

**Submission to the  
Environment Protection and Biodiversity Conservation Act  
Independent Review  
from  
Ourimbah Precinct Committee<sup>1</sup>  
December 2008**

Residents in Ourimbah<sup>2</sup> have long noticed, and been concerned by:— a steady decline in biodiversity — loss and damage to native bushland and creek systems — the disappearance of small refugia for distinct and unusual ecological communities. A decade ago, the community greeted the new EPBC Act with optimism and enthusiasm, prepared to work with appropriate authorities to sustain our diverse, robust, beautiful environment for our children.

The objectives of the EPBC Act have not been achieved in Ourimbah. The Act has had little (or no) protective influence on endangered species or ecological communities, indeed the Act can have negative consequences on undocumented populations of endangered species seen as a threat by landholders or developers.

Attached as Appendix 1 is a list of the threatened plants and animals formally identified by NPWS as from Ourimbah. This list demonstrates the area's remarkable biodiversity. Together with many endangered ecological communities, these species specifically are protected by either the EPBC Act or the NSW Threatened Species legislation. By not protecting these species, Australia does not fulfil its obligations under a number of international agreements.

## **OUR recommendations**

**We recommend that existing exemptions for forestry are removed from the EPBC Act, or its replacement, and the Act properly take into account issues of cumulative impacts, indirect impacts and intergenerational equity.**

**We recommend that the Act acknowledge carbon pollution as a threatening process, and use the powers of the EPBC Act to close down grossly polluting activities.**

**The community has a great deal of expertise, enthusiasm and good will towards threatened species. We ask that the legislation acknowledges this, and provides greater opportunity and support for public comment and participation.**

---

<sup>1</sup> Ourimbah Precinct Committee is a local resident committee authorised by Wyong Shire Council. The interests and activities of precinct committees are limited by Council regulations, and this submission is accordingly limited in its scope

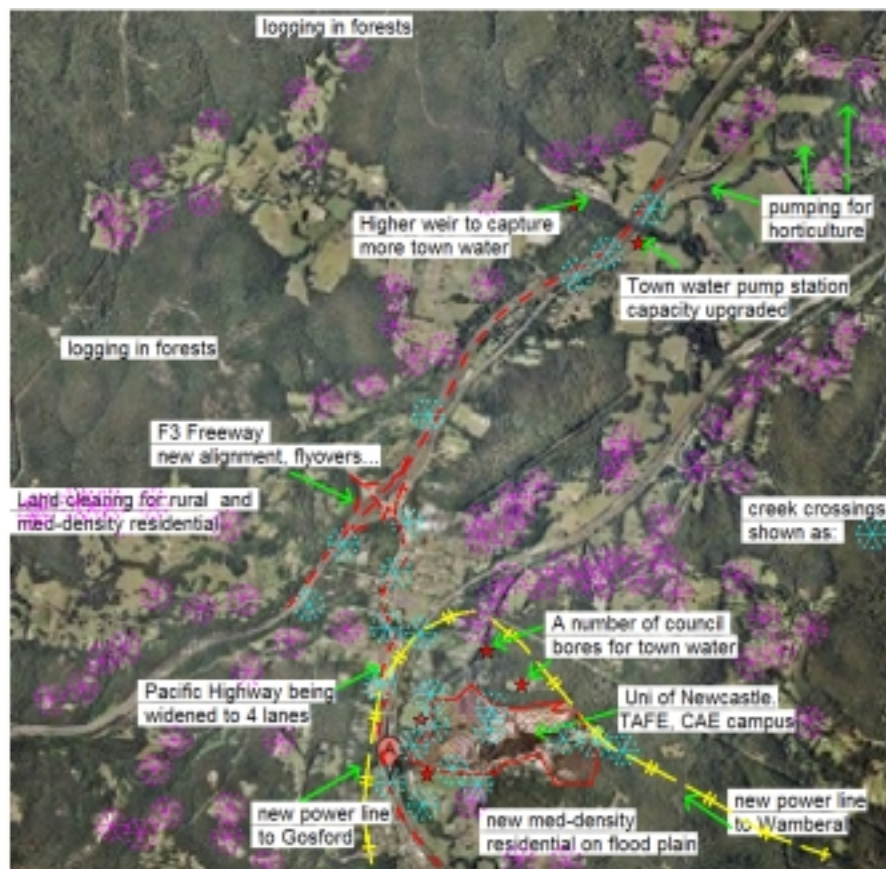
<sup>2</sup> 'Ourimbah' in this context includes a number of smaller localities: Palmdale, Ourimbah State Forest, Fountindale, Kangy Angy, Palm Grove and parts of the Peat's Ridge escarpment.

## OUR concerns

Many questions in your discussion paper raise issues beyond the scope of this residents committee and the expertise of its members. We do, however, have an insight into what is happening to endangered species on the ground, in the real world of our backyards and rural properties. A handful of us have been watching biodiversity decline here for nearly nine decades (most of us not that long) and every local survey shows that all of our local threatened species in Appendix 1 are disappearing apace, and once common species are becoming rare.

- *Cumulative impacts, indirect impacts, intergenerational equity*

There is no mechanism under the EPBC Act to consider the indirect or cumulative impacts of multiple actions. The problem of ‘significance’ is a real one. One hundred developers along a creek can each destroy one individual frog in a threatened population of only one hundred individuals. None of these individual actions are significant, but together they certainly are. The diagram below, charting only major recent infrastructure projects on Ourimbah’s floodplain, shows how multiple independent actions have impacted upon the same creek system. All the developments labelled have occurred in the last decade—that is, within the life of the EPBC Act. It is highly likely that individually and cumulatively, directly and indirectly, all of Ourimbah’s frogs have suffered impacts. To our knowledge, endangered frogs have not been considered in any of these projects, and no EPBC applications have been made. Some projects require no approvals at all.



**Figure 1. Infrastructure, residential and logging activities have all had impacts on Ourimbah’s frogs during the life of the EPBC Act**

Indirect impacts of actions are not properly considered by the EPBC Act. For example: licences are easily obtained to shoot the Grey Headed Flying Fox in our area despite them being a listed threatened species. The population has already diminished by more than 90%, and the population halving time has recently been calculated as less than seven years<sup>3</sup>. Given that the Flying Fox is the major pollinator of our eucalypt forests and a major seed dispersal vector for our rainforest and riparian vegetation, the indirect impact of their loss (no pollinators = no pollination) could be catastrophic as ecosystems lose their ability to reproduce.

