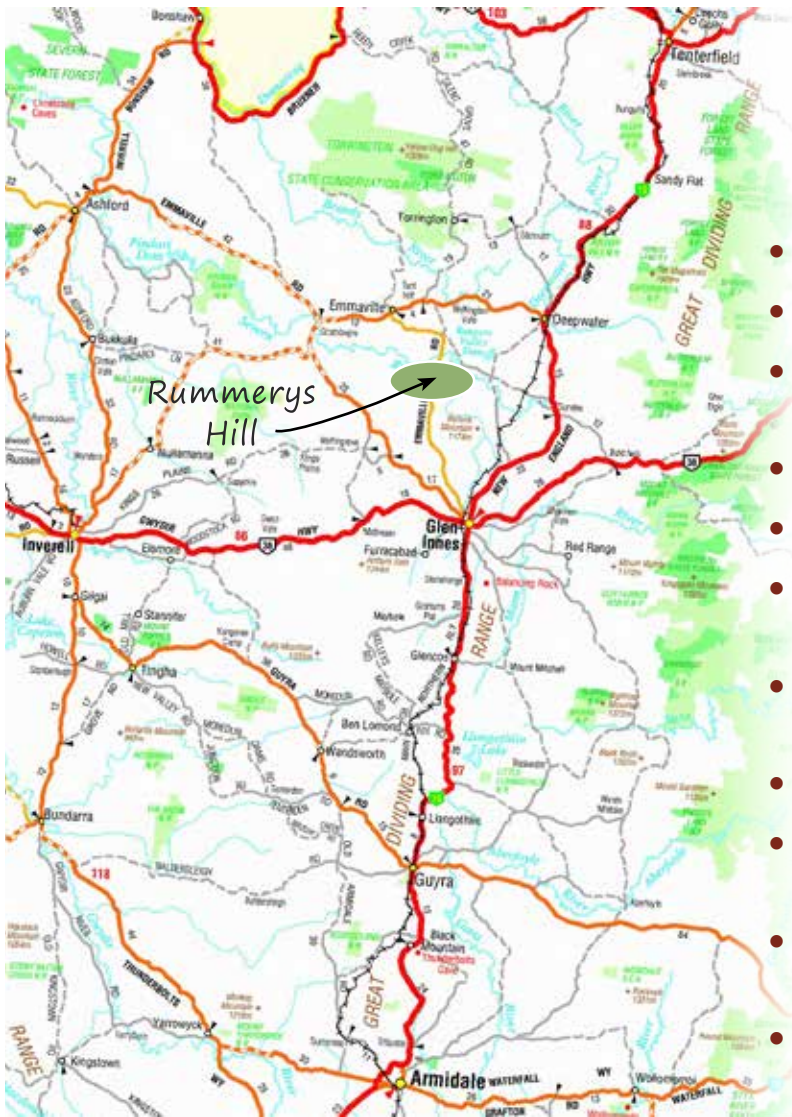




Rummerys Hill Wildlife & Landcare



Articles written for the Rummerys Hill Landcare Group
Peter King, June 2013.



- The hidden value of Rummers Hill
- Common trees of Rummers Hill
- Key to identifying trees on Rummers Hill
- Common shrubs of Rummers Hill
- Wildlife on Rummers Hill (list)
- Wildlife-friendly yards and gardens on Rummers Hill
- Wildlife-friendly dams on Rummers Hill
- Koalas on Rummers Hill
- Managing your property for wildlife. Part 1: Why bother?
- Managing your property for wildlife. Part 2: Principles
- Managing your property for wildlife. Part 3: A checklist
- Weed control on Rummers Hill
- Pest animal control on Rummers Hill
- Fire management on Rummers Hill. Part 1: Protecting you and your property
- Fire management on Rummers Hill. Part 2: Caring for the Hill and its wildlife



Peter King is a naturalist and grazier who has lived on the Hill since 2000. In 2009 he formed the Rummers Hill Landcare Group and is still its Coordinator. The Group runs field days, demonstrations and excursions to learn more about managing the Rummers Hill environment, its plants and animals.

*Graphic Design by
Tina Woolfe
6732 3168*



This project is supported by the Glenrac landcare network through funding from the Australian Government's Caring for our Country.



**CARING
FOR
OUR
COUNTRY**



Rummers Hill
Landcare

The hidden value of Rummers Hill

Written by Peter King for the Rummers Hill Landcare Group, June 2013

If you drive 20 kilometres north from Glen Innes on the Emmaville Road you'll reach Rummers Hill, named after a family that owned land there in the 1800s. At 1096 metres elevation, it's a bit of a landmark – a sudden 100 metre climb-and-descent that no doubt stuck in the minds of travellers in those days of horse and cart. Today we use the name Rummers Hill to refer to the whole of the east-west ridge cut by the Emmaville Road. Heading north, that road leaves cleared farm land on reasonably fertile basalt soils and rises onto this ridge of low-nutrient soils covered by native woodland. The road dips and weaves over the Hill for six kilometres, then descends to more cleared farmland - granite-based this time - beside the Severn River.



This road cutting shows the Hill's shallow soil, above rocks of rhyolite that still supports a thriving woodland of native plants.

The first road cutting on Rummers Hill shows it has a shallow soil, covering a fractured bed rock of rhyolite (a volcanic rock similar to granite but smoother, with a much finer grain). Like most Australian soils, this soil is very old, so major plant nutrients like phosphorus and potassium were washed out of it long ago. This is fine by the Hill's native trees, shrubs and grasses. They thrive here. They don't need more nutrients. Eucalyptus trees will even suffer die-back if given too much phosphorus in the form of superphosphate fertiliser. But without fertiliser, the Hill's soils are not good for introduced pasture plants like clover and cocksfoot, so authorities call them infertile soils.

These days, agricultural development of Rummers Hill by clearing and pasture improvement will cost more than it returns and is not recommended by soil conservation or agriculture authorities. Because the flatter lands either side of Rummers Hill have deeper soils, they were cleared years ago to be fertilised, farmed and grazed. On rocky Rummers Hill, clearing trees is mostly confined to fence lines, tracks or around buildings for fire protection. So the Hill remains mostly-uncleared woodland, surrounded by cleared farm land.

As you drive over Rummers Hill you probably won't see that eastern parts of it were mined for tin and sapphires or that most of it has been affected by timber-cutting, grazing and wildfires. Still, these past uses and occasional fires have not reduced the outstanding hidden value of this area today – for regional wildlife conservation.

Today the area along Rummers Hill is divided into many small landholdings. The owners of these hobby farms and 'lifestyle blocks' enjoy the scenery but often don't realise how important their patch is to the wildlife of a much bigger region of northern New South Wales.



The fact that Rummerys Hill was never really worth clearing makes it of great value to wildlife today. This satellite image shows the wildlife-friendly corridor of less-cleared country that passes through Rummerys Hill, linking Shannon Vale and Ashford.

On a satellite image, Rummerys Hill really stands out as part of a long belt of mostly-uncleared land that runs north-west to south-east through mostly-cleared farming land. State environment authorities have identified this belt of woodland as a key habitat for wildlife conservation in New South Wales. This woodland belt averages about four kilometres wide and is 100 kilometres long, forming a wildlife corridor that has two important values for wildlife.

Firstly, it is used for safe travel by birds and other wildlife moving - short or long distances - between the north-west plains and the coastal ranges. Every autumn, thousands of birds - including honeyeaters, robins, silvereyes, parrots, cuckoos and currawongs - will leave the cooling tablelands and slopes. They head north, east or west to over-winter in warmer areas, before returning in spring to breed. Each year some of these birds will travel a thousand kilometres in daily stages, relying on woodland corridors as safe refuges from birds of prey, for feeding stops and for overnight roosts.

Secondly this wildlife corridor is an important refuge - in the middle of cleared farming land - for the stay-at-home wildlife, such as echidnas, possums and koalas. The corridor's four-kilometre width of woodland means koalas can easily move the short distances between food trees and still find enough food to survive life-threatening events like drought and wildfire.

So, as you drive over rugged Rummerys Hill, spare a thought for the many wild creatures that depend on it as a home and vital resting place in their migrations across the Northern Tablelands. If you own land on the Hill, consider joining the Rummerys Hill Landcare Group where you can learn more about the area's plants, animals and how to manage for production, drought and fire.

***Note.** All opinions, suggestions and errors are those of the author. They don't necessarily reflect the advice of the Australian Government, GLENRAC or the Rummerys Hill Landcare Group. Comments on this article are welcome at pt.king@bigpond.com*

Satellite mapping courtesy of NSW Department of Environment, Climate Change and Water.



This project is supported by the Glenrac landcare network through funding from the Australian Government's Caring for our Country.



CARING
FOR
OUR
COUNTRY

Common trees of Rummers Hill

Written by Peter King for the Rummers Hill Landcare Group, June 2013

Rummers Hill is covered by a woodland of native trees (whose canopies mostly aren't touching, so it's not officially a forest). This woodland has a rich variety of trees and the following notes should help you identify the most common species and their values.

We'll say a tree is single-stemmed and grows to over five metres, unlike a shrub. Each tree's common name is followed by its scientific name in brackets, and I explain why later.

The Hill's common native trees can be grouped:

1. Black Oak tree – with needle-shaped leaves.
2. Black Cypress Pine tree – a pine-shaped tree, whose wood holds pleasant-smelling resins.
3. Rough-barked Apple tree – looks like (but isn't) a eucalyptus tree. Crush a leaf and it won't smell of eucalyptus. You can also crush its seed capsule, something you can't do to a Eucalyptus capsule.
4. Eucalyptus trees – the most common trees, all with leaves containing eucalyptus oil.

Some photos are provided here but it's best to do a web search on the tree's scientific name, as this provides many more photos, illustrations and extra information. The local library also holds useful tree reference books.

Eucalyptus tree identification can be a bit tricky, until you gather all the clues. With the clues, it is fairly easy. The Eucalyptus clues you often need are the bark (whether smooth or rough), features of the leaves (colour front and back, size, shape), flower buds (their colour, shape, size and number) and fruit (shape, construction and size). Where the trees grow can also help. A step-by-step identification 'key' is provided separately, so that you can use the clues to confirm the identity of a eucalyptus-looking tree if you want.

So let's start by describing the three easily identified trees!

1. Black Oak (*Allocasuarina littoralis*)

This tree - also called Black Sheoak - is easy to identify, because its leaves form finger-length needles. Each needle is ringed with tiny 4mm long leaves that look like they are stuck on. The tree grows to about ten metres and there are separate male and female trees. In autumn you'll see the male trees turn red-brown as they produce masses of pollen. This powdery pollen drifts on the wind, fertilising the small dark red flowers on the female trees, which then produce cones full of seed. Each seed has a fine papery wing, so when it falls, it flutters away from Mum.

Groves of Black Oaks drop old needles onto the ground. These leaves build up and compress into a layer like felt. This layer won't burn strongly - it mostly smoulders during a bush fire. So a grove of Black Oaks can be handy as it forms a partial firebreak that slows the movement of a ground fire.



Black Oak trees – female ones – have tiny red flowers that become seed cones, the preferred food of Glossy Black-cockatoos. This cockatoo is endangered, so the many oaks on Rummers Hill are important to its survival.



The green seed cones of native oaks are the only food of an endangered bird, the Glossy Black-cockatoo (the local ones with red tail feathers). So the more Black Oaks you have, the better for this bird's survival. The more common Yellow-tailed Black-Cockatoo also needs this tree, but not so much for its cone. It lands in the tree, listens carefully, then chews into the tree stem, to eat the wood grub it has heard there. Very clever and you'll see where they've been, by the wood chips, branches and even whole trees that they have dropped. On ground disturbed by clearing or fire, oak seeds sprout thickly and look like they are about to 'take over' the area. Don't panic. They are just nature's bandaids, quickly restoring the soil cover and will naturally 'thin out' as they compete with each other for water and nutrients.

The Black Oak's timber is a rich red with darker brown flecks and can be used indoors for building or furniture. As firewood, it burns very hot, and fast, leaving almost no ash. The similar River Oak (*Casuarina cunninghamiana*) – also a black-cockatoo favourite – is a much bigger tree that grows below the Hill, along the Beardy Waters and Severn River.

2. Black Cypress Pine (*Callitris endlicheri*)

These tough, drought-resistant trees occur in patches on the Hill. They are Australian natives that grow to 10 metres, with cones and a pointed shape like those of overseas pines. The hard bark is dark (not really black), deeply grooved and sometimes oozes a sticky gum. Each branch curves upward, carrying many branchlets.

A single tree will produce two types of cone, the pea-size male cone and the much larger 20mm diameter female cone. Pollen released from the male cone fertilises the female cone, which then develops seeds. The tree may carry sealed seed-bearing cones for years. The winged seeds are eventually released – often after fire – and flutter away from the parent tree to sprout.

The timber contains a number of smelly resins. One of these makes the wood termite-resistant but the wood will rot quickly if exposed to the weather. The closely-related White Cypress Pine is harvested for timber around Inverell. As firewood, Black Cypress Pine burns readily but the resins spit, explode and smell. The tree burns and dies during bushfires and relies on the seeds held safely in tough woody cones that open after the fire to produce the next generation. One of the tree's resins was used commercially in a horse-wormer. Horses (and other stock) will occasionally graze this tree - worming themselves? - so cypress pines in stock paddocks could be beneficial.

3. Rough-barked Apple (*Angophora floribunda*)

This 25 metre tree is really noticeable when it flowers (December to February). The abundance of fluffy, cream flowers attracts insects and noisy hordes of parrots, lorikeets and honeyeaters during the day and Grey-headed Flying Foxes at night.

It looks a bit like a Eucalyptus with its rough, furrowed grey bark. However its leaves are different: they grow exactly opposite each other in pairs, with different colours top and bottom and they feel more leathery. A crushed leaf has a slight smell but not of Eucalyptus oil. Also its barrel-shaped fruit are softer, easily crushed and have pointed ribs along the sides. Its outermost branches become more twisted and crooked than those of Eucalyptus trees.



Black Cypress Pine trees grow a tightly closed cone that may not open for years, until the enclosed seeds are needed, such as after a bushfire or drought.



Rough-barked Apple has very crooked outer branches, unlike most Eucalyptus trees.



Locally this tree seems to grow best near watercourses. It doesn't appear to be useful as a timber but its great value is for wildlife. The reliable summer pollen and nectar it produces feeds the year's youngsters and may even help parent birds rear a second brood.

4. Eucalyptus trees

There are several local Eucalyptus trees, so it's easiest to first group them by their four bark types:

Ironbarks – bark is deeply grooved, hard and rough to touch

Gum-barked – bark is smooth, usually cool when touched

Stringybarks – grooved bark, soft and fibrous to touch and long 'strings' will form if torn

Box-barked – bark is flaky, small bark pieces come away easily and may powder when rubbed

Descriptions of the 10 most common Eucalyptus trees on Rummers Hill follow. Use the separate step-by-step 'Key to identifying trees on Rummers Hill' to confirm your identification.

