can live and reproduce.

### Dieback in Sydney

John Martyn

Report of a Phytophthora conference organised by the Sydney Harbour Trust

Although dieback is usually caused by *Phytophthora cinnamomi*, numerous other causes and combinations of factors have been identified such as insect attack, pollution, armillaria fungus, drought and land clearing. Clearly the recent drought has exacerbated the condition because weakened trees are unable to cope.

***P.cinnamomi***

Strictly speaking, *P. cinnamomi* is not a true fungus but a water mould. It is only spread through water and by transport of contaminated soil. It does not have airborne spores. However another Phytophthora species, *P. ramorum*, **does** have airborne spores and would potentially be a problem here were it to come in from Europe or North America.

Under the microscope *P. cinnamomi* looks like a mass of branching filaments tipped with egg-shaped sporangia. Spores are mobile and can 'swim' through water. Spores have a resistant form that can survive drought and remain viable for up to six years.

The filaments penetrate the feeding roots of host plants and destroy their abilty to take water and food from the soil. *P. cinnamomi* has been found in trunks several metres above ground level. It has been found in soil at a depth of six metres so it has no trouble surviving bushfire.

The debate as to whether *P. cinnamomi* is native has run

for years. However it shows all the characteristics of an invading pathogen and recent genetic studies show that there is only one Australian race whereas in SE Asia there are numerous races.

*P. cinnamomi* almost certainly came from SE Asia having been first identified in Burma on the roots of a species of Cinnamomum (camphor laurel is a Cinnamomum). It is thought to have come here on roots of fruit trees and was first detected in Australia on the roots of a pineapple in Queensland.

*P. cinnamomi* is an alarming and unusual organism, potentially affecting more than 2000 indigenous species including an large number of rare and threatened ones. It also affects exotics including commercial fruit trees. It is unusual for a plant pathogen to affect such a wide range of plant families.

The most favourable conditions for *P. cinnamomi* in Australia appear to be a southern location with Mediterranean climate, i.e. winter rainfall and more than 600 mm per annum. It is not supposed to like cold conditions but nonetheless flourishes above 800 m in SE Australia.

**Dieback on Sydney Harbour**

Dieback was apparent around Sydney Harbour in photos dated 1878 but *P. cinnamomi* was only isolated from soil and angophora wood at Chowder Bay in 2002. It has still not been sourced from the roots, but angophora roots penetrate deep into sandstone crevices and are usually inaccessible.

Dieback is also present on Bradley Head, Chowder Head and Cremorne Point. It only affects the harbour side of the Middle Head peninsula but does not affect the Balmoral side. I have seen it in the Castlecove-Willougby area and former STEP committee member Judy Meacham, who was at the seminar, tells me it is present in the Lane Cove Valley.

The dieback phenomenon on Middle Head is not due to *P. cinnamomi* alone; disturbance and drainage anomalies, as well as aspect, are contributing factors. Other causes of dieback include the native armillaria fungus, and of course the usual suspects, human intervention, impeded drainage, high nutrient levels, ground disturbance and weed invasion.

Oddly, *Angophora costata* is not supposed to be a vulnerable species and so there is a big mystery as to why they are so devastated at Chowder Bay. The ridgetop at Chowder Bay is old military land but interestingly the angophoras on the development fringe are only partially affected. They are just barkless skeletons on the mid-slope, but downslope along Chowder Bay Road they look OK.

Air photo studies from the 1960s show a rapid progression of the disease in recent times along the mid-slope of the escarpment. Drainage is a big factor and control of drainage may result in some remedial effects. Some other species are affected but most plants look healthy. The Banksia genus, that is so vulnerable in WA, is unaffected here and elsewhere in NSW.

**Control Measures**

Control measures were the subject of much discussion. Quarantine has been used extensively in WA. Jarrah forest bauxite miner Alcoa has considerable experience in controlling the pathogen on mined and revegetated land, and control methods involve tightly-audited procedures along the lines of typical big company OH&S. However, although we might not feel comfortable with strip mining of jarrah forest for bauxite, there is no doubt that they are by far the most experienced organisation at managing the pathogen and have successfully revegetated large areas of land while controlling Phytophthora.

Quarantine seems impractical in the Sydney Harbour bushland but there is no concensus as to what is the appropriate procedure. Obviously awareness is the first step. If there is perceived to be a risk in any situation then a management procedure needs to be put in place. This might involve restricting access to bushland, closing walking tracks, disinfecting boots, and ensuring that *P. cinnamomi* is not introduced on plants or tools during bush regeneration procedures. In situations of ground disturbace the management of drainage is a number one priority. Common sense needs to be the keyword at all times, but there is no underestimating the immense danger to our native flora from *P. cinnamomi.*

**Phosphite**

Phosphite is a fungicide that has been used to a limited extent in WA to control *P. cinnamomi*. It is sprayed onto foliage and also injected into trunks where a specific tree is threatened. It acts by boosting the plants defence system against the disease.