On a human scale, biodiversity loss is permanent. No-one in this community wants to leave a dying world for our children. To achieve intergenerational equity, as per Australia's international agreements, the massive wave of local extinctions must be stopped.

- ***Whales***

We are delighted, each year, to watch whales migrate along our coast. (Ourimbah is not far from the sea). Enthusiasts recognise individuals from their distinctive markings, and watch for them each year. These animals, listed under the EPBC Act, should be safe as they move within Australia's waters, Australia's Antarctic waters and the Southern Ocean Whale sanctuary. We are all aware that the Australian Government sent ships to collect evidence of whaling within Australian controlled – EPBC applying – areas. We are very disappointed that the EPBC Act has been ineffective in stopping the slaughter of OUR whales.

- ***Climate change***

Dr Tim Flannery, 2007 Australian of the year, asserts that climate change is the key threatening process affecting both species and ecosystems. He is supported in this view by the world's pre-eminent scientists, but the urgency of the actions required to save *any* species, not just threatened species, is not reflected by our regulatory systems. The EPBC Act does not recognise atmospheric carbon pollution as a key threatening process. It should. It would be appropriate to set a (revisable) threshold and to require that activities that will emit excessive carbon be assessed under the EPBC Act. The greenhouse impacts from logging, land clearing and industrial farming projects, and certain mining, power generation, minerals processing and water desalination activities should be made explicit and be defended by those who would profit from the developments.

In NSW, there is currently a process of 'deliberative democracy' underway to understand the community reaction to climate change. This is being funded by DECC and administered by NCC. For our regional three day forum (at Erina, from Gosford, Wyong, Lake Macquarie Council areas) participation was by invitation statistically generated to obtain a fair representation across the population demographic profile. A member of this committee attended the local forum, and the formal report is publicly available. The Central Coast community expressed strong views. This was a selected group of ordinary people, the 'leftist ratbags' and the 'loony greenies' had all been carefully, statistically avoided. This 'ordinary' group of central coast residents concluded (amongst other things):

- Government at all levels need to be more proactive in seeking both to avoid and adapt to climate change.
- No new coal mines should be approved

---

<sup>3</sup> Dr Parry-Jones, Sydney Uni, has published a number of population studies on the Grey Headed Flying Fox.

- Particularly dirty carbon intensive activities (for example Munmorah power station), should be stopped immediately.
- The Port of Newcastle should not be upgraded to allow massive increases in coal exports, nor should public money be spent on infrastructure to support private coal profits.
- The near-shore coastline should be protected from traffic jams and long stay parking queues of bulk carriers.
- All new public infrastructure investment should be above the most pessimistic 'high tide' projection for the life of the asset (wherever science says that is).
- Council should not allow developments below the tide level (established above).
- Rather than giving public money to profitable power companies, subsidies should be available to regional and local communities and households to invest in their own sustainable power supply, loosely coupled to the grid. (This is not necessarily the most \$ efficient but it is certainly more robust and can be implemented quickly).

We endorse the Erina Forum's recommendations, above.

It would be appropriate to modify the EPBC Act to reflect the significance to biodiversity conservation of increasingly threatening levels of carbon pollution. Flannery has told us that without moderating carbon output and drawing down massive amounts of carbon already in the air, there is no chance of any threatened species surviving to the end of this century.

- ***The law does not seem to apply to routine activities by local council, state government agencies or their contractors.***

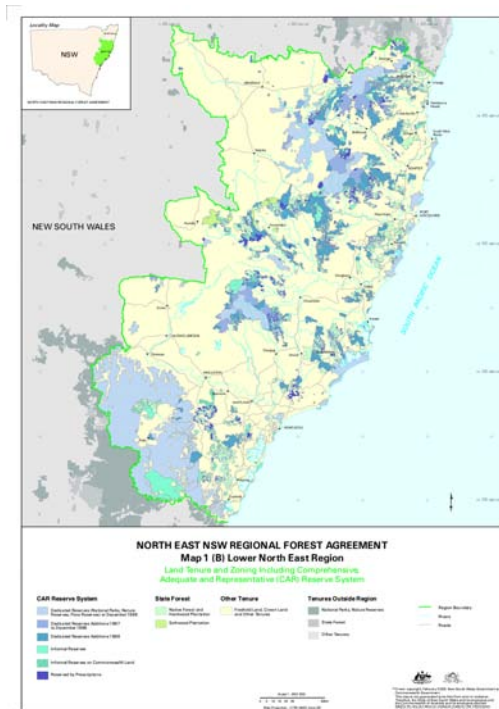
Considering the diversity implied by the long list of threatened species in Appendix 1; one would reasonably expect that Council and agency workers would happen across threatened species or ecosystems in the normal course of going about their jobs of roadside maintenance, repairing infrastructure and so on. It would seem reasonable that workers have sufficient identification skills to recognise threatened species or ecological communities, and appropriate practical skills to complete required work tasks with the least damage to endangered species. Sadly, this is not the case, and many rural roadsides that once harboured threatened ecological communities have been reduced to hedges of privet and lantana by unsympathetic maintenance practices. Use *Google street view* to take a stroll up Dog Trap Rd and see for yourself.

Hunter Institute (which includes all the Central Coast TAFEs) provides courses at various levels – HSC, Certificate and Diploma courses, P/T & F/T – in Conservation, Environment and Land Management. A review of student enrolment has shown that in the past ten years NOT ONE Central Coast student has noted any connection (employee, trainee etc) with Gosford or Wyong Council (one only water board employee at Belmont). Many students do not have vocational expectations, but complete courses as part of their personal engagement with land care in some way.

Partly as a result of this educational imbalance, the level of expertise in the wider community far exceeds that of the local agency workers. This is a constant source of conflict and frustration, especially for rural residents. If the EPBC Act did, in fact, apply – then an informed member of the local community could, for example, politely ask that a population of endangered species not be removed to allow (say) a short-term parking spot for council equipment – and expect support from those charged with administering the Act.

- **Forestry exemptions**

Forestry activities in our surrounding hillsides, the source of town water and the habitat for many threatened species, is exempted from the EPBC Act by virtue of the Regional Forest Agreement (RFA). In NSW, the RFA is implemented by the Integrated Forestry Operations Approval (IFOA) Act, which specifies environmental licence conditions, and controls activities in areas containing Threatened Species. But Forests NSW is not required to obtain a licence under the IFOA for all activities. And we have seen that regulatory agencies have little scope for interaction with forestry activities except in terms of the IFOA. We are very concerned that the EPBC listed Stuttering Frog has not been observed in Ourimbah State Forest since a 2004 logging operation, and that the population of EPBC listed *Syzygium paniculatum* have not produced seed since 2002. We provide one local case study to demonstrate why we are concerned about what is happening to threatened species in our local forests.