Ironbarks

Narrow-leaved Ironbark (*Eucalyptus crebra*). This is a tall tree growing to 30 metres. Identify this tree by its bark and leaves that aren't wider than 18mm. Its wood is very hard and durable in the outdoors (Class 1 – details below) and it also resists termites. It has been in high demand for fence strainers and outdoor structures, so most of the accessible large trees have been taken from the Hill. Planks of Narrow-leaved Ironbark were used in building Elizabeth Farm at Parramatta and are still there, in Australia's oldest surviving European dwelling.

Gum-barked Eucalyptus trees – in size order, shortest to tallest

Orange Gum (*Eucalyptus prava*). This tree grows to around 15 metres. It usually grows on rocky ridges and tends to have a crooked trunk and branches. When it sheds its old bark in spring, the new bark shows in bright orange patches. Large white flowers occur later in spring or summer.

Blakelys Red Gum (*Eucalyptus blakelyii*). Locally this tree grows to around 20 metres, and can be identified by the long pointy caps that cover its developing flowers. It is a great tree for erosion control as it grows in soaks or swampy areas – areas where drainage can be poor – and even higher on soggy slopes. Its timber is an attractive deep red and in areas where the tree grows big enough, it can be milled. It has been used for joinery, wood turning, furniture making and even fence posts. It is named in honour of a Tenterfield man who became an expert on NSW eucalypts.



The caps on flowers of Orange Gum and Blakelys Red Gum form distinctive shapes: a rounded cigar for Orange Gum (above) and a pointy 'dunce's cap' for Blakelys.



Mountain Gum (*Eucalyptus dalrympleana*). This huge 30 metre high tree is easily recognised by the long, loose 'ribbons' of bark that hang from its upper branches. It grows in wetter gullies and along watercourses (e.g. beside Emmaville Road) sometimes with the similar Ribbon Gum (*Eucalyptus viminalis*). Tell them apart by the Mountain Gum having clusters of up to seven seed capsules (not three) and juvenile leaves that are oval (not narrow). Mountain Gum is important to the wildlife of these wetter gullies, offering food, hollow nesting sites and shelter to many possums, birds, lizards and insects. Its timber is only moderately durable in outdoor use (Class 3).

Stringybarks – with seed capsules about 10mm across, the largest capsules of any eucalypts on the Hill

Youman's Stringybark (*Eucalyptus youmanii*). This stringybark differs from the Silvertop in having its stringy type of bark continue to the tips of its small branches (two fingers thick). As well, its juvenile leaves are blue-grey. Timber from this tree probably has a low durability (Class 3) so fence posts may only last 5-15 years. It is named after a local Guyra landholder with a passion for trees.

Silvertop Stringybark (*Eucalyptus laevopinea*). This stringybark changes its bark on the medium sized branches (wrist thick) into a smooth gum-type bark all the way to the branch tips. Its juvenile leaves (that sprout from trunks after fire and are on young saplings) are green not blue-grey. Its timber is easily worked for furniture but it is not durable outdoors (Class 3).



Youmanns Stringybark (above) often shows yellow splits, unlike the Silvertop Stringybark (below).



Box-barked Eucalyptus trees – the ones you'll need all clues to identify!

Yellow Box (*Eucalyptus melliodora*). The box-type bark of this tree only continues about half-way up the tree, with a smooth gum bark at the top. At the point of change, there are often ribbons of bark hanging off loosely.

This is a high-value tree, not only for its hard, durable timber (Class 1) but for its honey and wildlife support.

It flowers with cream, highly-perfumed blossoms, usually every second year from November to February, depending upon the season. Then millions of honey bees and native insects rush to harvest the big nectar flow, as do many honeyeater birds, parrots and possums. This tree also forms hollows that birds and possums use and its leaves are eaten by possums and koalas.

Yellow Box timber is termite resistant. Rimmed with a yellow sapwood, the timber is not easily split, so tends to be used whole as strainer posts, or sawn for railway sleepers and furniture. The heartwood has finely-textured, interlocked grain and can have a beautiful fiddleback pattern. As firewood, it is difficult to split and ignite but does give plenty of heat. In other places, it is used to produce charcoal. It is often thought to be an indicator of good deep soils and is more common on the lower undulating country. Locally this is still an uncommon tree, probably best left to grow, for its many benefits to wildlife.



Western New England Blackbutt (*Eucalyptus andrewsii*).

The bark of this tree is finer than that of other local box-barked trees and almost powders when rubbed off. The bark changes to a gum bark at the smaller branches around wrist thickness. It has large, lopsided, grey-green leaves that hang almost vertically. Five to fifteen flower buds form seed capsules that hang in *loose clusters*. The tips of juvenile leaves are *tinged yellow*. The timber of this Blackbutt has medium in-ground durability (Class 2-3: around 15 years) and is termite-resistant. So it makes a reasonable fence post. It is also used for general construction and joinery but it has chemicals in the timber which can cause problems with gluing and painting.

Apple Box (*Eucalyptus bridgesiana*). This has rough fibrous bark on its trunk and main branches which gives way to smooth cream bark on smaller branches and twigs. It is more common on deeper soils and can grow to a large 20m tree.

It was originally called Woollybutt and looks very similar to the Tenterfield Woollybutt, except in the flower buds and fruit. Apple Box has up to seven flower buds and seed capsules, that *spread like your fingers* (Tenterfield Woollybutt also has up to seven flower buds and fruit but they form a tight 'fist'). Its juvenile leaves are *pink and apple-shaped* (it may help to remember them looking like a Pink Lady Apple!)

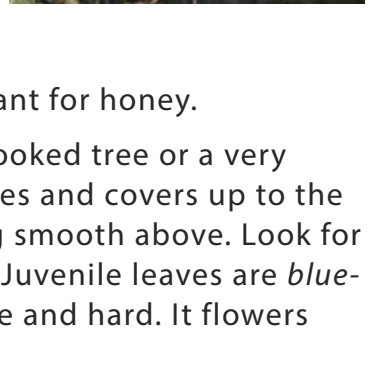
The timber of the Apple Box is regarded by industry as not commercially interesting for building work, being classified as soft and brittle. It is also slow-growing, with a wavy timber grain. It makes poor firewood. However, woodworkers like the timber for its beautiful fine grain with wonderful figuring and an unusual yellowish orange colour.

They say it is a pleasure to plane by hand. The tree is also important for honey.

Tenterfield Woollybutt (*Eucalyptus banksii*). It can either be a crooked tree or a very upright tree to 30m high. Its bark is flaky grey with whitish patches and covers up to the major branches, where it sheds in short ribbons before becoming smooth above. Look for clustered '*fists*' of fruit on the tree to separate it from Apple Box. Juvenile leaves are *blue-green*, round and in pairs opposite one another. The timber is pale and hard. It flowers heavily between January and April.



The Western New England Blackbutt has fine easily powdered bark and its young leaves are yellowish. The Apple Box has coarse bark and young leaves that are pink and rounded.



Mistletoes – the high-living plants that aren't trees

While looking at trees you'll probably notice a metre-wide different-looking clump of leaves on some trees. This is a separate plant that's a 'half-parasite' of that tree. The mistletoe makes its own food like any plant but draws its water and minerals out of the sap stream of its larger 'host' tree. This usually causes no harm to the tree, unless there are many mistletoes on that tree and it is short of water, as in a drought. So don't go up your favourite tree with a chainsaw just because it has a mistletoe on it.

There are several local mistletoe species adapted to grow on eucalypts, wattles and other trees, with Box Mistletoe (*Amyema miquelii*) and Drooping Mistletoe (*Amyema pendula*) the most common.

Mistletoe berries are the only food of the Mistletoebird which spreads the seed. It does this in its droppings, when the bird wipes them onto a tree branch (the name mistletoe comes from Anglo-Saxon words meaning 'dung on a twig').

Mistletoes are also an important food source for other wildlife - with nectar-rich red or green flowers and leaves that are highly nutritious – so insects, birds and possums are regular visitors. Even the fallen leaves of mistletoe are so high in nutrients that they greatly improve the soil where they fall! So enjoy the helpful mistletoes that you see on the Hill.



Mistletoebirds (like this male) help mistletoe plants move through the woodland by dropping or wiping seeds onto branches of new host trees.

How long will my fence posts last?

The Australian Standard AS 5604 gives natural durability ratings for the timber of a large number of tree species, in several categories including borer susceptibility, termite resistance, in ground-contact durability and outside above ground durability. Class 1 rated species are the most durable and Class 4 rated species are the least durable. Ironbark and Yellow Box are the most durable in ground (Class 1: over 25 years), with most of our other trees lumped as 'Northern NSW open forest hardwoods' (Class 3: from 5-15 years).

Note. All opinions, suggestions and errors are those of the author. They don't necessarily reflect the advice of the Australian Government, GLENRAC or the Rummers Hill Landcare Group. Please consult others, consider your particular circumstances and use your judgement before following any suggestions. Comments on this article are welcome at pt.king@bigpond.com

Acknowledgements. *I am most grateful for the help of botanists Dr Peter Croft, Dr Stephanie Horton and John Hunter who identified trees and help draft the text. I also drew information from the excellent 'Eucalypts of the Northern Tablelands' by Dr John T. Hunter. This is a key that was published with support of the Northern Rivers Catchment Authority.*

For further information try these websites:

Native plants of the New England – <http://anps-armidale.org.au> – some plant descriptions

Native plants of NSW – <http://plantnet.rbgsyd.nsw.gov.au> – comprehensive but uses technical terms



Identifying trees on Rummers Hill

Written by Peter King for the Rummers Hill Landcare Group, June 2013

Here's a key to help you identify the local trees that look like Eucalypts. If you answer questions 1 to 3 in order - looking at leaves, then bark types - you should be able to identify 11 of the local trees.

1 *Leaves opposite each other (on stem), or*

There is only one tree that looks like a Eucalyptus and has adult leaves that are opposite on Rummers Hill; it isn't a Eucalyptus, something you can confirm by crushing a leaf (there's no Eucalyptus smell) or crushing a fruit capsule (you can't crush a fruit capsule from any local Eucalyptus) =

Rough-barked Apple (scientific name: *Angophora floribunda*)

2 *Leaves in alternate positions (on stem).*

Go to questions under 3.

3 *Bark types*

3.1 *Ironbark (hard, deeply furrowed), or*

There is only one type of ironbark growing on Rummers Hill =

Narrow-leaved Ironbark (scientific name: *Eucalyptus crebra*)

3.2 *Gum bark (smooth), or*

3.2a Grows on rocky outcrops; small tree with twisted trunk (or trunks); often with orange patches on the bark, especially when the old, outer bark falls off in spring; caps on buds long and rounded =

Orange Gum (scientific name: *Eucalyptus prava*)

3.2b Grows on slopes and damp flats; leaves on young plants not growing directly opposite each other (growing alternately up the stem); leaves big, broad, with roundish leaf base and pointed tip; caps on buds long and pointy =

Blakelys Red Gum (scientific name: *Eucalyptus blakelyi*)

3.2c Grows on river or creek banks (e.g. beside Emmaville Road); long ribbons of bark hanging from upper limbs; leaves on young plants are rounded, bluish, directly opposite each other and without stalks; twigs reddish =

Mountain Gum (scientific name: *Eucalyptus dalrympleana*)

3.3 Stringybark (long fibres), or

- 3.3a Bark rough *all* the way to little branches; juvenile leaves grey; flower buds and fruit big, angular without stalks =

Youman's Stringybark (scientific name: *Eucalyptus youmanii*)

- 3.3b Bark *smooth on little branches*; juvenile leaves green; buds and fruit with stalks and no ridges =

Silvertop Stringybark (scientific name: *Eucalyptus laevopinea*)

3.4 Box bark (short fibres).

- 3.4a Box bark about *half-way* up main tree trunk, often speckled white patches and wiggly pattern; short ribbons of loose bark hanging down; oval leaves, dull grey-green, with obvious vein just inside the leaf edge; the oval juvenile leaves (of saplings under 2 metres) are the same colour both sides =

Yellow box (scientific name: *Eucalyptus melliodora*)

- 3.4b Bark can be rough (like a very fine stringybark) or fine, gradually becoming smooth-barked on small branches (the point of change can be hard to see) with short ribbons on upper branches; juvenile leaves are *different colour* each side, hanging vertically, broad oval in shape and with *pointed tips* =

Western New England Blackbutt (scientific name: *Eucalyptus andrewsii*)

- 3.4c Bark is tessellated (tiled like a tortoiseshell) to finer branches, with smooth cream-coloured bark on smallest branches; buds and fruit *with* stalks; rounded juvenile leaves with rough, scalloped edges and with *pinkish tips* =

Apple Box (scientific name: *Eucalyptus bridgesiana*)

- 3.4d Bark is tessellated (tiled like a tortoiseshell) only as far as major branches, with smooth bark on small branches; buds and fruit *without* stalks; rounded juvenile leaves with rough, scalloped edges, all-green with *no pink tips* =

Tenterfield Woollybutt (scientific name: *Eucalyptus banksii*)

Note: this key is based on trees found growing at Rummers Hill, on the property 'Oakleigh'. Some extra eucalyptus trees may occur on other parts of the Hill.



Scientific names explained – if you're interested

I've used a common name for each tree but the same tree can be known by a different common name by different people and in different areas. So the Yellow Box (*Eucalyptus melliodora*) is also known as the Honey Box and Yellow Jacket. This gets confusing but each tree only ever has one scientific name. The scientific name is two words, usually made from Latin or Greek words, which describe features of the plant and may include the name of the botanist who first described it.

The first word in the scientific name (called a genus, always with a capital letter) describes a group of related plants– a bit like your surname. In Greek, 'eucalyptus' means 'well-covered' and refers to the cap that covers this group of trees' developing flowers, which falls off to expose the flower. *Allocasuarina* refers to the drooping needle leaves of native oaks, like the feathers of the Cassowary bird. *Angophora* in Greek means 'vessel' for 'carrying' and refers to this tree's large barrel-shaped seed capsules.

The second word in the scientific name describes features of the individual species of tree – a bit like your first names (yep, scientific names are back-to-front, the same way they put your name in the phone book). These second words (called the species names and not with a capital letter) have meanings which are explained in the table below.

Note. All opinions, suggestions and errors are those of the author. They don't necessarily reflect the advice of GLENRAC or the Rummers Hill Landcare Group. Please consult others, consider your particular circumstances and use your judgement before following any suggestions. Comments on this article are welcome at pt.king@bigpond.com

Acknowledgements. I am most grateful for the help of botanists Dr Stephanie Horton and John Hunter who identified trees and drafted the text. I also drew information from the excellent 'Eucalypts of the Northern Tablelands' by Dr John T. Hunter. This is a key that was published with support of the Northern Rivers Catchment Authority and accessible on the web (see below).

