



Protecting and restoring Cooks River Castlereagh Ironbark Forest



Department of Environment & Climate Change NSW



Contents

Introduction	1
What is Cooks River Castlereagh Ironbark Forest?	1
Why is it so important?	2
Threats to the biodiversity of Cooks River Castlereagh Ironbark Forest	3
Coxs Creek Bushland Reserve	4
Getting there	4
History of Coxs Creek Bushland Reserve	4
Threatened plants and animals	6
Bush regeneration 1996–present	7
Help preserve Cooks River Castlereagh Ironbark Forest	9
Be a Cooks River Castlereagh Ironbark Forest custodian	9
Protect Cooks River Castlereagh Ironbark Forest from weeds and other threats	10
Join a bushcare group	11
Conserve habitat for native animals	11
Build a nesting box	11
Further reading	inside back cover

Introduction

As Sydney has developed, much original native vegetation has been cleared or disturbed. As a result, many native plants and animals have become locally extinct, or there are so few of them living in isolated communities that they are threatened with extinction. These fragmented areas and threatened species need to be carefully managed to ensure their survival.

The Department of Environment and Climate Change and the Sydney Metropolitan Catchment Management Authority are working with local government and the community to protect endangered remnants of native vegetation in Sydney and the threatened species that live in them.

This brochure explains how you can help preserve the critically endangered Cooks River Castlereagh Ironbark Forest. For example you could report species locations and sightings, join a bushcare group or plant appropriate species in your own garden. This brochure can also let you know about valuable work already underway to preserve a remnant patch of Cooks River Castlereagh Ironbark Forest in the Cocks Creek Bushland Reserve in suburban Greenacre.

You can obtain other threatened species brochures at www.environment.nsw.gov.au/threatenedspecies, or contact the Environment Line on 131 555.

What is Cooks River Castlereagh Ironbark Forest?

Cooks River Castlereagh Ironbark Forest is a unique ecological community of trees, shrubs, grasses and groundcovers native to the Sydney Basin Bioregion. It was once common in Sydney's western and south western districts, in areas with clay soils derived from the nutrient-rich alluvial deposits of ancient river systems, or on



Ironbark trees at Cocks Creek Bushland Reserve
Photo: Lyndsay Holme



Powerful Owls shelter in Cooks River Castlereagh Ironbark Forest.
Photo: Narawan Williams

Wianamatta Shales soils. Where soil is shallower or more moist, other plant communities can arise in pockets or adjacent to Cooks River Castlereagh Ironbark Forest, such as shale-gravel transition forest, Castlereagh swamp woodland and Castlereagh scribbly gum woodland.

Cooks River Castlereagh Ironbark Forest ranges from open forest to low woodland, with a canopy dominated by broad-leaved ironbark (*Eucalyptus fibrosa*) and paperbark (*Melaleuca decora*). The canopy may also include other eucalypts such as woollybutt (*Eucalyptus longifolia*). The dense shrubby understorey consists of ball honeymyrtle (*Melaleuca nodosa*) and peach heath (*Lissanthe strigosa*), with a range of 'pea' flower shrubs, such as *Dillwynia tenuifolia*, hairy pea-bush (*Pultenaea villosa*) and gorse bitter-pea (*Daviesia ulicifolia*). The sparse ground layer is made up of grasses and herbs, including kangaroo grass (*Themeda australis*), weeping meadow grass (*Microlaena stipoides var stipoides*) and wiry panic (*Entolasia stricta*) (NSW Scientific Committee 2002).

Why is it so important?

Cooks River Castlereagh Ironbark Forest:

- is a unique assemblage of plants, from large trees to small ground orchids, rushes and grasses
- provides habitat and shelter for a range of native animals, including some that are listed on the NSW *Threatened Species Conservation Act 1995*
- is part of the distinctive landscape character of our region – nowhere else in Australia will you find this forest community
- provides a window to the past, showing us what the land was like for the local Aboriginal Wangal people and early European settlers;
- contains trees that form hollows to shelter smaller native animals such as the threatened powerful owl (*Ninox strenua*), parrots, possums and tiny insectivorous bats.

Less than 1% of this ecological community is protected in national parks and council reserves.

Threats to the biodiversity of Cooks River Castlereagh Ironbark Forest

Today, Cooks River Castlereagh Ironbark Forest is one of the most threatened ecological communities in Australia. With less than 7% of its pre-1788 distribution remaining, it has been listed as an endangered ecological community under the *Threatened Species Conservation Act 1995*.

The first threat to Sydney's Cooks River Castlereagh Ironbark Forest came from the European settlers of the 1800s who logged the taller straighter trees, and used the timber to build bridges, roads and fences.