Phosphite is not licensed for use on native vegetation in NSW. However it is used to sterilise soil in nurseries but there is a fear that this may selectively create a Phytophthora super-race just as overuse of antibiotics has bred superbugs.

## Middle Harbour Map

Bruno Krockenberger

As reported in our last newsletter, we are currently preparing a series of maps of walking tracks in Middle Harbour which consists of four maps printed on two sheets back to back. This format is necessary because of the sheer size of the area that we are covering.

The mapping team is working hard to finalise the information and complete the field checking operation, so that John Martyn can prepare the data file for printing. Printing will be carried out by the NSW Government's LPI facility at Bathurst on their state-of-the-art press.

The official launch will now be delayed until next February or March, but we are planning to have the map available to members before Christmas.

## F3 to Sydney Orbital Link Study

Bruno Krockenberger

Sinclair Knight Merz has just released newsletter number 2 on the F3 to Sydney Orbital Link Study which sets out progress through three 'big picture' options to four broad corridor options for such a link (see http://commcons.skm.com.au/f3tosydneyorbital/).

STEP made strong representations to the study team and to the State and Federal Governments urging the study to be widened to include consideration of public transport options for both transport and commuter needs. Check out our position paper at www.step.org.au/F3M2.htm.

Heavy rail presents itself as an obvious factor in eliminating the massive increases in road freight which have been forecast as a justification for the new link.

We are disappointed to see that our urgings have been comprehensively ignored, and the potential of rail transport improvements has been acknowledged in two brief sentences and dismissed in two further, even briefer, sentences.

It is obvious that a road will be built, and under those circumstances it will be more acceptable to pursue a tunnel option in built-up areas rather than a surface option through natural bushland and national park, with the proviso that exhaust fumes will be adequately dealt with in the ventilation scheme.

On that score the current struggles by residents of Lane Cove to ensure elimination of toxic fumes from the ventilation stacks of the Lane Cove Tunnel shows that there will be problems with the acceptability of tunnel solutions for this link.

In this case there will be further objections if the authorities try to locate ventilation stacks in bushland, even if they are filtered.

Of the four corridor options shown, two would serve transport needs, the purple and the blue option, the other two are commuter links to the CBD, which are completely counterproductive.

The latter two, the worst being the red option, would only encourage more commuters to use their cars instead of public transport to the CBD.

It is difficult to perceive why the yellow option is even listed as an option, since it seems to have little merit for transport needs and does not serve the commuter purpose as well as the red option. It may be just a decoy serving an as yet undisclosed strategy.

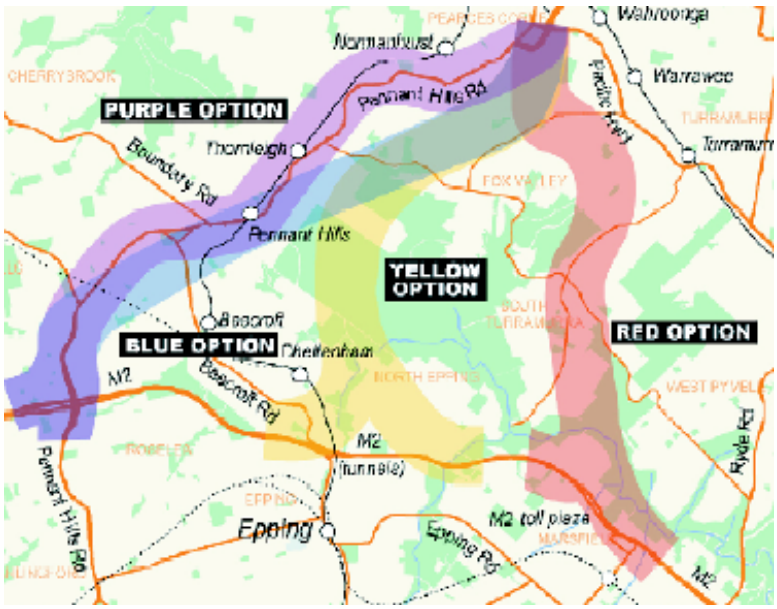
It is unfortunate that some members of the community will be misled to think that a commuter link such as the red option might relieve the peak hour traffic on the Pacific Highway and Ryde Road. The first letters supporting such a link are already appearing in the local newspapers. It seems that these major road link proposals come at intervals which ensure a new generation of residents need to be educated about the futility of road solutions to CBD commuter traffic.

It is an acknowledged fact that real estate agents and developers on the Central Coast are strong supporters of a commuter link, such as the red option, and that they will use their political influence to promote this option. However every additional commuter road capacity to the CBD will accelerate the deterioration of the North Shore suburbs into traffic sewers for the Central Coast.