If you look at Google maps now<sup>4</sup> you can find Ourimbah State Forest as it was in about 2003. Magnify the satellite map to explore the largest, longest canopy of the endangered ecological community *Lowland Rainforest from Sydney and North Coast bioregions* that remained in our region at that time. It was home to many of the creatures in Appendix 1. If you display the road map overlay, you can make out the evidence of logging activity along the ridgetops, extending somewhat down the valley sides. A row of bouldery cliffs blocks access for heavy machines from the ridge tops into the bottom of the valley.

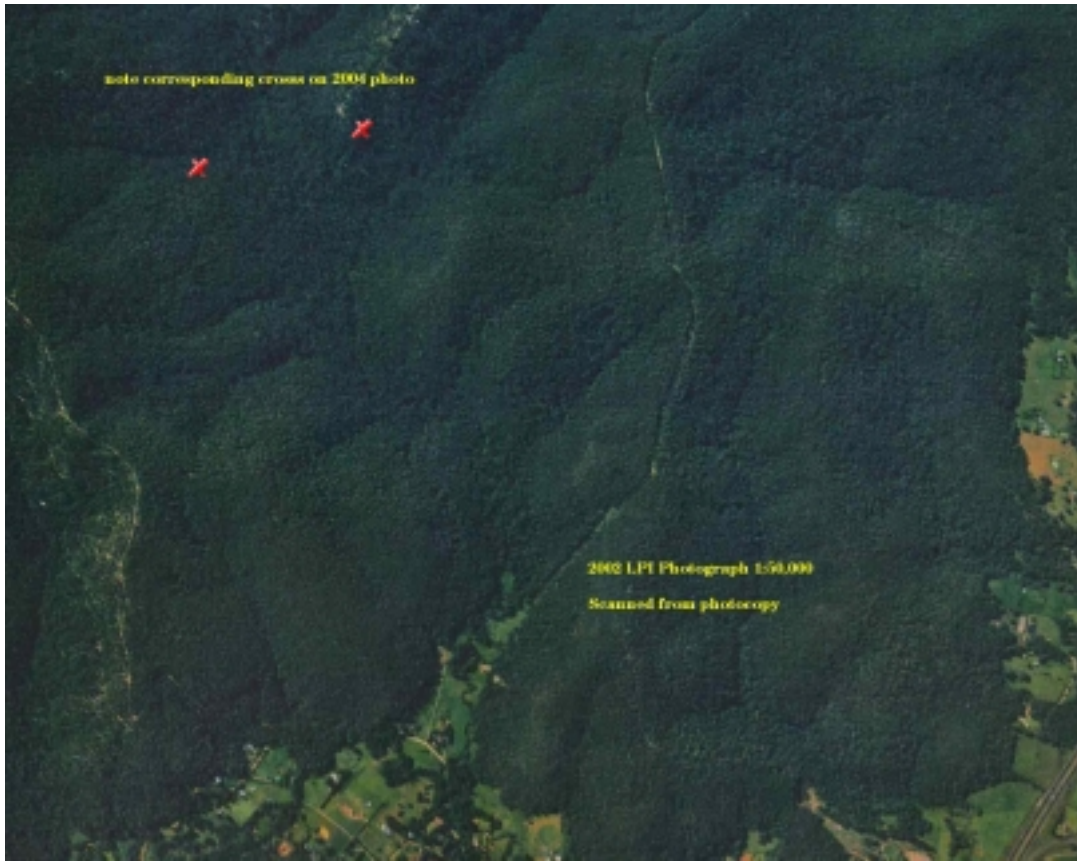
To the left is the signed RFA CAR Reserve map which shows that Toobys Creek, along the bottom of the valley, in Ourimbah State Forest, was specifically mapped as part of Australia's National Reserve System. It is an RFA CAR reserve under the custodianship of Forests NSW.

To the right is an extract from the RFA map (above), blown up to show the detail of the reserves in Ourimbah State Forest.

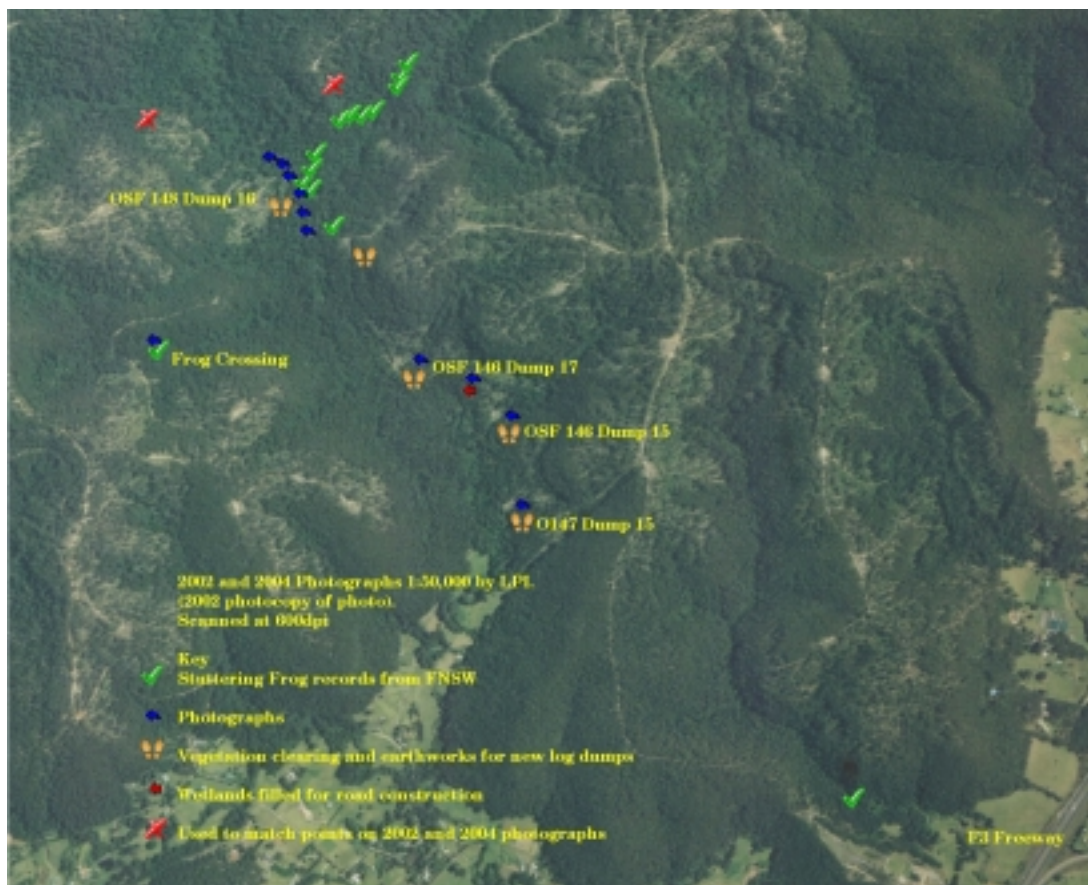
The aerial photographs of Toobys Creek (following page) were taken in 2002 and 2004 and purchased from LPI. The 2004 photo shows the impact on the canopy of the 14m (min) wide 1.6km long road along Toobys Creek, and the log dump clearings on the narrow floodplain.