Over many years, many of the remaining trees were felled to provide Sydney residents with firewood. Orchards were established on the fertile shale soils from as early as 1826. With the expansion of the railway network in the early 1900s, most of the remaining forests were felled for suburban development. The remaining remnants are located in the Castlereagh and Holsworthy areas, with small areas also found in Penrith, Blacktown, Liverpool, Auburn, Bankstown, Canterbury, Strathfield and Parramatta local government areas.

Today, residential development, clay/shale extraction, fragmentation, the invasion of weeds, nutrient-rich stormwater run-off, rubbish dumping, inappropriate fire regimes and mowing of plants are causing the forest to decline further.

As a result of this history, remnants of Cooks River Castlereagh Ironbark Forest had reduced canopy cover and were weed infested before recent community-based efforts to regenerate the bushland.



Suburban development has significantly reduced metropolitan Sydney's original bushland and isolated many of the remaining pockets.

Photo: Lyndsay Holme



Coxs Creek Bushland Reserve is bordered by industrial sites to the north and south and the houses of Sylvanus Street Greenacre to the east.

Photo: Land and Property Information NSW

Coxs Creek Bushland Reserve

Coxs Creek Bushland Reserve is a 1.65 hectare remnant of Cooks River Castlereagh Ironbark Forest located in the suburb of Greenacre approximately 14 kilometres south-west of Sydney CBD. The reserve is situated in a mixed residential/industrial area in the south of the Strathfield Municipality.

Getting there

Coxs Creek Bushland Reserve is currently only accessible to Council staff and bush regenerators. Because of rubbish dumping and other issues, public access to the reserve is limited to a number of council-organised open days each year. Entry is via the laneway at the western end of Drone Street, Greenacre. There is no direct public transport to the site.

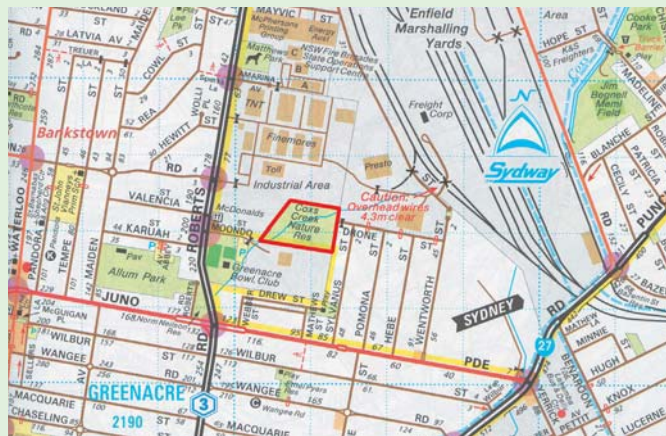


Photo: Map courtesy of Sydways.

History of Coxs Creek Bushland Reserve

Aboriginal history

There is evidence that Aboriginal people were living in the Sydney basin for at least 6000 years prior to European

settlement. The local Wangal clan of the Dharug people lived in the area they called Wanne which extended from Balmain in the east and to Auburn and Greenacre in the west (Strathfield Council 2008). Campsites were located along the rivers and tributary creeks, taking advantage of the wide variety and abundance of plants and animals found across the region. Sometimes fire was used to trap small mammals for food and to promote growth and flowering of tuberous plants such as orchids and lilies. (Benson and Howell 1995).

The Dharug Aboriginal social structure and culture disintegrated dramatically within a few years of European settlement. One result of this cultural disruption was a dramatic change in the scale and use of fire with subsequent impacts on biodiversity in the region.

There are no known Aboriginal relics in the Coxs Creek Bushland Reserve, but artefacts and sites have been located in other parts of the Cooks River Castlereagh Ironbark Forest remnants across Sydney.

Non-Aboriginal history

European settlement in the area dates from the early 1790s when farmers were granted land with the intention that they would supply Sydney with food (Strathfield Council 2008). However many of these early farms failed and were abandoned due to poor soils that could not support crops. Other large land grants were made in the early 1800s and housing estates were gradually established radiating from Strathfield to the Cooks River. The subdivision of land for housing accelerated with the construction of the railway network that enabled people to commute to the city each day for work.

Greenacre was once a centre for market gardens and orchards but these disappeared in favour of housing through the 1940s and post-war period. Urban consolidation has continued up to the present day.



Greenacre in 1943 (top) and 2007 (below). In 64 years, the already greatly reduced native forest of the area had almost completely disappeared.