If we have to have another road, it seems that a tunnel linking the F3 at Wahroonga to the M2 at the Carlingford M2/Pennant Hills Road interchange would make most sense as a road transport solution.

Displays of the report are on view at Hornsby Council, Ku-ring-gai Council, Ryde Council and their libraries.

The STEP transport committee will be discussing a response strategy within the next few days.



## Report on Tick Talk

Jenny Schwarz

On Tuesday 1 July, Dr Stephen Doggett, a medical entomologist, from Westmead Hospital, gave a fascinating talk on ticks to about 70 people. Dr Doggett has been undertaking research into ticks for 13 years. During that time he has collected over 30 000 ticks and been bitten more than 1000 times!

About 15 of Australia's 75 tick species like to feed on humans but the main culprit is the paralysis tick (*Ixodes holocyclus*).

There are four stages of development: egg (summer), larva (autumn), nymph (winter), adult male and adult female. Only the adult male does not blood feed; he is just a 'walking sperm bag'. The nymphs and larvae need blood to moult and the adult female needs blood protein to develop eggs.

The female is 3 to 3.5mm long, flat, with mouth pieces that bite into their prey. When fully engorged she will be about the size of a pea. Her front legs are sensory organs which seek for carbon dioxide (the same way that mosquitos find their prey). After dropping off she lays up to 2000 eggs although only about six will survive.

If you find you have got several ticks at once they are probably larvae because they tend to congregate at this stage. Ticks do not move around much, live quite close to the ground and do not fall out of trees. But they may climb up their prey before attachment.

Ticks do best in wet sclerophyll forests/woodland or rainforests where there is a high animal density. They feed on birds, marsupials and mammals. Bandicoots always have ticks because they move through the undergrowth at tick height. So it is true that as bandicoot numbers increase, so will the tick population.

The paralysis tick severely affects several thousand pets a year and children may also suffer the effects, although it rarely leads to death. Some people have allergic reactions to tick bites which normally respond well to antihistamines but may last for weeks. Ticks rarely cause anaphylactic shock which requires urgent treatment.

The area around the tick can become quite swollen making it seem as though the tick has burrowed under the skin but it is only ever the mouthparts that are attached.

Some ticks are vectors for infection but are easily treated with antibiotics. Overseas, Lyme disease is transmitted by ticks. Some cases have been reported here but Dr Doggett suggested that the diagnosis may be unreliable as no tick in Australia has been found to carry the disease. He doubts that Lyme disease occurs here; nor do we have tick species that harbour the dangerous pathogens found overseas.

Removing the tick increases the toxic effect. This is especially so for severe reactions. Currently, the best way to remove them safely is to dab them with Lyclear (a scabies treatment available from chemists). Bushcare workers who have tried this say the ticks drop off and leave no sign. However, Lyclear has not been authorised against ticks and you should still be alert to a possibly severe allergic reaction. Kerosene is not recommended as it is a skin irritant. Dr Doggett has allowed his thousand or more ticks to drop off naturally when they have eaten/drunk all they want!

To avoid being bitten in the first place you should:

- avoid known tick habitat especially when humidity is high
- wear light coloured clothing
- tuck shirts inside trousers and trouser legs inside socks
- check yourself regularly
- use repellents and apply frequently (20 to 30% DEET) — use creams on skin and sprays on clothing (pyrethroids that treat clothing are very effective but not available in Australia)

Management of the environment to reduce tick numbers unfortunately goes counter to ecological principles, i.e. reduce overhanging foliage, clear brush, remove mulch, use fire … or you can lay concrete everywhere!

Chemical control of the host, the habitat or the tick can be tried (bifenthrin is not tick specific but is 97% effective).

Recent reports suggest tick numbers are increasing. People may have forgotten what is 'normal' after a very dry decade. Or maybe bushcare, revegetation and different gardening practices increase humidity and soil moisture levels. Land use changes may make the environment more attractive to both tick and host.

Finally, it should be realised that ticks are a natural part of life and they should be accepted as such.

## STEP Environmental Education Grants

Each year, through the Pam Morse Bequest Fund, we offer grants for research or education projects that are related to the conservation and management of urban bushland.

Last year we awarded grants to Pymble Public School to establish a worm farm and North Turramurra Public School to plant local species of trees in their grounds. Subsequently North Turramurra has:

- Prepared a computer-based lesson about why the trees were planted.
- Devised and performed a drama exercise that explored what it would have been like at school 200 years ago. After a performance at assembly during reconciliation week the students spoke about the tree planting as an act of reconciliation with nature.

North Turramurra are also planning to create some folders for the students to do bird studies and to build a butterfly garden under some of the new trees to teach the students how to identify the different butterflies they attract.