For further information try these websites:

Native plants of the New England – <http://anps-armidale.org.au> – some plant descriptions

Native plants of NSW – <http://plantnet.rbgsyd.nsw.gov.au> – comprehensive but uses technical terms

Scientific names explained



Common name	Scientific name	Meaning of the scientific second word
Rough-barked Apple	<i>Angophora floribunda</i>	Means flowering in abundance.
Narrow-leaved ironbark	<i>Eucalyptus crebra</i>	Means crowded, for the clustered flower buds.
Orange Gum	<i>Eucalyptus prava</i>	Means crooked, probably referring to the trunk.
Blakely's Red Gum	<i>Eucalyptus blakelyii</i>	Named after botanist William Blakely (1875-1941), born at Tenterfield, who worked at the Sydney Botanic Gardens in Sydney as a gardener and went on from there to help out in the Herbarium and finally to assist botanist J H Maiden with his major work on eucalypts. He published 'A Key to the Eucalypts' which was reprinted up to 1965.
Mountain Gum	<i>Eucalyptus dalrympleana</i>	Named in 1920 after Richard Dalrymple-Hay (1861-1943) first Commissioner of Forests in NSW.
Youman's Stringybark	<i>Eucalyptus youmanii</i>	Named after Thomas Youman (1874-1962) who moved to Guyra aged 10 years. At Guyra he farmed 'Rosehill' until his death and discovered this tree there. He was interested in botany (especially eucalypts of the Northern Tablelands) and he helped botanists such as J H Maiden and Reverend McKie, as well as staff from the Sydney Botanic Gardens and the Forestry Commission of NSW. He grew from seed many plants for local schools.
Silvertop Stringybark	<i>Eucalyptus laevopinea</i>	Smooth grey (bark at tips) and pine-like (overall shape).
Yellow Box	<i>Eucalyptus melliodora</i>	Honey-scented (flowers).
Western New England Blackbutt	<i>Eucalyptus andrewsii</i>	Named after Government geologist Earnest Clayton Andrews who also wrote about the geological history of the flowering plants of Australia.
Apple Box	<i>Eucalyptus bridgesiana</i>	Named after the Surveyor General of NSW Mr F Bridges in 1898.
Tenterfield Woollybutt	<i>Eucalyptus banksii</i>	After botanist Sir Joseph Banks.



This project is supported by the Glenrac landcare network through funding from the Australian Government's Caring for our Country.



CARING
FOR
OUR
COUNTRY



Common shrubs of Rummers Hill

Written by Peter King for the Rummers Hill Landcare Group, June 2013

Shrubs are more important than we think

Let's call shrubs low-growing plants (1-5 metres) with one or more stems. They form a layer of plants that covers Rummers Hill and they are very important to the nature of the Hill. This is because:

- **they flower regularly every year**, providing a huge, reliable food supply - of pollen (protein for muscle), nectar (sugars for energy) and seeds (carbohydrates for growth) - that is used by millions of insects and thousands of birds and other wildlife;
- **they form a dense leafy cover** where small birds can safely perch at night and build nests;
- **their strong roots hold the soil** in place on our sloping hills and fast-flowing watercourses; and
- **their speedy regrowth** after fire and drought gives a rapid 'bounce-back' in food supply for starving wildlife.

Being smaller than trees, shrubs are often overlooked, over-grazed and over-burnt.

Across the woodlands of eastern Australia, we know that small woodland birds are disappearing. One cause is the removal of the shrub layer. So if we want to keep seeing the honeyeaters, wrens, robins and the other small insect-eating birds, we have to keep the Hill's shrub layer.

Shrubs are low to the ground so cattle, horses, sheep and goats will happily eat them, especially if there is little else to eat. This can be overdone, so that the shrubs are killed. It will help if you take care with livestock numbers and are ready to quickly destock in drought. Having a healthy layer of woodland shrubs is a sign of well-managed grazing land.

On disturbed ground, some shrubs such as wattles (and black oak trees) sprout thickly and look like they are about to 'take over' the area. Don't panic. They are just nature's bandaids, quickly restoring the soil cover and will 'thin out' as they compete with each other for water and nutrients.

Agricultural scientists agree that Rummers Hill is always going to be marginal, low-intensity grazing land. So it's best if we don't try to heavily graze and clear the Hill but appreciate it for its rugged beauty, only suitable for low-intensity grazing but with a high value as a home for wildlife and people.

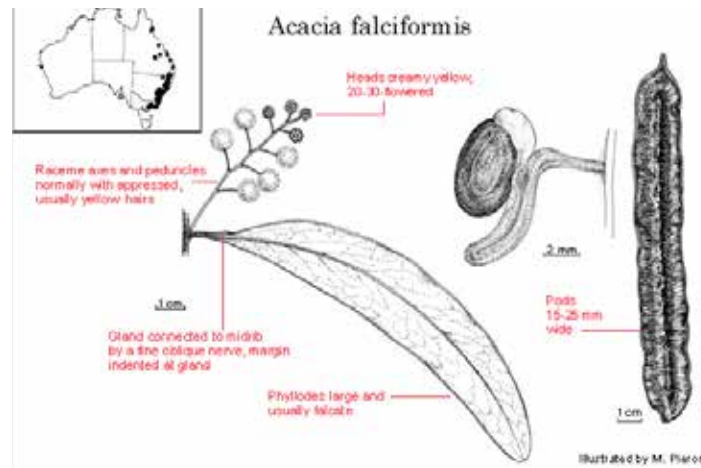
How to identify your native shrubs

On Rummers Hill we are lucky to have over 30 species of shrubs and here's how to recognise 14 of the most common ones. Learn these locals and you'll feel at home with most of the Hill's shrubs. Learning is easier if we group them into:

1. *Wattles* – these have fluffy flowers that locally appear in balls and are some shade of yellow;
2. *Bottlebrushes* – these have flowers that look like brushes and on the Hill are red;
3. *Tea trees* – these have flowers with petals, usually five and usually white; and
4. *Other shrubs* – which have other types of flowers!



Note the differences in these easily-confused wattles, both with curved leaves: the Broad-leaf Hickory (top) and the Sick-leaf Wattle. Look for a vein leading to the leaf gland.



Each plant name below shows the common name, followed by its scientific name in brackets. If you are looking for more information, look up the scientific name, as each plant often has more than one common name. A few of the plants mentioned below will grow beyond shrub height – into small trees – but I’ve included them here to make it simpler to identify them amongst their shrubby relatives.

Wattles – band-aids and bush tucker

All wattles on Rummers Hill have fluffy yellow flowers, shaped like balls (not the rods some wattles have elsewhere) and they light up the Hill from July to February. Wattles are better-adapted to Australian conditions than most garden shrubs. They have pinhead-size nodules on their roots, full of bacteria that take nitrogen out of the air. So wattles make and release their own fertiliser. This way, wattles can be the ‘bandaids’ that help other plants recover after a fire.

1. *Fern-leaf Wattle* (*Acacia filicifolia*). This plant has the feather-like leaf that most people recognise as a wattle leaf. All juvenile wattles start with this type of leaf but our other local wattles lose this leaf shape and from 100mm high they grow the undivided shape we will call leaves. Botanists tell us they aren’t really leaves but flattened leaf stalks, called phyllodes – but for simplicity we’ll call them leaves. This wattle likes moist soil and can grow into a small tree. It has dark green leaves and bluish seed pods.
2. *Fringed Wattle* (*Acacia fimbriata*). This is the most common wattle on the Hill. If you look very closely (a hand lens helps) you’ll see that each 30mm-long leaf has a fringe of hairs along its edge. The finger-length, pale brown seed pods hang in their thousands around January and together make a huge, high-protein ‘seed silo’ for parrots, native mice and other wildlife.
3. *Silver Wattle* (*Acacia neriifolia*). This wattle may grow as tall as a small tree and has fine silvery hairs on the surface of finger-length, narrow and fairly straight leaves. It grows to a small tree and its seeds sprout thickly after fire, even on the stonier parts of the Hill. Its abundant seeds are food for parrots and other wildlife.
4. *Broad-leaf Hickory* (*Acacia falciformis*). The curving, 100mm long leaf of this wattle has a gland indented on its edge, a centimetre or so up from the base, with a vein leading to it. It can grow to 10 metres. It may have been named by early settlers after the American hickory, which also makes good tool handles.

5. *Sickle-leaf Wattle* (*Acacia falcata*). This has leaves that are shiny green, 100mm long and strongly curved, like a sickle. Its leaf is similar to that of the Broad-leaf Hickory but the leaf gland is small, very near the base, with no vein to it. Its branches often carry golf ball size lumps (galls). It grows to 10 metres, which is good because grazing animals will eat all the leaves they can reach. Perhaps this is why it is less common on the Hill?

Bottlebrushes – the birds' sweet spot

1. *Hill Bottlebrush* (*Callistemon citrinus*). This bottlebrush grows in rocky areas amongst other shrubs. It has stiff, narrow leaves that smell strongly of citrus when crushed. It is not abundant and is easy to overlook unless it's flowering. Its red flowers, full of nectar are an important food for a variety of birds and they can often be heard squabbling over access.
2. *Weeping Bottlebrush* (*Callistemon viminalis*). This is an important bottlebrush that grows along watercourses – such as Beardy Waters and the Severn River – because its mat of roots helps hold the banks in place during floods. Its outer branches droop (weep) with narrow leaves that are soft and covered in fine hairs. From October to February its bright red flowers are also a major source of nectar for birds.

Tea Trees – each of these likes damp soil and has white flowers with five petals, from Spring to Summer

1. *Creek Tea Tree* (*Leptospermum polygalifolium*). This common shrub likes low-lying areas where water flows. It is an erect shrub with yellow-green leaves and abundant white flowers in summer. Its seed capsule is wider than 5mm and smooth (before it opens it looks like a plump little hot cross bun and claw-like when opened). This is an important shrub since its roots stabilise creeks.
2. *New England Tea Tree* (*Leptospermum novae-angliae*). This low 2m green shrub is tough and usually grows amongst rocks. Its seed capsules are larger (wider than 5mm) and rough-surfaced. It often has a viral infection that causes small lumps (galls) to form along the branches.



The New England Tea Tree is the most common on the Hill and is recognised by its 'hot cross bun' seed capsules. The Grey Tea Tree (right) is taller but less common.

The intense yellow flowers of the Dogwood brighten the Hill in late Spring.

Blackthorn flowers heavily and attracts hordes of insects.



The Native Cherry is a parasite on the roots of other trees and produces a bird-attracting 'cherry' that's bitter when yellow but becomes sweeter when red and about to fall.

3. *Grey Tea Tree* (*Leptospermum brevipes*). Grows to eight metres, on rocky areas or creeks, with fine-haired grey-green leaves. The stem is often blotchy and the last 400mm of a branch often droops. It has small, hairy seed capsules (less than 5mm wide) on long stalks (to 10mm) that break after flowering, so they are often hard to find because they fall off. This is one of the tea trees that goats love to eat.

Other shrubs

1. *Kunzea* - pronounced koon-zea (*Kunzea parvifolia*). This shrub grows in damp areas, often beside tea trees. Its attractive flowers are fluffy balls like wattle flowers but purple-pink and they become a cluster of soft seed capsules.
2. *Dogwood* (*Jacksonia scoparia*). This shrub is most noticed in late Spring, when it is covered in bright yellow, pea-type flowers. It has thin drooping green stems, usually without leaves. If burnt its wood gives off a foul (doggy) smell.
3. *Blackthorn* (*Bursaria spinosa*). This is a spiny green shrub, growing to five metres. It's easiest to see - and smell - when it flowers in February, especially along Emmaville Road. The thick clusters of white star-shaped flowers have pollen and nectar that attract birds, beetles, butterflies, moths, wasps, ants and bees. So it's humming with activity and - because it's spiny - it also makes a very safe place for small birds to sleep and nest. The drug aesculin was extracted from its leaves in World War II to make sunscreen lotion for airmen, treat tropical diseases and manage blood vessel disorders. Livestock (and people) usually don't like spiny plants so this makes an excellent pruned garden hedge and paddock replacement for those 'anti-bird' shrubs, the Hawthorn and Cotoneaster.
4. *Native Cherry* (*Exocarpus cupressiformis*). This is a parasitic plant with roots that feed off other plants. Its foliage consists of small branches that are yellow-green, with tiny leaf scales along them. In suitable conditions it can grow to eight metres, becoming a small tree. The fruit has a 6mm yellow-red berry that attracts wildlife. The possums and birds eat the cherry fruit but don't digest the seed, instead spreading the seeds about the Hill in their droppings.



The purple-pink flower clusters help identify the Kunzea.

Note. All opinions, suggestions and errors are those of the author. They don't necessarily reflect the advice of the Australian Government, the GLENRAC landcare network or the Rummers Hill Landcare Group. Please consult others, consider your particular circumstances and use your judgement before following any suggestions. Comments on this article are welcome at pt.king@bigpond.com

Acknowledgements. I am most grateful for the help of botanists Dr Peter Croft, Dr Stephanie Horton and John Hunter who identified shrubs and commented on the text.



Wildlife of Rummers Hill

At June 2013

Tick the wildlife you see on your property. This list is incomplete.