<sup>4</sup> [http://maps.google.com.au/maps?utm\\_campaign=en\\_AU&utm\\_medium=ha&utm\\_source=en\\_AU-ha-apac-au-sk-gm&utm\\_term=nsw%20road%20maps](http://maps.google.com.au/maps?utm_campaign=en_AU&utm_medium=ha&utm_source=en_AU-ha-apac-au-sk-gm&utm_term=nsw%20road%20maps)

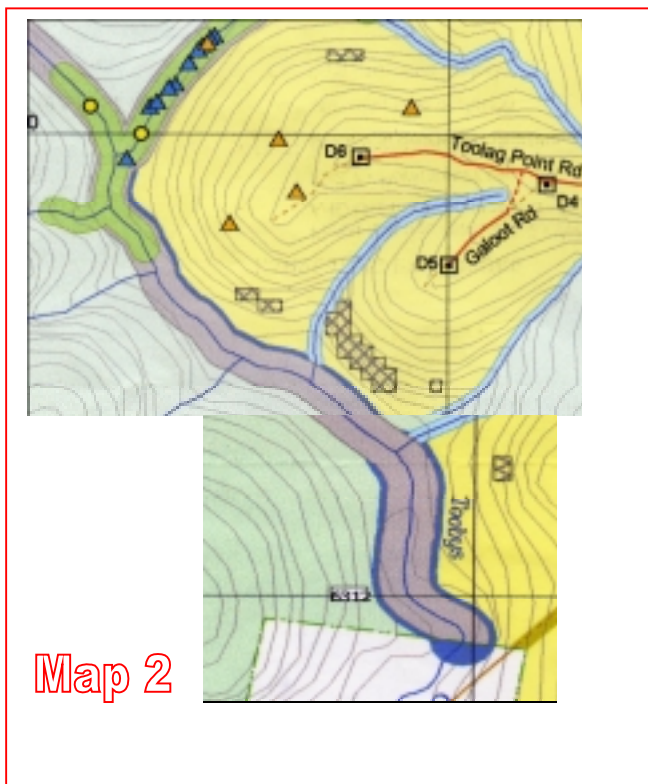
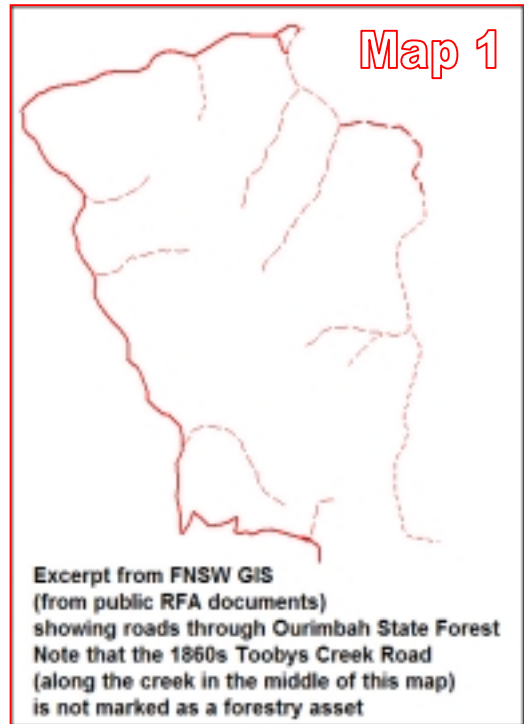


The aerial photo above, taken in 2002 is from LPI. The satellite photo currently available on *google maps* is from 2003, the aerial photo below, taken in 2004 is from LPI. Full detail jpeg files of the LPI photographs (about 16MB ea) can be provided on request.



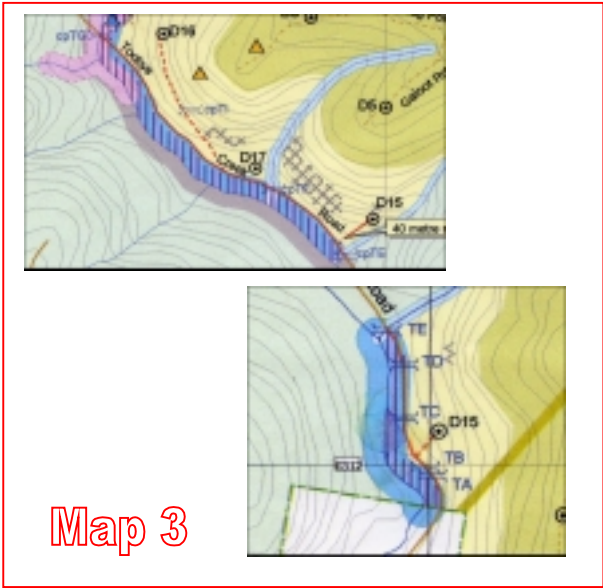
Initially as part of a ‘natural heritage trust’ project, the biodiversity decline in Ourimbah State Forest has been monitored, and threatening processes mapped. Since before 2002, conservation, environment and land management students from the Hunter TAFEs have used Toobys Creek for field studies, and from time to time have provided this committee with the results of research. The following set of red-bordered maps are from an academic paper, due for publication in 2009. Field work for the GIS mapping was completed by diploma students, weed identification and mapping by Cert II and Cert III students, supervised by various TAFE teachers.

**Map 1** (right) shows roads from Forests NSW GIS ‘roads’ layer. This is public documentation provided as part of the ‘lower north east’ regional forestry agreement. There is no sign of the 1860s logging road along the creek, it was a track used by horse riders and bushwalkers.