Photo: Land and Property Information NSW

Recent history

Coxs Creek Bushland Reserve was formerly managed by the Australian Telecommunications Commission (Telecom, now Telstra). In the early 1990s, the Telecom site retained a considerable area of remnant bushland. Part of this land was dedicated to Strathfield Municipal Council by Telecom in the early 1990s, to be managed as a bushland reserve. Also adjacent to the Reserve is a transport company which operates on part of the former Telecom land parcel, the former Bankstown Sewage depot site, which is now managed by a smallgoods manufacturer and the Roberts Road Reserve which lies within the borders of Bankstown Council and also contains some remnant bushland. Private residences border the eastern and southern boundary of the reserves. Prior to bush regeneration efforts, the reserve was subjected to rubbish dumping, clearing, damage from vehicles and impacts from stormwater surges.



Downy Wattle

Photo: M.Fagg, Australian National Botanic Garden

Threatened plants and animals found at Coxs Creek Bushland Reserve

As well as hosting an endangered ecological community the reserve provides an important habitat for the endangered animals and plants.

Downy wattle (*Acacia pubescens*)

Downy wattle is a bushy spreading shrub with brilliant yellow flowers. It has fernlike foliage and grows to 1–4 m high (Robinson 1994). This species is listed as vulnerable on the *Threatened Species Conservation Act 1995*.



Tadgell's Bluebell

Photo: Sandy Sheltema, Australian Ecosystems

Tadgell's bluebell (*Wahlenbergia multicaulis*)

Tadgell's bluebell is a small herb with beautiful blue flowers. The population in the local government areas of Auburn, Bankstown, Baulkham Hills, Canterbury, Hornsby, Parramatta and Strathfield is listed as threatened with only an estimated 40 to 50 plants remaining (NSW Scientific Committee 2003). Although it is a delicate plant which

cannot withstand repeated disturbances, Tadgell's bluebell seeds may be stimulated to germinate by disturbance of the soil and high exposure to sunlight.

Green and golden bell frog (*Litoria aurea*)

The green and golden bell frog was once among the most common species of frog throughout the most populated areas of Sydney. Today, it is one of the most threatened. These frogs have been seen in Coxs Creek Bushland Reserve in recent years, but only in small numbers. In some years, they cannot be found at all. Such fluctuations would have been a natural occurrence before the human settlement of the region, when frogs would have occasionally become extinct in some ponds while recolonising others. A plan of management is in place to try to ensure that the green and golden bell frog persists in the vicinity of the Coxs Creek Bushland Reserve (DECC 2007).



Green and golden bell frog
Photo: Narawan Williams

Bush regeneration at Coxs Creek Bushland Reserve (1996–present)

Bush regeneration in Coxs Creek Bushland Reserve began in 1996. Activities carried out since then have included weed removal, planting of locally collected native seed, reintroduction of appropriate fire regimes, recreation of habitats for animals and removal of threats such as dumped rubbish and garden waste.

Before 1996, weeds made up more than a third of all plant species in the Reserve. Many of these weeds were typical of urban bushland where the natural fire regime has been suppressed for many years. Bush regeneration focuses on manually removing weeds from relatively weed-free areas and working slowly towards areas with many weeds.

Introduced plants included woody weeds such as green cestrum (*Cestrum parqui*) and Mickey Mouse bush (*Ochna serrulata*) which previously dominated the mid-storey. Ground covers such as ground asparagus (*Protasparagus*



Frogs inhabit ponds along the intermittent stream of Coxs Creek. Bush regenerators ensure that these ponds are kept in a natural state.

Photo: Strathfield Council

Coxs Creek Bushland Reserve



Bush regenerators at work at Coxs Creek Bushland Reserve
Photo: B Walters

aethiopicus), and grasses such as kikuyu (*Pennisetum clandestinum*), common couch (*Cynodon dactyl*) and panic grass (*Ehrharta erecta*) were also abundant. Blackberry (*Rubus fruticosus*) is still present on the creek banks and in the drainage swales, while introduced vines such as moth vine (*Araujia sericifera*) and bridal creeper (*Myrsiphyllum asparagoides*) are widespread in the core bushland. Regular bush regeneration activities have been undertaken by Council staff, contractors and volunteers since 1996 to manage these weeds.

Strathfield Council continues to support the maintenance of the Reserve with contract bush regenerators using best practice management strategies and techniques. These include:

- weed management
- small scale prescription burns
- frog pond construction and water quality management for the endangered green and golden bell frog
- rubbish removal
- seed collection
- planting of endemic tubestock.



This bridge across Coxs Creek is designed to blend into the natural landscape.
Photo: Strathfield Council



Cook River Castlereagh Ironbark Forest shrub species grow along the banks of Coxs Creek just a few metres away from industry.
Photo: Lyndsay Holme

Help preserve Cooks River Castlereagh Ironbark Forest

Be a Cooks River Castlereagh Ironbark Forest custodian

- Was your backyard once Cooks River Castlereagh Ironbark Forest?
- Are there any local native trees or plants left that you can nurture and protect?
- Can you replant some Cooks River Castlereagh Ironbark Forest plant species in your garden? By doing so, you may attract local native birds, mammals and butterflies to your garden.