Please report any new sighting and location to pt.king@bigpond.com

Animal group	Name	Seen	Scientific name	Notes on special features, call, what it eats etc
Bird Bee-eaters Rollers	Dollarbird*		<i>Eurystomus orientalis</i>	SBM: arrives Sept departs April
Bird Bee-eaters Rollers	Rainbow Bee-eater		<i>Merops ornatus</i>	SBM: arrives from N Qld Sept departs March
Bird Bowerbirds	Satin Bowerbird*		<i>Ptilonorhynchus violaceus</i>	LN. Male gets full blue-black plumage at 7 yrs
Bird Crows, Butcherbirds	Australian Magpie		<i>Gymnorhina tibicen</i>	Live to 25 yrs. See+hear better than humans. Nesing, swooping from August
Bird Crows, Butcherbirds	Australian Raven		<i>Corvus coronoides</i>	S. Nests Jul-Oct very high in tree.
Bird Crows, Butcherbirds	Grey Butcherbird		<i>Cracticus torquatus</i>	S. Partial white collar. Eats ground prey and raids nests of other birds.
Bird Crows, Butcherbirds	Pied Butcherbird		<i>Cracticus nigrogularis</i>	S. Full black hood.
Bird Crows, Butcherbirds	Pied Currawong		<i>Strepera graculina</i>	SN: most depart Autum-Winter in loose flocks but some pairs stay. Nest August
Bird Cuckoos	Brush Cuckoo		<i>Cacomantis variolosus</i>	SBM. Parasite of Leaden, Restless and Satin flycatchers' cup nests
Bird Cuckoos	Channel- billed Cuckoo		<i>Scythrops novaehollandiae</i>	SBM: arr from PNG in Oct, departs Feb. Largest parasitic bird of crows, magpies
Bird Cuckoos	Common Koel		<i>Eudynamis scolopacea</i>	SBM. Nest parasite of Magpie-lark, Noisy Friarbird. Young Koel ejects host eggs
Bird Cuckoos	Fan-tailed Cuckoo		<i>Cacomantis flabelliformis</i>	LN. Parasite of dome-nesters: thornbills, scrub-wrens
Bird Cuckoos	Horsefield's Bronze Cuckoo*		<i>Chalcites basalis</i>	SBM. Parasite of thornbills, fairy wrens
Bird Cuckoos	Pallid Cuckoo		<i>Cuculus pallidus</i>	LN. Parasite of honeyeaters, cuckoo-shrike, Willie Wagtail
Bird Ducks Grebes Crakes	Australasian Grebe		<i>Tachybaptus novaehollandiae</i>	LN.
Bird Ducks Grebes Crakes	Australian Wood Duck		<i>Chenonetta jubata</i>	LN.
Bird Ducks Grebes Crakes	Baillon's Crake		<i>Porzana pusilla</i>	Australia's smallest crake. In and beside dense reedbeds.
Bird Ducks Grebes Crakes	Dusky Moorhen		<i>Gallinula tenebrosa</i>	Forehead shield is dusky red. Edges of creeks, dams and rivers.
Bird Ducks Grebes Crakes	Eurasian Coot		<i>Fulica atra</i>	Forehead shield is white. Dives a lot in creeks, dams and rivers.
Bird Ducks Grebes Crakes	Pacific Black Duck		<i>Anas superciliosa</i>	LN.
Bird Ducks Grebes Crakes	Plumed Whistle Duck		<i>Dendrocygna eytoni</i>	Nomadic. At dams along Reedy Creek Road
Bird Ducks Grebes Crakes	Purple Swamphen		<i>Porphyrio porphyrio</i>	Reedy Creek and dams
Bird Finches	Double- barred Finch		<i>Taeniopygia bichenovii</i>	LN. White owl face and black bars across chest

These species occur on the high and low parts of Rummers Hill, including the watercourses to the Severn River.

Animal group	Name	Seen	Scientific name	Notes on special features, call, what it eats etc
Bird Finches	Plum-headed Finch		<i>Neochmia modesta</i>	Migratory Seen 4/12/09
Bird Finches	Red-browed Finch		<i>Neochmia temporalis</i>	S. Seed of Wallaby Grass (Dec) Microlaena (Jan) Barb W Grass (Feb) Red (Jun)
Bird Flowerpeckers	Mistletoebird		<i>Dicaeum hirundinaceum</i>	Nomadic. Eats and spreads mistletoe seed. Fine sock nest like a baby's bootee.
Bird Flowerpeckers	Silvereeye*		<i>Zosterops lateralis</i>	SBM: departing May for E coast, returning Oct. Breeds in a low cup nest January.
Bird Flowerpeckers	Yellow-bellied Sunbird		<i>Nectarinia jugularis</i>	Rare sighting, at its southern limits.
Bird Flycatchers	Grey Fantail*		<i>Rhipidura albiscapa</i>	SBM: dep Mar, returning to nest in Sept. The Fantail nest has a hanging 'tail'
Bird Flycatchers	Leaden Flycatcher*		<i>Myiagra rubecula</i>	SBM.
Bird Flycatchers	Magpie-lark		<i>Grallina cyanoleuca</i>	Cupped mud nest
Bird Flycatchers	Restless Flycatcher		<i>Myiagra inquieta</i>	S. Scissor-grinder call
Bird Flycatchers	Satin Flycatcher		<i>Myiagra cyanoleuca</i>	SBM from N Qld: arriving Oct departing March. Mostly breeds Oct-Jan
Bird Flycatchers	Willie Wagtail		<i>Rhipidura leucophrys</i>	S. Breeds anytime, calls a lot in Oct. Unlike other flycatchers, its nest has no tail.
Bird Harrier	Spotted Harrier		<i>Circus assimilis</i>	Open pasture land.
Bird Herons Ibis	Straw-necked Ibis		<i>Theskiornis spinicollis</i>	Nomadic.
Bird Herons Ibis	White-necked Heron		<i>Ardea pacifica</i>	Nomadic.
Bird Honeyeaters	Eastern Spinebill*		<i>Acanthorhynchus tenuirostris</i>	SBM. Nests twice a season in a fine hanging cup of bark and web, from August
Bird Honeyeaters	Noisy Friarbird		<i>Philemon corniculatus</i>	SBM: depart northward in May in noisy flocks, return to breed in July
Bird Honeyeaters	Noisy Miner		<i>Manorina melanocephala</i>	LN. Aggression to small birds is a problem in narrow windbreak corridors
Bird Honeyeaters	Red Wattlebird		<i>Anthochaera carunculata</i>	SBM. Breeds mostly July-Dec.
Bird Honeyeaters	White-eared Honeyeater*		<i>Lichenostomus leucotis</i>	SBM: dep May, back to breed July. Yellow with wh ear. Chwok chwok call
Bird Honeyeaters	White-naped Honeyeater*		<i>Meliphreptus lunatus</i>	SBM: dep May, back to breed July.
Bird Honeyeaters	Yellow-faced Honeyeater*		<i>Lichenostomus chrysops</i>	SBM: dep May, back to breed July. Pale grey, yell eye stripe underlined black
Bird Honeyeaters	Yellow-tufted Honeyeater		<i>Lichenostomus melanops</i>	Nomadic. Woodland with shrubby undergrowth eg on Emmaville Road
Bird Kingfishers	Laughing Kookaburra		<i>Dacelo novaeguineae</i>	S.
Bird Kingfishers	Sacred Kingfisher*		<i>Todiramphus sanctus</i>	SBM. Often 2 broods, from Sept in hollow tree or termite mound
Bird Mudnesters	White-winged Chough*		<i>Corcorax melanorhamphos</i>	S. Ground feeder of healthy woodland
Bird of Prey	Brown Falcon		<i>Falco berigora</i>	S. Nest Aug-Nov using nest of raven, magpie etc. A ground-hunting falcon.
Bird of Prey	Brown Goshawk		<i>Accipiter fasciatus</i>	S. Nest July-Dec. Fast agile hunter of woodlands.

These species occur on the high and low parts of Rummerys Hill, including the watercourses to the Severn River.

Animal group	Name	Seen	Scientific name	Notes on special features, call, what it eats etc
Bird of Prey	Black-shouldered Kite		<i>Elanus notatus</i>	S. Seen hovering and perching. Feeds on mice in grasslands.
Bird of Prey	Little Eagle		<i>Hieraaetus morphnoides</i>	S. Nest Aug-Dec. Pale diagonal bar underwing. Fish hook display flights March.
Bird of Prey	Peregrine Falcon*		<i>Falco peregrinus</i>	S. Lays Aug-Nov on cliff ledge or shallow open tree hollow. Stoops to 200kph.
Bird of Prey	Wedge-tailed Eagle		<i>Aquila audax</i>	S. Nest July-Nov in re-used stick nest. Usually raise 1 young/yr unless drought
Bird of Prey	White-breasted Sea Eagle		<i>Haliaeetus leucogaster</i>	S. Mostly along Severn River. Unfeathered legs.
Bird Owls	Barking Owl		<i>Ninox conivens</i>	S. Sharp 'woof-woof' call. On edges of Rummerys Hill
Bird Owls	Powerful Owl		<i>Ninox strenua</i>	S. Deep 'whooh whooh' call.
Bird Owls	Southern Boobook		<i>Ninox boobook</i>	S. Falling 'boo-book' call.
Bird Owls Nightjars	Australian Owlet-nightjar		<i>Aegotheles cristatus</i>	S. Huge eyes. Common 'quarrakak' call. 25cm
Bird Owls Nightjars	Tawny Frogmouth		<i>Podargus strigoides</i>	S. Females tawny shldr+grey. Males all grey
Bird Owls Nightjars	White-throated Nightjar		<i>Eurostopodus mystacalus</i>	S. Red eyeshine.No wh wingspots. Upward call
Bird Parrots	Australian King-Parrot		<i>Alisterus scapularis</i>	S. Green back.
Bird Parrots	Crimson Rosella*		<i>Platycercus elegans</i>	S. Prefers woodland. Hollows. Red back. Eats seed of matrush, wattles, grass.
Bird Parrots	Eastern Rosella		<i>Platycercus adscitus eximius</i>	S. Prefers grassy spaces. Hollow nester
Bird Parrots	Galah		<i>Eolophus roseicapillus</i>	LN.
Bird Parrots	Glossy Black-cockatoo		<i>Calyptorhynchus lathamii</i>	S. Depend on sheoak cones. Most birds are left-handed. Only 1 egg/year in Dec.
Bird Parrots	Little Lorikeet		<i>Glossopsitta pusilla</i>	Nomadic. Nectar feeder. Crimson fully around bill base. Knot hole for nest.
Bird Parrots	Musk Lorikeet		<i>Glossopsitta concinna</i>	Nomadic. Nectar feeder. Crimson streak on face. Nest is knot hole or hollow.
Bird Parrots	Rainbow Lorikeet		<i>Trichoglossus haematodus</i>	Nomadic.
Bird Parrots	Red-rumped Parrot		<i>Psephotus haematonotus</i>	Nomadic.
Bird Parrots	Red-winged Parrot		<i>Aprosmictus erythropterus</i>	Nomadic.
Bird Parrots	Sulphur-crested Cockatoo		<i>Cacatua galerita</i>	S. Nest in 40cm near vertical hollow, often near water. Feed 2 young for months.
Bird Parrots	Yellow-tailed Black-cockatoo		<i>Calyptorhynchus funereus</i>	LN. Feed on tree seeds and wood-boring grubs. Usually 1 young/year
Bird Pigeons	Common Bronzewing		<i>Phaps chalcoptera</i>	S. Call deep 1-second 'whooh'. Breeds whenever suitable, usually Aug onwds.E34
Bird Pigeons	Crested Pigeon		<i>Ocyphaps lophotes</i>	Nomadic.
Bird Pipits Bushlarks	Australian Pipit		<i>Anthus australis</i>	S or LN in winter flocks. Feeds, roosts and nests on the ground. Grassy areas.
Bird Pipits Bushlarks	Rufous Songlark		<i>Cinclorhamphus mathewsi</i>	SBM. Rufous rump.

These species occur on the high and low parts of Rummerys Hill, including the watercourses to the Severn River.

Animal group	Name	Seen	Scientific name	Notes on special features, call, what it eats etc
Bird Plovers	Masked Lapwing		<i>Vanellus miles</i>	S.
Bird Quail-thrushes Babblers	Spotted Quail-thrush		<i>Cinclosoma punctatum</i>	S. Breeding in August
Bird Quail-thrushes Babblers	Varied Sittella*		<i>Daphoenositta chrysoptera</i>	LN. Continual twittering in small flock. Climb up tree bark (opp to treecreeper)
Bird Quail-thrushes Babblers	White-browed Babbler		<i>Pomatostomus superciliosus</i>	S.
Bird Robins	Eastern Yellow Robin*		<i>Eopsaltria australis</i>	SBM.
Bird Robins	Jacky Winter		<i>Microeca fascinans</i>	S or Nomadic. Jacky Winter isn't around in Winter?
Bird Robins	Scarlet Robin		<i>Petroica boodang</i>	SBM: arrive Aug depart May.
Bird Starling, Myna	Common Starling		<i>Sturnus vulgaris</i>	Introduced pest of open pastures
Bird Starling, Myna	Indian Myna		<i>Acridotheres tristis</i>	Introduced pest of open pastures
Bird Swallows Martins	Fairy Martin		<i>Hirundo ariel</i>	Bottle-shaped mud nest
Bird Swallows Martins	Welcome Swallow		<i>Hirundo neoxena</i>	S-LN. Pairs often use same nest site August, E42 yr after yr. Cupped mud nest
Bird Swifts Needle-tails	White-throated Needletail		<i>Hirundapus caudacutus</i>	SM: Nov-Mar ex Siberia breeding. Aerial insects. Flies fast 125kph, with storms.
Bird Thornbills	Brown Thornbill*		<i>Acanthiza pusilla</i>	S.
Bird Thornbills	Buff-rumped Thornbill*		<i>Acanthiza reguloides</i>	S. White iris. No forehead spots
Bird Thornbills	Weebill		<i>Smicrornis brevirostris</i>	S. Australia's smallest bird. Like a Yellow Thornbill with white eye.
Bird Thornbills	Yellow Thornbill		<i>Acanthiza nana</i>	S. Strictly arboreal.
Bird Thornbills	Yellow-rumped Thornbill		<i>Acanthiza chrysorrhoa</i>	S. On ground usually. Forehd black, spotted white lge dble storey nest
Bird Treecreepers	White-throated Treecreeper*		<i>Cormobates leucophaeus</i>	S. Spirals up tree trunk. Female has an orange neck spot. Nests in August.
Bird Trillers, Cuckoo-shrikes	Black-faced Cuckoo-shrike		<i>Coracina novaehollandiae</i>	LN/S. Seen departing April, returning Oct. Sedentary birds can breed any time
Bird Trillers, Cuckoo-shrikes	Cicadabird		<i>Coracina tenuirostris</i>	SBM: arriving August, departing May. Only lays a single egg per nest.
Bird Trillers, Cuckoo-shrikes	Olive-backed Oriole		<i>Oriolus sagittatus</i>	SBM. Fruit eater.
Bird Trillers, Cuckoo-shrikes	White-bellied Cuckoo-shrike		<i>Coracina papuensis</i>	Nomadic follows rain. Uncommon visitor.
Bird Trillers, Cuckoo-shrikes	White-winged Triller*		<i>Lalage tricolor</i>	SBM. Male trilling call is constant during nesting. A declining woodland bird.
Bird Warbler Songlark	Speckled Warbler*		<i>Pyrrholaemus sagittatus</i>	S. Streaked white brow and ear patch. Rare and vulnerable species.
Bird Whistlers	Crested Shrike-tit		<i>Falcunculus frontatus</i>	S. Generally rare. E82
Bird Whistlers	Grey Shrike-thrush*		<i>Colluricincla harmonica</i>	S.
Bird Whistlers	Rufous Whistler*		<i>Pachycephala rufiventris</i>	Declining woodland bird

These species occur on the high and low parts of Rummerys Hill, including the watercourses to the Severn River.