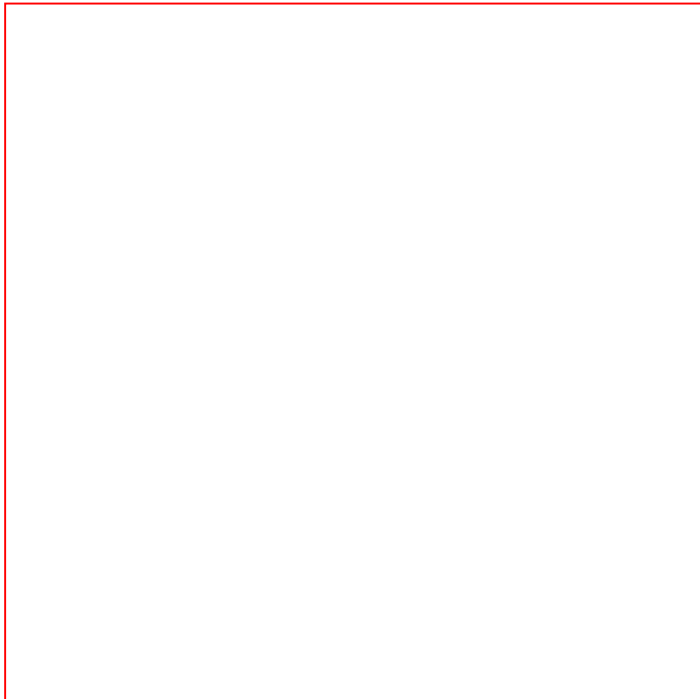


**Map 2** (left) shows Toobys Creek and adjoining reserve from the view of the EPA. It is a composite of two map extracts from compartment 146 and 147, obtained using FOI. The EPA received this map from FNSW as part of the IFOA licence compliance process.

**Map 3** (right) shows Toobys Creek and adjoining reserve from the view of FNSW. This is an operational map for logging contractors, obtained from FNSW using FOI, a composite map of compartments 146 and 147.. 'Realignment' of the road is shown, as are positions for log dumps and creek crossing construction activities.



There is no map of Toobys Creek from the view of NPWS. A 2006 document search under FOI revealed no documents concerning Ourimbah State Forest or Toobys Creek, since the RFA. This search also revealed that a 2004 complaint from the public through 'appropriate channels', the EPA, explicitly concerned about threatened species in Ourimbah State Forest, had not been passed onto NPWS.

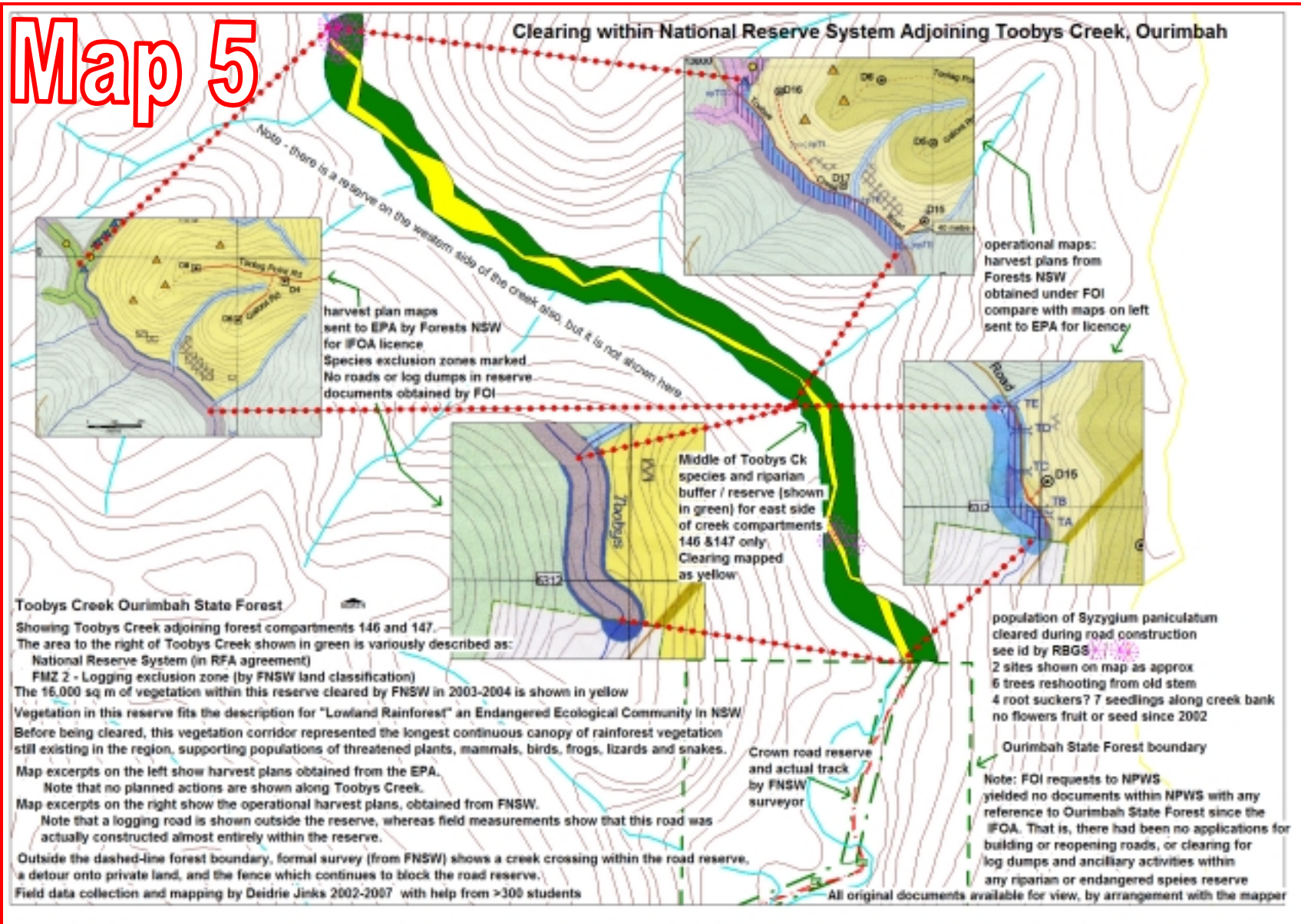


**Map 4** (left) is a view from Toobys Creek, from on the ground. Using low-tech surveying equipment (GPS will mostly not work in the steep gully), the 2004 road clearing has been measured and mapped. The 50m wide exclusion buffer in compartments 146 and 147 (to the east of Toobys Creek) is marked in green. The 16 000 sq m clearing is shown as yellow. (The buffer to the west of Toobys Creek is not shown).