Of course you cannot fit the entire forest ecosystem into your backyard, but there might be room for a selection of grasses, shrubs or trees. A group of backyards can form a forest. Many councils have introduced programs such as the Backyard Bushcare Program. This program focuses on regenerating native vegetation on private land to help create bushland corridors.

Contact your local council for information on Cooks River Castlereagh Ironbark Forest species and for the contact details of a nursery that can supply native plants from your local area.

Council Bushcare officers can visit interested residents and offer:

- free expert advice
- practical training
- realistic action plans
- help with regeneration work
- ongoing support.



Suburban back gardens meet bushland. Here, neighbours must take care to keep the bush protected from weeds.

Photo: Lyndsay Holme

Protect Cooks River Castlereagh Ironbark Forest from weeds and other threats

Cooks River Castlereagh Ironbark Forests are threatened by weeds, increased stormwater runoff, fertilisers, rubbish dumping and clearing. These are worst at the edges of the forest where the bush meets roads, industry or backyards. Helpful neighbours can protect Cooks River Castlereagh Ironbark Forest from threats by:

- **Being careful when mowing lawns** – mowing underneath Cooks River Castlereagh Ironbark Forest species in residential gardens prevents their seedlings from establishing. By not mowing these areas and by hand weeding rather than poisoning weeds, you will promote the growth of Cooks River Castlereagh Ironbark Forest vegetation that may still be in the soil seed bank.
- **Weeding the garden** – removing weeds from local gardens will prevent them spreading into Cooks River Castlereagh Ironbark Forest. Birds can transport weed seeds large distances, so it is important to keep a weed-free garden even if you live a long way from a Cooks River Castlereagh Ironbark Forest.
- **Keeping stormwater out of the bush** – install a rainwater tank to minimise the impacts of stormwater, and if reusing grey water for watering gardens, use low phosphorus detergents.
- **Not dumping rubbish** – never dump garden refuse into bushland, as this helps weeds to spread into the bush.

Join a bushcare group

Bushcare volunteers can provide great assistance to council staff and professional bush regenerators by volunteering a few hours a month. Anyone is welcome to join a group and lend a hand. For details of restoration work carried out in Coxs Creek Bushland Reserve see 'Bush regeneration 1996–present' on page 7. For more information on walks and talks and potential volunteer bushcare days, visit:

- www.environment.nsw.gov.au/youcanhelp/
- www.step.org.au
- www.strathfield.nsw.gov.au.
- www.bankstown.nsw.gov.au.

Conserve habitat for native animals

- Foxes are an introduced pest that prey on native animals. Report any sightings of foxes to the Department of Environment and Climate Change or your local council. The regional fox baiting program is run by local councils.
- Be a responsible pet owner. Keep pet cats and dogs under control, never let them wander into the bush, and keep them indoors at night. Train your dog not to chase or harass native wildlife.
- Leave some scrubby tangles and dense, shrubby areas of vegetation on your land for common ringtail possums (*Pseudocheirus peregrinus*) and native birds.
- Leave fallen timber, leaf litter and dead trees with hollows on your land for lizards and small birds.



Common ringtail possum

Photo: Cheyne Ramsay



A nesting box in Roberts Road Reserve.
Photo: Lyndsay Holme

Build a nesting box

Many of Australia's bird and mammal species require tree hollows for nesting. Unfortunately, the natural tree hollow forming process is very slow. On average it takes over 60 years for a tree to begin forming hollows.

Installing artificial nest boxes in your own backyard can provide a safe place for native animals to shelter and to raise a family. If you install a nest box you can potentially attract sugar gliders, parrots, kingfishers, small insect-eating bats and possums to your garden.

Always ensure cats and dogs cannot gain access to the nest box, and place it in a tree at least three metres above the ground. If introduced birds such as Indian mynas colonise the nest box, remove their eggs. Several websites contain information on building and placing nest boxes, and some organisations sell them.

Help injured wildlife

Native wildlife can suffer injuries through encounters with domestic animals, motor vehicles or misadventure. If you come across injured wildlife, immediately contact Sydney Metropolitan Wildlife Service on (02) 9413 4300 or WIRES on (02) 8977 3333.

Further reading

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Information on the Green and Golden Bell Frog can be found at:
http://www.faunanet.gov.au/wos/factfile.cfm?Fact_ID=272

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Coxs Creek paperbark trees (Lyndsay Holme)

Flowers of the Nodding geebung (*Persoonia nutans*) (DECC)

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