Animal group	Name	Seen	Scientific name	Notes on special features, call, what it eats etc
Bird Woodswallows	Dusky Woodswallow*		<i>Artamus cyanopterus</i>	Declining woodland bird
Bird Woodswallows	White-browed Woodswallow		<i>Artamus superciliosus</i>	Nomadic. May appear in Spring-Summer months, in flocks.
Bird Wrens Pardalote	Spotted Pardalote*		<i>Pardalotus punctatus</i>	Nomadic. Nesting twice a season in a 30mm earth tunnel, from August.E4
Bird Wrens Pardalote	Superb Fairy-wren*		<i>Malurus cyaneus</i>	S. Breeds Sept-Dec several times. Domed nest with side entry low to ground
Bird Wrens Pardalote	Variegated Fairy-wren		<i>Malurus lamberti</i>	S.
Bird Wrens Pardalote	White-browed Scrubwren*		<i>Sericornis frontalis</i>	S.
Bird Wrens Pardalote	White-throated Gerygone*		<i>Gerygone olivacea</i>	SBM from ex Queensland. Noisy 'sweet' call.
Bird Wrens Pardalotes	Striated Pardalote		<i>Pardalotus striatus</i>	S or LN. Striated cap and face.
Bird Wrens Pardalotes	Variegated Fairy-wren		<i>Malurus lamberti</i>	S. Breeds Sept-Dec several times. Domed nest with side entry low to ground
Bird Wrens Pardalotes	Weebill		<i>Smicronis brevirostris</i>	S. Thicker bill than thornbill, no face streaks and white eye. Calls incl 'weebill'
Fish	Freshwater Catfish		<i>Tandanus tandanus</i>	Non-migrator.Spawns late Sp/mid-Sum.
Frog Crinia froglets to 30mm	Common Eastern Froglet		<i>Crinia parinsignifera</i>	Strained high squelch (+eh-eh-eh), smooth palms, grey belly
Frog Crinia froglets to 30mm	Sign-bearing Eastern Froglet		<i>Crinia signifera</i>	Single crick-crick,tubercles on palms,b/w spotty belly
Frog Limn pupils horiz/teardrop	Northern Banjo Frog		<i>Limnodynastes terrareginae</i>	Bonk bonk (yr long), no tibial gland, red groin
Frog Limn pupils horiz/teardrop	Striped Marsh Frog		<i>Limnodynastes peroni</i>	Tennis ball whuck (yr long) stripes like French uniform
Frog Limno pupils horiz/teardrop	Eastern Banjo Frog		<i>Limnodynastes dumerilii</i>	Bonk bonk (yr long), tibial gland
Frog Limno pupils horiz/teardrop	Spotted Marsh Frog		<i>Limnodynastes tasmaniensis</i>	Short machine gun uk-uk-uk, regular blotches, egg foam wet grass
Frog Litoria notched toe discs	Broad-palmed Rocket Frog		<i>Litoria latopalmata</i>	High yapping, dk stripe thru eye edged white
Frog Litoria notched toe discs	Brown Tree Frog		<i>Litoria ewingii</i>	Pale brown; dk snout-arm stripe c pale edge under; small disks
Frog Litoria notched toe discs	Dwarf Tree Frog		<i>Litoria fallax</i>	Ratchet reek pip, white uppr lip, reeds, 25mm
Frog Litoria notched toe discs	Peron's Tree Frog		<i>Litoria peronii</i>	Marbled armpit+feet, silver iris, +shaped pupil, machine gun down
Frog Litoria notched toe discs	Wilcox's Tree Frog		<i>Litoria wilcoxii</i>	Calls weep weep, v small toe discs
Frog Uperoleia diamond pupil	Smooth Toadlet		<i>Uperoleia laevigata</i>	Warty. Black Duck quack, pale triangle hd mark, orange groin/knee
Frog Uperoleia diamond pupil	Verreaux's Tree frog		<i>Litoria verreauxii</i>	Very small toe disks
Frog Uperoleia diamond pupil	Wrinkled Toadlet		<i>Uperoleia rugosa</i>	Deep chirp pulses, dk triangle hd mark, orange groin/knee, warty
Invertebrate Ant Bee Wasp	Feral Bee		<i>Apis mellifera</i>	Swarm Spring-Summer. Hollows they use are no longer usable by natives.

These species occur on the high and low parts of Rummerys Hill, including the watercourses to the Severn River.

Animal group	Name	Seen	Scientific name	Notes on special features, call, what it eats etc
Invertebrate Aquatic Snail	Carved Snail		<i>Glyptophysa species</i>	Kings Creek
Invertebrate Beetle	Diving Beetle		<i>F. Dytiscidae</i>	Kings Creek + Island Dam
Invertebrate Beetle	Water Boatman		<i>F. Corixidae</i>	Kings Creek + Island Dam
Invertebrate Beetle	Back Swimmer		<i>F. Notonectidae</i>	Island Dam
Invertebrate Beetle Carabid	Carabid beetle		<i>Epilectus species</i>	Pit traps Green smooth elytra; poisonous night hunter/scavenger
Invertebrate Beetle Carabid	Carabid beetle		<i>Gigaderma species</i>	Pit traps Brown pitted elytra; poisonous night hunter/scavenger
Invertebrate Beetle Firefly	Firefly		<i>Atyphella lychnus?</i>	Night-flying beetles lit up to find a mate (Oct). Their larvae track and eat snails.
Invertebrate Beetle Whirlygig	Whirlygig		<i>F. Gyridae</i>	Swim rapidly on water surface, with eyes that see above and below water
Invertebrate Butterfly	Caper White		<i>Belenois java</i>	M. White with black veins and yellow spots. Moving south, mating Oct-Nov
Invertebrate Butterfly	Migratory Yellow		<i>Catopsilla pomona pomona</i>	M. Yellow with dk edge. Feed on cassia/senna flowers. Moving south Dec-Jan
Invertebrate Butterfly	Orchard Swallowtail		<i>Papilio aegaeus</i>	M. Black with red spots. Seen Dec-January.
Invertebrate Cricket	Cricket		<i>O. Ensifera</i>	
Invertebrate Damsel fly	Damsel fly		<i>O. Odon F. Megapedagryionidae</i>	
Invertebrate Dragonfly	Dragonfly		<i>O. Odonata F. Anisoptera</i>	
Invertebrate Fly Mosquito	Bush Fly		<i>Musca vetustissima</i>	Females (eyes apart) seek protein from tears+blood. From cow dung Oct onwd
Invertebrate Fly Mosquito	House Fly		<i>Musca domestica</i>	Want to be indoors + carry many diseases (the opposite of Bush Fly)
Invertebrate Mayfly	May Fly		<i>O. Odonata</i>	
Invertebrate Moth	Emperor Gum Moth		<i>Opodipthera eucalypti</i>	S. Brown with eye spots on wings. Wingspan 120mm. Seen at lights in Summer
Invertebrate Nematode	Aquatic Worm		<i>O. Nematoda</i>	
Invertebrate Scorpion	Forest Scorpion		<i>Cercophonius squama?</i>	Under rocks during day. Pale young ride on mother's back February-March
Invertebrate Spider	Black House Spider		<i>Badumna insignis</i>	
Invertebrate Spider	Brown Trapdoor Spider		<i>Arbanitis gracilis</i>	
Invertebrate Spider	Golden Orb-weaving Spider		<i>Nephila ornata</i>	
Invertebrate Spider	Huntsman Spider		<i>Neosparassus species</i>	
Invertebrate Spider	Leaf-curling Spider		<i>Phonognatha graeffei</i>	
Invertebrate Spider	Northern Tree Funnel-web		<i>Hadronyche formidabilis</i>	

These species occur on the high and low parts of Rummerys Hill, including the watercourses to the Severn River.

Animal group	Name	Seen	Scientific name	Notes on special features, call, what it eats etc
Invertebrate Spider	Red-back Spider		<i>Latrodectus hasseltii</i>	
Invertebrate Spider	White-tailed Spider		<i>Lampona cylindrata</i>	
Invertebrate Spider	Wolf Spider		<i>Lycosa species</i>	
Invertebrate Stonefly	Stone Fly		<i>O. Plecoptera</i>	
Invertebrate Termite	Termite		<i>O. Isoptera</i>	Echidnas dig nests open. Spr-summer swarms are a feast for birds, frogs, ants.
Invertebrate Water Flea	Water Flea		<i>O. Coleoptera</i>	
Invertebrate Water Scorpion	Water Scorpion		<i>F. Nepidae</i>	Breathes through rear body tube
Invertebrate Water Strider	Water Strider		<i>O. Heteroptera</i> <i>SO. Gerromorpha</i>	
Invertebrate Yabby	Yabby		<i>Cherax destructor</i>	
Mammal Bat Evening Vespertil	Chocolate Wattled Bat		<i>Chalinobus morio</i>	
Mammal Bat Evening Vespertil	Eastern Bent-wing Bat		<i>Miniopterus schreibersii</i>	V
Mammal Bat Evening Vespertil	Eastern Cave Bat		<i>Vespadelus troughtoni</i>	V
Mammal Bat Evening Vespertil	Gould's Long-eared Bat		<i>Nyctophilus gouldii</i>	
Mammal Bat Evening Vespertil	Gould's Wattled Bat		<i>Chalinolobus gouldii</i>	Fleshy wattle at cnr of mouth Zig-zag flight
Mammal Bat Evening Vespertil	Large Forest Bat		<i>Vespadelus darlingtoni</i>	Call frequency <48kHz
Mammal Bat Evening Vespertil	Lesser Long-eared Bat		<i>Nyctophilus geoffroyi</i>	Slow fluttery flight manoeuvres
Mammal Bat Evening Vespertil	Little Forest Bat		<i>Vespadelus vulturinus</i>	Call frequency >48kHz
Mammal Bat Evening Vespertil	Southern Forest Bat		<i>Vespadelus regulus</i>	
Mammal Bat Freetail Molossid	White-striped Freetail Bat		<i>Tadarida australis</i>	1 of 2 bats with audible click-click High str fast flight over canopy Round ear
Mammal Carnivore Dasyurids	Common Dunnart		<i>Sminthopsis murina</i>	Insect-eater. Big, notched ear. Tail = Head-Body length
Mammal Carnivore Dasyurids	Spot-tailed Quoll		<i>Dasyurus maculatus</i>	V Mates Apr-Aug. Dens in hollow logs, rock crevices.
Mammal Dasyurids	Yellow-footed Antechinus		<i>Antechinus flavipes</i>	Insect-eater. Mate 2wks in August, then all adult males die. Mum+young 10mth
Mammal Gliders Possums	Common Brush-tailed Possum		<i>Trichosurus vulpecula</i>	
Mammal Gliders Possums	Common Ringtail Possum		<i>Pseudocheirus peregrinus</i>	Half-grown young in Nov.
Mammal Gliders Possums	Feathertail Glider		<i>Acrobates pygmaeus</i>	

These species occur on the high and low parts of Rummerys Hill, including the watercourses to the Severn River.

Animal group	Name	Seen	Scientific name	Notes on special features, call, what it eats etc
Mammal Gliders Possums	Squirrel Glider		<i>Petaurus norfolcensis</i>	
Mammal Introduced	Black Rat		<i>Rattus rattus</i>	Tail>HB. Ear folds onto eyeball
Mammal Introduced	European Hare		<i>Lepus europeaus</i>	Black-tipped ear tip folds beyond nostril. Mate July onward. Only raise 2 young/yr.
Mammal Introduced	Fallow Deer		<i>Dama dama</i>	Drop antlers Oct-Nov, regrow by Mar. Thrash, call, mate Mar-April. Birth Nov-Dec.
Mammal Introduced	Feral Cat		<i>Felis catus</i>	Male calling in July. Births start September. Two litters=av 8/yr. Disperse April
Mammal Introduced	Feral Dog		<i>Canis familiaris</i>	
Mammal Introduced	Feral Goat		<i>Capra hircus</i>	
Mammal Introduced	Feral Pig		<i>Sus scrofa</i>	Piglets seen September, November
Mammal Introduced	Fox		<i>Vulpes vulpes</i>	Mate around July (1m after shortest day). Young Aug-Sept. Dispersing April.
Mammal Introduced	House Mouse		<i>Mus musculus</i>	
Mammal Introduced	Rabbit		<i>Oryctolagus cuniculus</i>	Seasonal breeder, usually 10-20/yr but not all survive. Ear folds to nostril.
Mammal Kangaroos	Common Wallaroo		<i>Macropus robustus</i>	
Mammal Kangaroos	Eastern Grey Kangaroo		<i>Macropus giganteus</i>	
Mammal Kangaroos	Red-necked Wallaby		<i>Macropus rufogriseus</i>	
Mammal Kangaroos	Swamp Wallaby		<i>Wallabia bicolor</i>	
Mammal Koala	Koala		<i>Phascolarctos cinerea</i>	Oct. calling and giving birth. One dead female in July (9m newly-independent)
Mammal Monotreme egg-layer	Echidna		<i>Tachyglossus aculeatus</i>	
Mammal Monotreme egg-layer	Platypus		<i>Ornithorhynchus anatinus</i>	In Beardy Waters and Severn River
Mammal Rat	Water Rat		<i>Hydromys chrysogaster</i>	White tail tip. Toe-only footprints left in wet sand.
Mammal Rat Muridae	Bush Rat		<i>Rattus fuscipes</i>	Tail=HB. Ear fold doesn't meet eye. Fuscipes = pinkish feet
Mammal Rat Muridae	Bush Rat		<i>Rattus fuscipes</i>	
Mammal Rat Muridae	Water-rat		<i>Hydromys chrysogaster</i>	
Reptile Lizard Dragon	Bearded Dragon		<i>Pogona barbata</i>	Spines cross back of head. Mouth yell
Reptile Lizard Dragon	Eastern Water Dragon		<i>Physignathus leueurii</i>	
Reptile Lizard Dragon	Eastern Water Dragon		<i>Physignathus leueurii</i>	

These species occur on the high and low parts of Rummerys Hill, including the watercourses to the Severn River.