**Map 5** (following page) attempts to reconcile these three disparate views—from the EPA, from FNSW and from on-ground measurement—and to present the information as a single composite picture.

# Map 5

## Clearing within National Reserve System Adjoining Toobys Creek, Ourimbah



## Appendix 1

### *Threatened Species found in Ourimbah, NSW*

There is substantial overlap between the state and commonwealth lists of threatened species. Here we have combined both lists, then shown only those species with local Wildlife Atlas<sup>5</sup> records, to show that Ourimbah was once a remarkably diverse place.

#### Threatened Frogs

<i>Litoria aurea</i>	Green and Golden Bell Frog
<i>Litoria brevipalmata</i>	Green-thighed Frog
<i>Litoria littlejohni</i>	Littlejohn's Tree Frog
<i>Crinia tinnula</i>	Wallum Froglet
<i>Heleioporus australiacus</i>	Giant Burrowing Frog
<i>Mixophyes balbus</i>	Stuttering Frog
<i>Mixophyes iteratus</i>	Giant Barred Frog
<i>Pseudophryne australis</i>	Red-crowned Toadlet

#### Threatened Birds

<i>Pyrrholaemus saggitatus</i>	Speckled Warbler
<i>Lophoictinia isura</i>	Square-tailed Kite
<i>Pandion haliaetus</i>	Osprey
<i>Botaurus poiciloptilus</i>	Australasian Bittern
<i>Ixobrychus flavicollis</i>	Black Bittern
<i>Burhinus grallarius</i>	Bush Stone-curlew
<i>Callocephalon fimbriatum</i>	Gang-gang Cockatoo
<i>Calyptorhynchus lathami</i>	Glossy Black-Cockatoo
<i>Charadrius leschenaultii</i>	Greater Sand-plover
<i>Charadrius mongolus</i>	Lesser Sand-plover
<i>Ephippiorhynchus asiaticus</i>	Black-necked Stork
<i>Climacteris picumnus</i>	Brown Treecreeper
<i>Ptilinopus magnificus</i>	Wompoo Fruit-Dove
<i>Ptilinopus regina</i>	Rose-crowned Fruit-Dove
<i>Ptilinopus superbus</i>	Superb Fruit-Dove
<i>Diomedea exulans</i>	Wandering Albatross
<i>Thalassarche melanophris</i>	Black-browed Albatross
<i>Stagonopleura guttata</i>	Diamond Firetail

<sup>5</sup> From NSW NPSW – see <http://wildlifeatlas.nationalparks.nsw.gov.au/wildlifeatlas/watlas.jsp>

## More Threatened Birds

<i>Irediparra gallinacea</i>	Comb-crested Jacana
<i>Grantiella picta</i>	Painted Honeyeater
<i>Xanthomyza phrygia</i>	Regent Honeyeater
<i>Lathamus discolor</i>	Swift Parrot
<i>Calidris alba</i>	Sanderling
<i>Ninox connivens</i>	Barking Owl
<i>Ninox strenua</i>	Powerful Owl
<i>Tyto novaehollandiae</i>	Masked Owl
<i>Tyto tenebricosa</i>	Sooty Owl

## One Threatened Insect

<i>Petalura gigantea</i>	Giant Dragonfly
--------------------------	-----------------

## Lots of Threatened Mammals

<i>Cercartetus nanus</i>	Eastern Pygmy-possum
<i>Dasyurus maculatus</i>	Spotted-tailed Quol
<i>Saccolaimus flaviventris</i>	Yellow-bellied Sheath-tail-bat
<i>Macropus parma</i>	Parma Wallaby
<i>Petrogale penicillata</i>	Brush-tailed Rock-wallaby
<i>Mormopterus norfolkensis</i>	Eastern Freetail-bat
<i>Isoodon obesulus obesulus</i>	Southern Brown Bandicoot (eastern)
<i>Petaurus australis</i>	Yellow-bellied Glider
<i>Petaurus norfolcensis</i>	Squirrel Glider
<i>Phascolarctos cinereus</i>	Koala
<i>Potorous tridactylus</i>	Long-nosed Potoroo
<i>Pteropus poliocephalus</i>	Grey-headed Flying-fox
<i>Chalinolobus dwyeri</i>	Large-eared Pied Bat
<i>Falsistrellus tasmaniensis</i>	Eastern False Pipistrelle
<i>Kerivoula papuensis</i>	Golden-tipped Bat
<i>Miniopterus australis</i>	Little Bentwing-bat
<i>Miniopterus schreibersii oceanensis</i>	Eastern Bentwing-bat
<i>Myotis adversus</i>	Large-footed Myotis
<i>Scoteanax rueppellii</i>	Greater Broad-nosed Bat

## Four Threatened Reptiles

<b>Hoplocephalus bitorquatus</b>	<b>Pale-headed Snake</b>
<b>Hoplocephalus bungaroides</b>	<b>Broad-headed Snake</b>
<b>Hoplocephalus stephensii</b>	<b>Stephens' Banded Snake</b>
<b>Varanus rosenbergi</b>	<b>Rosenberg's Goanna</b>

## Lots of Threatened Plants

Asteraceae	Rutidosia heterogama	Heath Wrinklewort
Dilleniaceae	Hibbertia procumbens	Spreading Guinea Flower
Elaeocarpaceae	Tetratheca glandulosa	
	Tetratheca juncea	Black-eyed Susan
Ericaceae	Epacris purpurascens var. purpurascens	
Euphorbiaceae	Chamaesyce psammoeton	Sand Spurg
Fabaceae	Senna acclinis	Rainforest Cassia
Fabaceae	Acacia bynoeana	Bynoe's Wattle
Juncaginaceae	Maundia triglochoides	
Lamiaceae	Prostanthera askania	Tranquility Mintbush
	Prostanthera junonis	Somersby Mintbush
Myrtaceae	Angophora inopina	Charmhaven Apple
	Callistemon linearifolius	Netted Bottle Brush
	Eucalyptus camfieldii	Heart-leaved Stringybark
	Eucalyptus parramattensis subsp. Parramattensis	
	Eucalyptus parramattensis C. Hall. subsp. parramattensis in Wyong and Lake Macquarie local government areas	
	Eucalyptus pumila	Pokolbin Mallee
	Melaleuca biconvexa	Biconvex Paperbark
	Syzygium paniculatum	Magenta Lilly Pilly
Orchidaceae	Caladenia porphyria	
	Caladenia tessellata	Thick Lip Spider Orchid
	Cryptostylis hunteriana	Leafless Tongue Orchid
	Diuris bracteata	
	Diuris praecox	Rough Double Tail
Proteaceae	Grevillea parviflora subsp. parviflora	
		Small-flower Grevillea

## Appendix 1

### *Threatened Species around Ourimbah, NSW*

There is substantial overlap between the state and commonwealth lists of threatened species. Here we have combined both lists, then shown only those species with local Wildlife Atlas<sup>1</sup> records, to show that Ourimbah was once a remarkably diverse place.