Animal group	Name	Seen	Scientific name	Notes on special features, call, what it eats etc
Reptile Lizard Dragon	Jacky Lizard		<i>Amphibolurus muricatus</i>	Long hd, spiny, Y mouth. Wave+fasthdbob=aggr;slow w=submit
Reptile Lizard Dragon	Nobbi		<i>Amphibolurus nobbi</i>	Short head, pink mouth.Pale yell stripe below blotches
Reptile Lizard Gecko	Eastern Stone Gecko		<i>Diplodactylus vittatus</i>	
Reptile Lizard Gecko	Robust Velvet Gecko		<i>Oedura robusta</i>	Same as Tree Gecko?
Reptile Lizard Gecko	Southern Spotted Velvet Gecko		<i>Oedura tryoni</i>	
Reptile Lizard Legless	Burton's Legless Lizard		<i>Lialis burtonis</i>	Long pointed head. Group hibernating under rocks. Grey and brown types.
Reptile Lizard Skink	Boulenger's Skink		<i>Morethia boulengeri</i>	Reddish tail, white mid-lat stripe, small body, long tail
Reptile Lizard Skink	Copper-tailed Skink		<i>Ctenotus taeniolatus</i>	Copper tail.Fine cream and black stripes. No spots
Reptile Lizard Skink	Dark-flecked Garden Skink		<i>Lampropholis delicata</i>	Pale and dk dorsal flecks, dk flkd belly.10cm
Reptile Lizard Skink	Delicate Grass Skink		<i>Lygisaurus delicata</i>	Choc brown, sml hands+ear, can blink (unlike specs of Morethia)
Reptile Lizard Skink	Eastern Blue-tongue Lizard		<i>Tiliqua scincoides</i>	
Reptile Lizard Skink	Eastern Water Skink		<i>Eulamprus quoyii</i>	
Reptile Lizard Skink	New Englnd Copper-tailed Skink		<i>Ctenotus eurydice</i>	Blonde-copper tail.Fine cream and black stripes, 6 spots fr side
Reptile Lizard Skink	Robust Skink		<i>Ctenotus robustus</i>	
Reptile Lizard Skink	Southern Rainbow Skink		<i>Carlia tetradactyla</i>	Br with dots.Orange side stripe.Digits 4/5
Reptile Lizard Skink	Three-toed Earless Skink		<i>Hemiergis decresiensis</i>	Digits 3/3 11cm
Reptile Lizard Skink	Tree Skink		<i>Egernia striolata</i>	Flat, matte dorsal scales striated, pale d-lateral, u bricks 120mm
Reptile Lizard Skink	Tree-base Grass Skink		<i>Lygisaurus foliorum</i>	Small, no markings, rounded body, 4 fingers, male reddish tail
Reptile Lizard Skink	Two-clawed Worm-skink		<i>Anomalopus leukhardtii</i>	Pale nape V sml limbs: 2/0 claws Juv black dorsal Adult yellowish
Reptile Lizard Skink	White's Rock-skink		<i>Egernia whitii</i>	Black-ringed wh spots.Wh ringed eye. 30cm
Reptile Snake Venom	Dwyers Black-headed Snake		<i>Parasuta dwyeri</i>	Bl head+dk-edged scales. Under rocks, logs, soil. Only eat sm tree lizds
Reptile Snake Venom Dangerous	Eastern Brown Snake		<i>Pseudonaja textilis</i>	Young can have black head and nape. Our most dangerous snake.
Reptile Snake Venom Dangerous	Red-bellied Black Snake		<i>Pseudechis porphyriacus</i>	Eats frogs, lizards and mice. Seen basking warm days in winter. Mate Oct.
Reptile Snake Venom Dangerous	Southern Death Adder		<i>Acanthophis antarcticus</i>	Grey to brown,E135 banded. Long fangs. Rare due to clearing+frequent fires.
Reptile Snake Worm	Big Worm Snake		<i>Ramphotyphlops ligatus</i>	Eats bulldog ant eggs, larvae, pupae. 500mm. Near blind.

These species occur on the high and low parts of Rummerys Hill, including the watercourses to the Severn River.



Wildlife-friendly yards and gardens on Rummers Hill

Written by Peter King for the Rummers Hill Landcare Group, June 2013

The land around Rummers Hill has a good variety of wild birds and other animals that you can enjoy - for their beauty, the free insect pest control they bring or just their wild behaviour. You can manage your dams, yards and gardens to increase your enjoyment of this wildlife too.

Sometimes wild animals will also be a nuisance that you have to deal with. At the very same time, you could be encouraging wild ducks to use your dams and discouraging kangaroos from eating your garden. It's just part of any land manager's responsibility.

My land management starts with the belief that the native animals were here before me and have some land rights - so I should try to live with them rather than just blow them away with a rifle or pesticides. And if kangaroos in the garden are driving me mad, I remind myself that to successfully live with nuisance wildlife, I just have to be smarter than the wildlife!

Here are some yard and garden management tips from my time on Rummers Hill, to keep you one step ahead of the local wildlife.

Yards. If you build a poultry yard without making it strong enough to resist hawks, crows, currawongs, cats and foxes, then you aren't acting smarter than wildlife. You certainly can't complain when you start losing chooks, chickens and eggs. A chook yard should have:

- a wire roof as well as walls (yes foxes can climb quite well);
- buried tin or wire walls held down by logs that pests can't dig under; and
- storm-proof housing, with solid walls so foxes and cats won't see and scare the chooks against the wire at night.

Dog yards built beside the chook house will also discourage foxes and cats. Dogs in such yards are forced to look at chooks through the wire for hours and my dogs lost all interest in chasing chooks - an added benefit.

I let my chooks out a side door two hours before sunset for their daily free-range fun. They rampage through the garden then find their way back inside, just before dark. They are safe for the night from foxes - so long as I remember to close the door. I haven't lost any chooks to foxes yet and the garden and egg quality seem to benefit from the chooks' outing.



Put a bird bath near your house, for a reality show that will amuse you as well as the birds



You can have a 'marsupial lawn', mown and fertilised for free, if you chose to accept droppings and control your dogs. Three generations of Grey Kangaroos are shown here, doing their bit.



The Japanese Barberry (Berberis thunbergia - purple form) is an introduced garden shrub whose fiercely thorny stems protect roosting and nesting small birds from predators like butcherbirds and currawongs. Its seeds don't seem to be eaten by birds so it doesn't invade nearby woodlands.

The Spotted-tail Quoll – a native, cat-size marsupial meat-eater – is rare but present on the Hill and this means poultry yards and aviaries need to be strongly built with no small openings. Young quolls will easily squeeze through a 50mm opening to get a KFC-style meal. These beautiful animals are no threat to people or animals other than birds and placid if left to go about their business. They are so rare and threatened with extinction, they are protected and big penalties apply for killing one.

Gardens. If you fence all of your vegetable and ornamental gardens to exclude kangaroos and rabbits, you've solved the main problem of night time grazing. If you have fallow deer, this may require a higher fence, as they can easily jump 180cm if they fancy what's in your garden.

So you can fence your whole house yard and have the freedom to plant and grow whatever you want. The downside is that you'll need to mow lawns through the growing season. I prefer less mowing, so I just fence a few garden bits that I want to protect from grazing.

I'm happy to have kangaroos and deer visit my ornamental garden and house lawn at night, so I don't fence that off. I like seeing the animals up close and they graze the lawn so well I only have to mow it three times a year. This means I have to accept droppings on the lawn and I can only successfully grow garden plants that are unpalatable or prickly enough to survive nibbling wildlife. Through trial and error, I've found the following are 'bomb-proof' plants that grow here and resist nibbling by kangaroos and deer:

- Herbs - Lavender, Rosemary and Mint (which is still eaten in August if they're desperate)
- Exotic shrubs - Diosma, Oleander and the deciduous Berberis (all are dense and favoured nesting places for small birds such as finches and wrens)
- Exotic grass – the Red Hot Poker grows several stems of up to 40 nectar-rich flowers that are visited daily by friarbirds, wattlebirds, spinebills and other honeyeaters
- Native shrubs - Grevillea juniperina and most species of Bottlebrush (Callistemon)

Where I wanted a dense garden of native shrubs (for wrens, finches and other small birds to roost and nest) I fenced an ornamental garden bed to keep the deer and kangaroos out and allow me a greater choice of (palatable) grevilleas and bottlebrushes.

My vegetable garden is fully fenced – including a wire roof – and because it is beside the chook yard I can easily expand it (shifting a mobile fence to take over some of the chook yard) or let chooks in to dig over a finished vegetable crop. I should have used 30mm (rabbit) wire mesh because the larger chook mesh allows small fruit-eating birds in to my boysenberries! For picking greens and other vegetables that I want closer to the kitchen, I use old water tanks and bathtubs with covers or barriers to protect the plants from grazing.



For fruit trees - especially figs - I think you need to put up temporary or permanent bird netting to keep parrots, bowerbirds, silvereyes and currawongs off your fruit – or do what the cash-strapped early settlers did and plant a lot more fruit trees and hope to get just some of the fruit for yourself.

A bird bath will bring you lots of appreciative birds – and entertainment – especially if you put it somewhere near a house window so you can easily see its visitors. Mine catches excess rainwater through a 3mm hole in the guttering and only needs me to fill it with a hose a few times a year.

A bird feeder with mixed grains will help some birds through the low-food time of winter. This is when the young unskilled birds, born the previous spring struggle to survive. In winter, seed-eaters like the spectacular King Parrots and Crimson Rosellas will often be pushed aside by Pied Currawongs and Satin Bowerbirds (mostly fruit-eaters) and even hungry Magpies (insect-eaters). Cease feeding from spring through summer and autumn, so that the birds won't learn to depend on the feeder. The parrots have a good memory and will periodically drop in to check the feeder. They'll be back when winter arrives.



Cotoneaster (cot-own-e-aster) is an introduced berry-bearing shrub – along with Hawthorn and Firethorn - that allows some currawongs to stay on the Tablelands through winter.



Make peace with the Spotted-tail Quoll by building quoll-proof pens for your poultry. Then you'll have your eggs and still enjoy seeing this charming animal.



The Pied Currawong is a clever predator that we may have helped a bit too much, by planting berry-bearing garden and hedge plants.

It's said that years ago all Pied Currawongs would leave the tablelands and head to the coast for winter. Slim Dusty even sang a song about 'when the currawongs come down' (to coastal Kempsey). These days many currawongs stay on the tablelands through winter. These highly intelligent birds have adapted to survive our low-food winters by scrounging food scraps and eating the berries of privet, hawthorn and cotoneaster – foreign shrubs planted by early settlers and now growing wild. My local currawongs also get seeds from the parrot feeder. The downside to this is that the currawongs are present and ready to breed earlier in the spring than they used to. This is when the small birds begin breeding. Breeding currawongs are such effective nest predators, they will eat many (often all) of the smaller birds' eggs or chicks – that might have survived in past years. How can we help? I can't force the currawongs to the coast in winter. So I grow plenty of dense or prickly shrubs, so some of the smaller birds will safely rear their young. Berberis is an introduced shrub that has fierce prickles and is dense – also roo-resistant and very hardy - so I've planted a few of these to help. It does produce berries but isn't an invasive weed that spreads. I also removed all Cotoneaster bushes – which are invasive weeds - from the garden and paddocks.

I hope these tips help you enjoy your gardens ... and wildlife too.

***Note.** All opinions, suggestions and errors are those of the author. They don't necessarily reflect the advice of the Australian Government, the GLENRAC landcare network or the Rummers Hill Landcare Group. Please consult others, consider your particular circumstances and use your judgement before following any suggestions. Comments on this article are welcome at pt.king@bigpond.com*



Wildlife-friendly dams on Rummers Hill

Written by Peter King for the Rummers Hill Landcare Group, June 2013

The land around Rummers Hill has a good variety of wild birds and other animals that you can enjoy - for their beauty, the free insect pest control they bring or just their wild behaviour. You can manage your dams, yards and gardens to increase your enjoyment of this wildlife too.

Sometimes wild animals will also be a nuisance that you have to deal with. At the very same time, you could be encouraging wild ducks to use your dams and discouraging kangaroos from eating your garden. It's just part of any land manager's responsibility.

My land management starts with the belief that the native animals were here before me and have some land rights – so I should try to live with them rather than just blow them away with a rifle or pesticides. And if kangaroos in the garden are driving me mad, I remind myself that to successfully live with nuisance wildlife, I just have to be smarter than the wildlife!

Here are some dam management tips from my time on Rummers Hill, to keep you one step ahead of the local wildlife.

If you are putting in a new dam, consider a wildlife-friendly design that has a mix of deep and shallow water and topsoil that's put back over the dam wall for grasses and shrubs. The bigger the area of shallows you can include, the more waterbirds will be attracted to it. Allowing full access by livestock in the first two years can help. The erosion and manure they bring can add a fine nutrient-rich silt to kick-start aquatic life in your new dam. After that it will be best to restrict livestock access by fencing, to limit the erosion and pollution.

The website www.seqcatchments.com.au has dam design details. If you search the web for 'wildlife friendly dams' you will find plenty of other helpful information.



Add instant habitat to your dam with bark strips, logs and branches placed around the edges, in and out of the water



Wood Ducks will appreciate an island with hollow logs for nesting



Better plant cover on dam walls will bring you better numbers of wildlife - and clearer dam water as a bonus.

- Trees on or near dam walls aren't good because their large roots can damage the wall's ability to hold water. Willow trees are weeds that affect water quality (temperature and oxygen level) and limit aquatic life, so they shouldn't be planted. Too many trees nearby can shade dam water too much and limit its temperature range. Chop out or poison any tree seedlings that sprout.
- Grasses are good as they hold the soil from washing away and into the dam. If the dam wall is bare clay subsoil rather than topsoil, couch grass may be the easiest grass to establish there. Transplant clumps of grass and soil or broadcast the seed. Use bark strips, dead shrubs, branches, hessian or burnt rabbit netting (ie without its plant-poisoning zinc coating) to protect and help the grass get going.
- Shrubs have long but shallow roots and often sprout naturally on dam walls. Since they haven't damaged any of my dam walls yet, I leave them there as close, safe perches for the small birds that come to drink and bathe – every morning and afternoon.

Ducks, kookaburras, bats and other wildlife will appreciate hollow logs and elevated home-made nest boxes put around dams. On newly-built dams it can take a few seasons to get ducks there, although I had Black Ducks nest in a hollow log on an island within months of it being built. Ducks have different food needs. Wood Ducks are a type of goose (sometimes called the Maned Goose) so they *graze*, eating nearby grass. They will often be the first to visit and nest near a dam if it is surrounded by short, soft grass or clover. Black Ducks will stay and feed in dam water (*dabble*) once it is well-stocked with the small critters they eat.

Putting hollow logs and water plants in the dam water will provide cover for fish, yabbies and frogs, protecting them from herons and cormorants. Submerged logs, branches and rocks also provide a great surface for algae to grow on, which ultimately feed all the aquatic life. Water beetles, shrimps and smaller critters are food for all dam wildlife and a bucket of these (plus invisible microscopic plants and bacterial food) can be added to kick-start the wildlife in new dams. Transferring frogs is not a good idea as you might transfer the chytrid (kit-rid) fungus disease that is currently devastating world frog populations. Take care to gather the bucketful from a local dam that isn't infested with Red Fern (scientific name *Azolla*) or the Plague Minnow fish (*Gambusia*). The 50mm-long Plague Minnow or Mosquito Fish, was introduced to Australia to control mosquitoes by eating their wrigglers. They don't control mosquitoes but do severely reduce populations of frogs and native fish!



This project is supported by the Glenrac landcare network through funding from the Australian Government's Caring for our Country.



CARING
FOR
OUR
COUNTRY



Dead tree branches and logs laid half-in and half-out of the water may look a bit untidy but they provide frogs, tiny fish and water creatures with great protection from herons, cormorants and dehydration. These are especially helpful in a new bare dam. Strips of bark (leftovers from cutting new fence posts) placed half in the water instantly gave the all-important daytime cover for frogs to get started at my newer dams. Water plants take longer to establish but are very important as shallow-water nursery sites for fish and other wildlife. I delayed the introduction of yabbies a couple of years, as they are very effective at removing young water plants. Water plants can be transplanted from any local dam that you know hasn't got weeds.



Red Fern is a floating plant that thrives and completely covers water that is too high in nutrients, due to run-off enriched with fertiliser or animal manures

I think the dams on Rummers Hill are often too shallow to plant tall fringing reeds like Cumbungi or Phragmites, which could spread to fill all the open water in a small dam. Reed-filled areas can be fairly lifeless. These reeds can't grow once the dam water is deeper than two metres, which is why you need some deep water in a dam. Seed carried on waterbirds' muddy feet and feathers, or on the wind, might still establish these tall reeds around the shallow dam edges. If that happens, at least the reeds will be habitat for Reed Warbler birds and tree frogs. Undesirable floating plants such as the duck weeds (Lemna or Spirodela) and Red Fern may also 'arrive' and they can cover the open water like a blanket. This isn't healthy for aquatic creatures as it totally blocks the sunlight they need and lowers water temperature.

Useful water plants that grow well in Rummers Hill dams are:

Above water (emergent) plants – Pin Rush (Juncus), Spike Rush (Eleocharis) and other sedges (Cyperus, Schoenoplectus, Scirpus);

Floating-leaved plants – Floating Pond Weed (Potamogeton) and Water Snowflake (Nymphoides);

Submerged plants – Ribbon Weed (Vallisneria), Water Milfoil (Myriophyllum).

Livestock continually damage dams built on Rummers Hill soils, making the dam walls barren and less attractive to wildlife. Cattle, sheep, horses and goats graze away important plant cover, they erode dam walls with foot traffic, they muddy the water as they drink, and their droppings unnaturally boost the water's nutrient levels. High nutrient levels – especially of nitrogen and phosphorus - can cause poisonous blooms of algae and floating plants.

Kangaroos and other native wildlife don't seem to cause these problems. It helps if you fence livestock off most edges of the dam. Better yet, pay the money and fence livestock from all the dam and siphon the cleaner water to a downhill stock trough. You'll be repaid for years with livestock that grow faster due to cleaner drinking water and a more interesting dam that becomes a wildlife haven.

For good information on replanting your dam, get a free copy of the booklet 'Are there plants in your wetland?' from the GLENRAC office. Also have a look at 'Planting Wetlands and Dams' by Nick Romanowski, Landlinks Press, 2010. It's an easy reading, well-illustrated guide book and can be borrowed from the Glen Innes public library.

I hope these tips help you enjoy your dams ... and wildlife too.



Plague Minnows or Mosquito Fish (the egg-carrying females have a spot on the side) don't control mosquitoes and are aggressive little predators that can quickly remove the young of most other fish from a dam.



Waterside plants should include a mix of emerging rushes and sedges (for climbing frogs) plus floating and submerged plants to give food and protective cover to the small water creatures.

Note. All opinions, suggestions and errors are those of the author. They don't necessarily reflect the advice of the Australian Government, the GLENRAC landcare network or the Rummerys Hill Landcare Group. Please consult others, consider your particular circumstances and use your judgement before following any suggestions. Comments on this article are welcome at pt.king@bigpond.com



Koalas on Rummers Hill

Written by Peter King for the Rummers Hill Landcare Group, June 2013

Koalas live on and around Rummers Hill but their numbers are very low and sightings are rare. This is the case for Koalas in most parts of eastern Australia, where over 60% of their original habitat has been cleared. Because it still has a lot of trees, Rummers Hill can play a role in Koala survival.

What you can do to help Koalas living around Rummers Hill

1. Improve habitat quantity. Don't clear Koala food trees (listed below); plant Koala food trees, in wide (seven row) corridors and even better, in patches (two hectares or more). There are guidelines below.
2. Improve habitat quality. Protect Koala food trees, especially those that connect to woodland patches. Don't allow high intensity 'hot fires' to burn out tree canopies (killing Koalas and their leaf food).
3. Protect travelling Koalas. Prevent attack by dogs; turn off your electric fences when not needed for livestock control; and don't convert Koalas into 'road kill'!
4. Support Koala research. Record Koala activity in your area – including the recollections of older locals – and send to National Parks staff to enter in the state's Wildlife Atlas. There are guidelines below.

The following information can help us understand the needs of Koalas.

Preferred habitat. Generally more Koalas are found in forests, which grow on the deeper soils, such as river banks and flood plains. This is probably because in these places the leaves of Eucalyptus trees hold fewer chemical defences (phenols) to deter grazing by creatures such as beetles, caterpillars, possums and Koalas. So the leaves of river bank trees are less toxic and more easily digested by Koalas. The woodland up on Rummers Hill has Koala food trees but historically the flat land around Rummers Hill would have carried more Koalas.

Hunting. The high quality of Koala skins means that there once was a legal trade in skins and many landowners helped lower Koala numbers by shooting them. In New South Wales, 600 000 'bear skins' were sold in 1902 alone. Hunting Koalas is now illegal and offenders face severe penalties.

Clearing and fragmentation of woodlands. Around 1900, landowners began clearing the woodlands around Rummers Hill for cropping and grazing. The trees that remained were further apart and the woodland was often left in unconnected fragments. Clearing was concentrated on the better soils, so Koalas not only lost a great part of their habitat but they lost the best part of it. This is the key problem for Koala survival today.

Fires and Koala guts. Bushfires kill many Koalas, because most cannot escape the flames. Even Koalas that survive, often die soon after the fire, because of their unique digestive system. For Koalas, Eucalyptus leaves are a reliable, abundant but very poor source of energy and nutrients. Koalas are adapted to cope with the limited energy supply that Eucalyptus leaves offer. They do this with a low-energy lifestyle – being inactive 20 out of 24 hours (which is smart not lazy!) – and a specialised digestive system. The Koala gut just cannot cope with a sudden interruption to food supply - such as occurs after a severe bushfire - and the Koala dies. So fire management – using 'cool fires' not 'hot fires' - is an important way that landowners can help Koalas survive.



Young koalas like this often have a hard time when their mother forces them to live independently – around July – and dead yearlings have been found on Rummerys Hill.

Drought. Many Koalas starve during drought and this is a major hazard for Koalas living in tough woodland like Rummerys Hill. If they can, drought-affected Koalas will try to move to the drought refuge of ‘better’ trees that grow lower down, near rivers and creeks. Landowners with this sort of country have a good opportunity to help Koalas, with trees and bushy corridors that connect their ‘better’ trees to the less favourable hill trees.

Koala diseases. Koalas suffer from disease like all animals. This normally wouldn’t threaten Koala populations. Because Koalas now live in isolated woodland patches, much closer together than they did before their habitat was cleared, they can suffer from disease epidemics. This is very dangerous for Koala survival, because such epidemics can completely kill an isolated population of Koalas. Two epidemic diseases threaten Koala populations: a venereal disease (bacterial Chlamydia psittaci) that lowers the birth rate; and pink eye (kerato-conjunctivitis) that can cause death through blindness. Koalas are more susceptible to both diseases when stressed (for example, by fires or tree clearing). So diseases that once had limited impact are now a major threat to Koala populations, due to past land clearing.

Nature reserves for Koalas. In case you were wondering, the nature reserves near Rummerys Hill won’t save our Koalas, for two reasons:

- Too small. Local reserves are too small for long-term survival of sufficiently large Koala breeding populations;
- Too poor. By the time local reserves and national parks were created, the best Koala habitat was already taken – and cleared - for farming and grazing.

So it’s up to us private landowners, collectively, to help Koalas. Land that is managed for farming and grazing, with a little care, can still support healthy Koala populations.



Koala droppings may be found scattered under trees. They can be distinguished from Brushtail Possum droppings by shape even though both turn paler with age.



These (coloured) Koala tree scratches show typical claw separations, groups of 2, 3 and 4 toes and have a larger spread than those of a Brushtail Possum.



Detailed things you can do for Koalas

Feed your Koalas

Protect the following Koala food trees if you have them. Those with bold names occur naturally on Rummers Hill, the others are often planted or grow nearby. Koalas prefer the leaves of primary food trees over those of secondary trees.

Common name	Scientific name	Notes
River Red Gum*	<i>Eucalyptus camaldulensis</i>	Primary food tree. Prefers flats.
Wattle-leaf Peppermint*	<i>Eucalyptus acaciiformis</i>	Primary food. Grows well locally, especially in windbreaks.
Yellow Box*	<i>Eucalyptus melliodora</i>	Primary food tree. Hills and flats.
Ribbon Gum*	<i>Eucalyptus viminalis</i>	Primary food tree. Lower areas.
Mountain Gum	<i>Eucalyptus dalrympleana</i>	Secondary food tree. Wetter areas
Blakelys Red Gum	<i>Eucalyptus blakelyi</i>	Secondary food tree. Medium tree.
Orange Gum	<i>Eucalyptus prava</i>	Secondary food tree. Medium tree.
Western New England Blackbutt	<i>Eucalyptus andrewsii</i>	Secondary food tree. Large tree.
Tenterfield Woollybutt	<i>Eucalyptus banksii</i>	Secondary food tree. Medium tree.
Apple Box	<i>Eucalyptus bridgesiana</i>	Secondary food tree. Large tree.
Silvertop Stringybark	<i>Eucalyptus laevopinea</i>	Secondary food tree. Large tree.
Youman's Stringybark	<i>Eucalyptus youmanii</i>	Secondary food tree. Large tree.
Grey Box	<i>Eucalyptus moluccana</i>	Secondary food tree. Large tree.
Broad-leaved Stringybark	<i>Eucalyptus caliginosa</i>	Secondary food tree. Large tree.
New England Peppermint	<i>Eucalyptus nova-anglica</i>	Secondary food tree. Large tree.

When planting windbreaks or wildlife corridors, include the Koala food trees marked * to improve Koala habitat around Rummers Hill. Remember too that narrow windbreaks (two or three tree rows) are of limited use for bird life, because Noisy Miner birds will occupy them and aggressively block small birds from using the row as a safe travelling corridor. Wider windbreaks, linked to larger patches of trees will serve Koalas best.

Do some Koala research

History. Write or record the Koala recollections of older local people and send to national Parks staff in Glen Innes. Such background information is often very useful for wildlife researchers.

Sightings. If you see Koalas - dead or alive - record the location, date, time of day, tree species they're in and any observations of their behaviour, condition etc. Females will often be carrying a single baby in the pouch for the six months to March, after which you'll see the youngster being carried by its mother for another six months to August. Then its newly-pregnant mother aggressively forces it to become independent. Independence can be a hard time and one August I found the fresh carcass of an undamaged young female, who apparently died from starvation.

Evidence of Koalas. You could also record *evidence* of Koalas when you don't actually see the Koalas. This evidence includes:

- **Calls.** Males make loud, snorting territorial calls, particularly in the spring and summer mating period.
- **Droppings.** Koala droppings fall from a height and will lie scattered around their tree – unlike possum droppings which are often deposited on the ground in small piles. Koala droppings are hard, firmly-packed, centimetre-wide cylinders, with a slightly ridged surface and usually around 2.5 centimetres long. Colour varies from blue-grey shades of green to red-yellow shades of brown. When broken apart, you'll see they contain fairly coarse fragments of leaf. Possum droppings are similar but look even coarser when broken apart. Both will smell of eucalyptus oil when fresh.
- **Tree scratches.** On smooth-barked gums you can sometimes see the horizontal claw marks left by climbing Koalas. Their hand makes 3-5 centimetre long scratch marks, as two lines (from thumb and index finger) that are separate and above three lines of the other fingers. These marks are usually wider than those left by possums.

Koalas on and around Rummerys Hill are more special than ever. Please help them if you can.

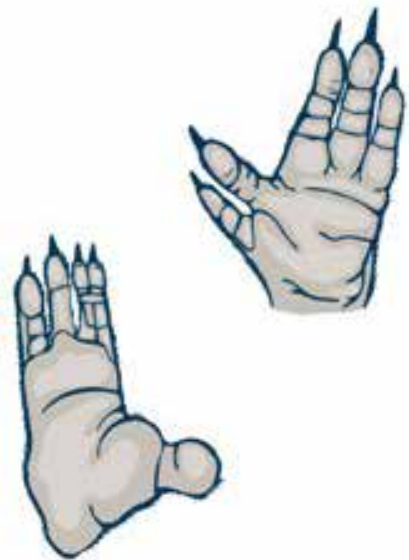
Note. All opinions, suggestions and errors are those of the author. They don't necessarily reflect the advice of the Australian Government, the GLENRAC landcare network or the Rummerys Hill Landcare Group. Please consult others, consider your particular circumstances and use your judgement before following any suggestions. Comments on this article are welcome at pt.king@bigpond.com

Acknowledgement. I am most grateful for the help of local ecologist Dr Peter Croft who identified trees and commented on the text.

For further tree information try these websites:

Native plants of the New England – <http://anps-armidale.org.au> – some plant descriptions

Native plants of NSW – <http://plantnet.rbgsyd.nsw.gov.au> – comprehensive but technical



Koalas have distinctive 'feet and hands' with widely separated sets of toes and closely-paired grooming claws on the foot (left). These make their tree scratches a bit easier to recognise.



This project is supported by the Glenrac landcare network through funding from the Australian Government's Caring for our Country.



CARING
FOR
OUR
COUNTRY



Managing your property for wildlife.

Part 1: Why bother?

Written by Peter King for the Rummers Hill Landcare Group, June 2013

History

On Rummers Hill the pre-settlement woodland probably consisted of a continuous cover of mixed-age trees, shrubs and grasses that have now been changed, mostly by clearing, grazing and fires. We can be pretty sure these changes have increased the grassy areas and reduced the age and amount of trees and shrubs on the Hill.

As happens everywhere, some wildlife prospered in the new conditions and some didn't. Grey Kangaroos, crows, ravens and magpies have benefitted from the extra man-made pastures and dams. We also convinced seed-eating birds like the Crested Pigeon, Galah and Sulphur-crested Cockatoo to spread here from the inland to share the extra grains we now grow. All these 'winners' are in higher numbers today and not threatened.

The 'losers' include many woodland birds. We are lucky to still have these on the Hill but their numbers have fallen in Armidale woodlands and elsewhere across the state. So our woodland birds could be in slow decline and may eventually disappear from the Hill.

These birds and other small creatures are the ones we can help, if we choose to.

So why manage your property for wildlife?