#### Threatened Frogs

<i>Litoria aurea</i>	Green and Golden Bell Frog
<i>Litoria brevipalmata</i>	Green-thighed Frog
<i>Litoria littlejohni</i>	Littlejohn's Tree Frog
<i>Crinia tinnula</i>	Wallum Froglet
<i>Heleioporus australiacus</i>	Giant Burrowing Frog
<i>Mixophyes balbus</i>	Stuttering Frog
<i>Mixophyes iteratus</i>	Giant Barred Frog
<i>Pseudophryne australis</i>	Red-crowned Toadlet

#### Threatened Birds

<i>Pyrholaemus saggitatus</i>	Speckled Warbler
<i>Lophoictinia isura</i>	Square-tailed Kite
<i>Pandion haliaetus</i>	Osprey
<i>Botaurus poiciloptilus</i>	Australasian Bittern
<i>Ixobrychus flavicollis</i>	Black Bittern
<i>Burhinus grallarius</i>	Bush Stone-curlew
<i>Callocephalon fimbriatum</i>	Gang-gang Cockatoo
<i>Calyptorhynchus lathami</i>	Glossy Black-Cockatoo
<i>Charadrius leschenaultii</i>	Greater Sand-plover
<i>Charadrius mongolus</i>	Lesser Sand-plover
<i>Ephippiorhynchus asiaticus</i>	Black-necked Stork
<i>Climacteris picumnus</i>	Brown Treecreeper
<i>Ptilinopus magnificus</i>	Wompoo Fruit-Dove
<i>Ptilinopus regina</i>	Rose-crowned Fruit-Dove
<i>Ptilinopus superbus</i>	Superb Fruit-Dove
<i>Diomedea exulans</i>	Wandering Albatross
<i>Thalassarche melanophris</i>	Black-browed Albatross
<i>Stagonopleura guttata</i>	Diamond Firetail

<sup>1</sup> From NSW NPSW – see <http://wildlifeatlas.nationalparks.nsw.gov.au/wildlifeatlas/watlas.jsp>

## More Threatened Birds

<i>Irediparra gallinacea</i>	Comb-crested Jacana
<i>Grantiella picta</i>	Painted Honeyeater
<i>Xanthomyza phrygia</i>	Regent Honeyeater
<i>Lathamus discolor</i>	Swift Parrot
<i>Calidris alba</i>	Sanderling
<i>Ninox connivens</i>	Barking Owl
<i>Ninox strenua</i>	Powerful Owl
<i>Tyto novaehollandiae</i>	Masked Owl
<i>Tyto tenebricosa</i>	Sooty Owl

## One Threatened Insect

<i>Petalura gigantea</i>	Giant Dragonfly
--------------------------	-----------------

## Lots of Threatened Mammals

<i>Cercartetus nanus</i>	Eastern Pygmy-possum
<i>Dasyurus maculatus</i>	Spotted-tailed Quol
<i>Saccolaimus flaviventris</i>	Yellow-bellied Sheath-tail-bat
<i>Macropus parma</i>	Parma Wallaby
<i>Petrogale penicillata</i>	Brush-tailed Rock-wallaby
<i>Mormopterus norfolkensis</i>	Eastern Freetail-bat
<i>Isodon obesulus obesulus</i>	Southern Brown Bandicoot (eastern)
<i>Petaurus australis</i>	Yellow-bellied Glider
<i>Petaurus norfolcensis</i>	Squirrel Glider
<i>Phascolarctos cinereus</i>	Koala
<i>Potorous tridactylus</i>	Long-nosed Potoroo
<i>Pteropus poliocephalus</i>	Grey-headed Flying-fox
<i>Chalinolobus dwyeri</i>	Large-eared Pied Bat
<i>Falsistrellus tasmaniensis</i>	Eastern False Pipistrelle
<i>Kerivoula papuensis</i>	Golden-tipped Bat
<i>Miniopterus australis</i>	Little Bentwing-bat
<i>Miniopterus schreibersii oceanensis</i>	Eastern Bentwing-bat
<i>Myotis adversus</i>	Large-footed Myotis
<i>Scoteanax rueppellii</i>	Greater Broad-nosed Bat

## Four Threatened Reptiles

<b>Hoplocephalus bitorquatus</b>	<b>Pale-headed Snake</b>
<b>Hoplocephalus bungaroides</b>	<b>Broad-headed Snake</b>
<b>Hoplocephalus stephensii</b>	<b>Stephens' Banded Snake</b>
<b>Varanus rosenbergi</b>	<b>Rosenberg's Goanna</b>

## Lots of Threatened Plants

Asteraceae	Rutidosia heterogama	Heath Wrinklewort
Dilleniaceae	Hibbertia procumbens	Spreading Guinea Flower
Elaeocarpaceae	Tetratheca glandulosa	
	Tetratheca juncea	Black-eyed Susan
Ericaceae	Epacris purpurascens var. purpurascens	
Euphorbiaceae	Chamaesyce psammogeton	Sand Spurg
Fabaceae	Senna acclinis	Rainforest Cassia
Fabaceae	Acacia bynoeana	Bynoe's Wattle
Juncaginaceae	Maundia triglochinoidea	
Lamiaceae	Prostanthera askania	Tranquility Mintbush
	Prostanthera junonis	Somersby Mintbush
Myrtaceae	Angophora inopina	Charmhaven Apple
	Callistemon linearifolius	Netted Bottle Brush
	Eucalyptus camfieldii	Heart-leaved Stringybark
	Eucalyptus parramattensis subsp. Parramattensis	
	Eucalyptus parramattensis C. Hall. subsp. parramattensis in Wyong and Lake Macquarie local government areas	
	Eucalyptus pumila	Pokolbin Mallee
	Melaleuca biconvexa	Biconvex Paperbark
	Syzygium paniculatum	Magenta Lilly Pilly
Orchidaceae	Caladenia porphyria	
	Caladenia tessellata	Thick Lip Spider Orchid
	Cryptostylis hunteriana	Leafless Tongue Orchid
	Diuris bracteata	
	Diuris praecox	Rough Double Tail
Proteaceae	Grevillea parviflora subsp. parviflora	
		Small-flower Grevillea

## Appendix 1

### *Threatened Species around Ourimbah, NSW*

There is substantial overlap between the state and commonwealth lists of threatened species. Here we have combined both lists, then shown only those species with local Wildlife Atlas<sup>1</sup> records, to show that Ourimbah was once a remarkably diverse place.

#### Threatened Frogs

<i>Litoria aurea</i>	Green and Golden Bell Frog
<i>Litoria brevipalmata</i>	Green-thighed Frog
<i>Litoria littlejohni</i>	Littlejohn's Tree Frog
<i>Crinia tinnula</i>	Wallum Froglet
<i>Heleioporus australiacus</i>	Giant Burrowing Frog
<i>Mixophyes balbus</i>	Stuttering Frog
<i>Mixophyes iteratus</i>	Giant Barred Frog
<i>Pseudophryne australis</i>	Red-crowned Toadlet

#### Threatened Birds

<i>Pyrholaemus saggitatus</i>	Speckled Warbler
<i>Lophoictinia isura</i>	Square-tailed Kite
<i>Pandion haliaetus</i>	Osprey
<i>Botaurus poiciloptilus</i>	Australasian Bittern
<i>Ixobrychus flavicollis</i>	Black Bittern
<i>Burhinus grallarius</i>	Bush Stone-curlew
<i>Callocephalon fimbriatum</i>	Gang-gang Cockatoo
<i>Calyptorhynchus lathami</i>	Glossy Black-Cockatoo
<i>Charadrius leschenaultii</i>	Greater Sand-plover
<i>Charadrius mongolus</i>	Lesser Sand-plover
<i>Ephippiorhynchus asiaticus</i>	Black-necked Stork
<i>Climacteris picumnus</i>	Brown Treecreeper
<i>Ptilinopus magnificus</i>	Wompoo Fruit-Dove
<i>Ptilinopus regina</i>	Rose-crowned Fruit-Dove
<i>Ptilinopus superbus</i>	Superb Fruit-Dove
<i>Diomedea exulans</i>	Wandering Albatross
<i>Thalassarche melanophris</i>	Black-browed Albatross
<i>Stagonopleura guttata</i>	Diamond Firetail

<sup>1</sup> From NSW NPSW – see <http://wildlifeatlas.nationalparks.nsw.gov.au/wildlifeatlas/watlas.jsp>

## More Threatened Birds

<i>Irediparra gallinacea</i>	Comb-crested Jacana
<i>Grantiella picta</i>	Painted Honeyeater
<i>Xanthomyza phrygia</i>	Regent Honeyeater
<i>Lathamus discolor</i>	Swift Parrot
<i>Calidris alba</i>	Sanderling
<i>Ninox connivens</i>	Barking Owl
<i>Ninox strenua</i>	Powerful Owl
<i>Tyto novaehollandiae</i>	Masked Owl
<i>Tyto tenebricosa</i>	Sooty Owl

## One Threatened Insect

<i>Petalura gigantea</i>	Giant Dragonfly
--------------------------	-----------------

## Lots of Threatened Mammals

<i>Cercartetus nanus</i>	Eastern Pygmy-possum
<i>Dasyurus maculatus</i>	Spotted-tailed Quol
<i>Saccolaimus flaviventris</i>	Yellow-bellied Sheath-tail-bat
<i>Macropus parma</i>	Parma Wallaby
<i>Petrogale penicillata</i>	Brush-tailed Rock-wallaby
<i>Mormopterus norfolkensis</i>	Eastern Freetail-bat
<i>Isodon obesulus obesulus</i>	Southern Brown Bandicoot (eastern)
<i>Petaurus australis</i>	Yellow-bellied Glider
<i>Petaurus norfolcensis</i>	Squirrel Glider
<i>Phascolarctos cinereus</i>	Koala
<i>Potorous tridactylus</i>	Long-nosed Potoroo
<i>Pteropus poliocephalus</i>	Grey-headed Flying-fox
<i>Chalinolobus dwyeri</i>	Large-eared Pied Bat
<i>Falsistrellus tasmaniensis</i>	Eastern False Pipistrelle
<i>Kerivoula papuensis</i>	Golden-tipped Bat
<i>Miniopterus australis</i>	Little Bentwing-bat
<i>Miniopterus schreibersii oceanensis</i>	Eastern Bentwing-bat
<i>Myotis adversus</i>	Large-footed Myotis
<i>Scoteanax rueppellii</i>	Greater Broad-nosed Bat

## Four Threatened Reptiles

<b>Hoplocephalus bitorquatus</b>	<b>Pale-headed Snake</b>
<b>Hoplocephalus bungaroides</b>	<b>Broad-headed Snake</b>
<b>Hoplocephalus stephensii</b>	<b>Stephens' Banded Snake</b>
<b>Varanus rosenbergi</b>	<b>Rosenberg's Goanna</b>

## Lots of Threatened Plants

Asteraceae	Rutidosia heterogama	Heath Wrinklewort
Dilleniaceae	Hibbertia procumbens	Spreading Guinea Flower
Elaeocarpaceae	Tetratheca glandulosa	
	Tetratheca juncea	Black-eyed Susan
Ericaceae	Epacris purpurascens var. purpurascens	
Euphorbiaceae	Chamaesyce psammogeton	Sand Spurg
Fabaceae	Senna acclinis	Rainforest Cassia
Fabaceae	Acacia bynoeana	Bynoe's Wattle
Juncaginaceae	Maundia triglochinoidea	
Lamiaceae	Prostanthera askania	Tranquility Mintbush
	Prostanthera junonis	Somersby Mintbush
Myrtaceae	Angophora inopina	Charmhaven Apple
	Callistemon linearifolius	Netted Bottle Brush
	Eucalyptus camfieldii	Heart-leaved Stringybark
	Eucalyptus parramattensis subsp. Parramattensis	
	Eucalyptus parramattensis C. Hall. subsp. parramattensis in Wyong and Lake Macquarie local government areas	
	Eucalyptus pumila	Pokolbin Mallee
	Melaleuca biconvexa	Biconvex Paperbark
	Syzygium paniculatum	Magenta Lilly Pilly
Orchidaceae	Caladenia porphyria	
	Caladenia tessellata	Thick Lip Spider Orchid
	Cryptostylis hunteriana	Leafless Tongue Orchid
	Diuris bracteata	
	Diuris praecox	Rough Double Tail
Proteaceae	Grevillea parviflora subsp. parviflora	
		Small-flower Grevillea