- 1. Save nationally-endangered woodland birds.** Rummers Hill – due to its history - is an ideal place to help the set of small woodland birds that we know are already threatened with extinction across their former range, the so-called wheat-sheep belt of eastern Australia.
- 2. Give wildlife a corridor to the region.** As well, because Rummers Hill remains a lightly-cleared part of a regional wildlife corridor, local land managers can help maintain wildlife across a much larger area. So the 100km Shannon Vale to Ashford wildlife corridor may support and resupply wildlife to a far greater area of the NSW Northern Tablelands.
- 3. Let wildlife help your property.** Wildlife supplies many hidden 'services to your environment' and we often forget these. If you devote parts of your property to conservation (along with farming and grazing) you maintain a store of critical supplies (just like winter fodder and grains) that safeguards the health of your environment. Here are just some of the services wildlife supplies:

Soil health. Your soil is a living mix of creatures (including millions of microbes) plus the minerals and moisture needed to keep them alive and well. Soils are the foundation of your property's production, including the wildlife it supports. Without you lifting a finger, soil can recycle your property's dead plants and animals back into living plants and animals and keep your environment healthy!

Pest control. Every day, birds, bats, lizards, ants and countless other creatures are eating their way through equally high numbers of pests such as flies, mosquitoes and soil nematodes. We should not forget this free service to you and your environment.



Pollination. Most people think that the introduced honey bee is the only pollinator of our trees, fruit and vegetable crops. Native bees, wasps, flies, honeyeaters, possums and gliders will also do the job, without cost or support.

Water quality. Well-managed dams and creeks can hold a community of plants, animals and micro-organisms that ensure you have healthy, high-quality water.

Your enjoyment. There's no doubt about it, wildlife can amuse, inspire and challenge us. Most of us enjoy having the abundance of wildlife that Rummers Hill can provide.

Your chance to help. Most of us lead busy lives with a lot of attention going to making a living and supporting our family. The land we manage gives us the perfect chance to do something for 'the greater good' - for our whole environment.

Your environmental legacy. What sort of environment are you going to leave behind for those that follow you? Will the place be better or worse for the wildlife you 'inherited'?

Note. All opinions, suggestions and errors are those of the author. They don't necessarily reflect the advice of GLENRAC or the Rummers Hill Landcare Group. Please consult others, consider your particular circumstances and use your judgement before following any suggestions. Comments on this article are welcome at pt.king@bigpond.com



This project is supported by the Glenrac landcare network through funding from the Australian Government's Caring for our Country.



CARING
FOR
OUR
COUNTRY



Managing your property for wildlife.

Part 2: Principles

Written by Peter King for the Rummers Hill Landcare Group, June 2013

There are five broad areas to consider if you want to help your wildlife.

- 1. Make your property plan.** Your country may be similar to neighbours but your management aims are unique to you and your family. To decide what you want to do and when, it's best to make a written plan. You can do a property planning course, where you'll map paddocks and determine how you'll balance wildlife conservation with farming, grazing and other activities. This might mean setting aside areas for wildlife but could mean simply adjusting your grazing and farming practices to benefit wildlife. Contact GLENRAC to find a property planning course. Everyone says they benefit from the topics and thinking such a course requires.
- 2. Help your habitats.** Any species of wildlife on your property needs a place to survive and breed – its habitat. If you look after habitat, wildlife will look after itself. Here are some conservation principles you can apply to six major habitats on your property:

2.1 Soils. Soils are the foundation of your property's production, including the wildlife it supports. To avoid erosion and loss of moisture it is important to keep bare ground to 30% or less. Do this through grazing control and fire management that maintains pasture cover and allows the build up of leaf litter.

2.2 Pastures. The native pastures on Rummers Hill are of low-to-medium value for livestock grazing but – unlike so-called improved pastures – they are 'sustainable' since they require little human input and will survive droughts. If they are well managed (not overgrazed and spelled at critical seeding times) they will successfully support low densities of livestock as well as wildlife. Move livestock off pastures before they are eaten below an average height of 75mm (3") or the pasture mix will steadily change to leave only the tough and unpalatable species. The native Weeping Grass (*Microlaena stipoides*) is a high protein, winter-growing grass valued by kangaroos and livestock - but it will go if overgrazed. The native lovegrasses produce fine seeds that are important for red-browed finches. Many native pasture species form tussocks which wildlife uses for cover and nesting. Learn about your native grasses, so you can manage them for their reliable output and support of wildlife.



Leave the edges and corners of cropping paddocks to make a refuge for pest-eating beetles and other beneficial insects



The native Weeping Grass is a handy pasture species, high in protein and able to grow through winter. Careful grazing can allow it to seed and spread.



Dead trees - also called stags - are Nature's high rise apartments. They may look a bit stark to our eyes but their splits and hollows make the perfect nesting, basking and hiding places for thousands of insects, lizards, birds and bats. Don't knock 'em down.

2.3 Big trees, living and dead. The Hill's big trees (diameters over one metre and over 150 years old) are real gems in your property's set of wildlife habitats. They are special because they alone offer the resting and nesting hollows that so much of our wildlife needs. Hollows are needed by 20% of our bird species, 30% of reptiles and 40% of mammals! These include owls, parrots, lorikeets and kookaburras. For just one pair of Barking Owls to live and breed on the Hill long-term, they require several nest hollows over 20cm wide.

Hollows are 100 years in the making. It takes Eucalypts well over a hundred years to create a 40cm cockatoo nest hollow. So today's hollow-bearing tree could have begun life the same year as Ned Kelly! Ideally every hectare of woodland will contain 30 nest hollows - from

a tree creeper's knot hole, up to a large parrot hollow.

Big dead trees may look a bit 'untidy' to you but beauty is in the eye of the beholder. Big dead trees have 'beautiful' hollows and crevices that all sorts of wildlife will use. About 20% of all our animal species rely on dead wood in standing trees and fallen logs.

Due to past land use, hollow-bearing trees are not common on Rummers Hill. So look after them. Don't let fires or your bulldozer 'tidy up the place' and destroy these high-value wildlife assets.

2.4 Understorey trees and shrubs. The amount of shrubs that our woodland has is the second most important thing - after tree cover - governing the abundance and variety of our wildlife. Don't let excessive grazing or burning take your shrubs out.

Consider just the Hill's wattle shrubs. Their leaves feed insects and wallabies, their flowers are eaten by rosellas and lorikeets, their seeds are eaten by bronzewing pigeons and the sap of some wattles will feed sugar gliders and honeyeaters. The wattles provide nitrogen to fertilise the soil and support its microbes. Wattles also give wildlife the shade, protective cover and nest sites it must have.

2.5 Logs, rocks and ground cover. It's easy to overlook the habitat 'below our knees' that so many small mammals, birds, reptiles and frogs depend on. Logs and fallen branches - even stumps and bulldozed log piles - are vitally important if you want to maintain healthy populations of wildlife.

Logs supply: egg-laying sites for gecko and skink lizards; shelter sites for frogs and echidnas; the food for termites, borers and the yellow-footed antechinuses and echidnas that eat them. Cracked and hollow logs are especially important for the cold-blooded reptiles, supplying safe basking sites for small lizards to warm-up so they can move and digest food, winter hibernation sites, and places to shelter and avoid overheating in summer. Wherever possible, leave your logs.

If you have to remove logs for ploughing, you might push them aside to an area where they can still benefit wildlife. If you only intend to graze, maybe you can learn to live with scattered logs, for the wildlife they support as well as the added moisture and soil fertility they create around them?

The abundant rocks of Rummerys Hill also help wildlife, because rocks embedded in soil give small animals some protection from predators and a safe place to hide during bushfires. You'll see plenty of rocks turned over by hungry pigs and foxes, because they've learned many lizards, worms, scorpions, centipedes and ants shelter there. So be like the wildlife and love your rocks.

Leaf litter and twigs form a carpet full of living things, from ants and beetles to microscopic fungi. If you burn or remove this layer you are scalping away the living foundation that supports almost all of your property's wildlife - and it will take years to recover.



A healthy woodland will have enough large logs and tree hollows for its wildlife. These take over 100 years to form and are quickly removed when fires are too hot or too frequent.



Tree bark is a huge part of your property's wildlife habitat, whether it's on a Narrow-leaf Ironbark or peeling off a Ribbon Gum as shown.



Overgrazed pasture, with no grass over 75mm high and showing more than 30% bare soil. The big risks are erosion of precious topsoil in the next thunderstorm (short term) and a shift to unpalatable grasses (long term).

2.6 Creeks, swamps and dams. Wet areas only occupy a tiny part of your property but if you want, you can use them to make a huge difference for wildlife. Access to permanent or semi-permanent water is vital for so many native animals and plants.

Frogs and waterbirds (such as coots, grebes and ducks) breed and feed in and around water. Magpie-larks and

White-winged Choughs must have mud to build their nests. Even Ringtail Possums will raise more young in wet gullies near dams.

A separate article in this series discusses wildlife-friendly dams. Property management for wildlife could include not draining your swampy areas. Reducing or excluding creek access by livestock (especially cattle) will help stop soil erosion, collapsing banks, water pollution and the removal of waterside plants. Cattle that can freely wade into dams will remove the plants needed by frogs and fish as breeding sites, trample egg masses, make water muddy and pollute it with their droppings. A short fence to limit access will mostly fix these problems; full exclusion, with water piped to a trough is even better. Young cattle are known to grow up to 20% faster when drinking clean trough water.

3. Take care with these high-impact activities

3.1 Burning and bushfires. Burning a woodland – especially its hollow trees and logs – can burn away your best wildlife assets. Many of these assets took 100 years to make! Two separate articles in this series discuss fire on Rummers Hill.

3.2 Grazing and fencing. Sheep, goats, cattle and horses graze and browse in different ways. Sheep and goats eat shrubs more than cattle and horses. The heavy foot traffic of cattle will also do more damage to soils, dam or creek banks and pastures. When food is scarce all livestock can 'overgraze' a paddock and cause irreversible change in the species of pasture and shrubs that you have.

So you need to manage grazing carefully. If you have paddock trees, look to see if there are different ages of young trees coming up as replacements for the older trees. Without offspring, those old trees are an aging population that can die suddenly (from disease and insect attack) leaving your paddocks tree-less. In a study of southern NSW woodlands, 90% had no regenerating trees! Eucalyptus suckers can be killed by livestock until they grow to over four metres. Grazing a paddock in short bursts and spelling it for long periods – ideally while grasses are seeding - will help save the smaller regrowth. Fencing such regrowth areas will help you manage the grazing pressure.



3.3 Ploughing. We all know that ploughing destroys a great deal of soil wildlife (spiders, worms, lizards etc) and usually removes native grasses. Those of you with paddocks good enough to plough, will realise those paddocks of 'better' country once held different wildlife to the rest of Rummers Hill. So Koalas, Barking Owls, Spotted Harriers and many small insect-eating birds can still be encouraged to use these paddocks. Consider leaving wider strips of unploughed, unfertilised land along fence lines and around paddock trees. These areas will support native shrubs and grasses that bring extra wildlife, pest control and other benefits to your property.

4. Control your pests and weeds

Rummers Hill has its own set of pest animals and weeds that threaten to reduce the wildlife (and livestock) carrying capacity of your property. Pest, weeds and their control are discussed in two separate articles. It's important that you can identify the weeds that are already on your property, as well as those nearby, that may invade later. Keeping your pet cats indoors at night can also help save tree frogs and another 30 species of wildlife around your house. Join with your neighbours - ideally at the same time - to multiply the impact of your pest and weed control measures.

5. Create conservation areas

Setting aside a small part of your property to 'use' for conservation of its soil, water, plants and animals can be the simplest, low-effort way to support wildlife. A suitable area could be 10-30% of your place, fenced-off and declared for 'no grazing' or 'occasional light grazing'. A minimum patch size of 10 hectares is ideal. Having such an area in a water catchment can have added benefits.

Further information

Wildlife on Farms, by Lindenmayer and others, CSIRO, 2003. This guide is easy reading and well-illustrated. It's available from the Glen Innes public library.

Planting Wetlands and Dams, by Nick Romanowski, Landlinks Press, 2010. Another easy reading, well-illustrated guide book. It's available from the Glen Innes public library.

Note. All opinions, suggestions and errors are those of the author. They don't necessarily reflect the advice of the Australian Government, the GLENRAC landcare network or the Rummers Hill Landcare Group. Please consult others, consider your particular circumstances and use your judgement before following any suggestions. Comments on this article are welcome at pt.king@bigpond.com



This project is supported by the Glenrac landcare network through funding from the Australian Government's Caring for our Country.



CARING
FOR
OUR
COUNTRY



Managing your property for wildlife.

Part 3: A checklist

Written by Peter King for the Rummers Hill Landcare Group, June 2013

Every property and its owners will be different. There is no single recipe to manage for wildlife.

What follows is list of recommended actions that you might consider for your property, for you to check.

You could mark the actions you have done and mark the ones you plan to do.

Action	Done	To Do
Property management plan provides for wildlife conservation		
Ground cover is maintained and has no more than 30% bare ground		
Native pastures are allowed to seed in any paddock at least every three years		
Large living trees over 1m diameter are protected from fire		
Large dead trees with hollows are protected from fire		
Replacement trees under 4m are protected from frequent grazing and fire		
Shrubs are protected from heavy grazing and frequent burning		
Logs are left on the ground, unburnt wherever possible		
Log piles from clearing are left unburnt		
Leaf litter is protected from burning wherever possible		
Creeks keep their shrub and grass cover, with no erosion by livestock		
Swamps are fenced and livestock are kept out most of the time		
Dams are partly or fully fenced to limit livestock grazing, erosion and pollution		
Burning for hazard reduction is limited to small areas around the house/assets		
Grazing is managed to maintain at least 75mm average grass height, year round		
Ploughing any paddock leaves some areas of ground cover, shrubs and trees		
Foxes are controlled in coordination with neighbours		
Feral pigs are controlled throughout the year		
Domestic cat impacts are controlled and feral cats are killed whenever possible		
Blackberries and other woody weeds are controlled		
Grassy weeds already on the property are controlled		
Grassy weeds that may invade can be identified		
Conservation area of at least 10 hectares or 10% of the property is set aside		
Conservations areas fenced and protected from frequent grazing and burning		

You can read the associated articles for more detail on all of the actions above:
[www.glenrac.org.au/Resources/Rummers Hill Landcare Group](http://www.glenrac.org.au/Resources/Rummers_Hill_Landcare_Group)



Weed control on Rummers Hill

Written by Peter King for the Rummers Hill Landcare Group, June 2013

The weed threat. A weed can be any plant you think is causing a problem, even a mild nuisance. However there are some serious weeds on Rummers Hill that are worth controlling because they:

- **reduce the land's carrying capacity for livestock**, because the weeds out-compete the pasture grasses and 'take over', filling your paddocks with unpalatable low-quality grass;
- **kill or force out wildlife**, since the thick stands of some grass weeds are unsuitable as homes and food sources for many of our native insects, lizards and birds – so they die or leave; and
- **increase fire damage**, because grass weeds form a highly flammable fuel that is always thick and will rapidly carry a bushfire to your door or livestock.

What does weed control mean? Total *eradication* of a weed from your land is possible if you work at it and that should be our goal. However, many weeds are so successful that we can only aim for *control*, which reduces the weed's impact to almost nothing but never totally eradicates it. This can mean spraying every year or two and since many weed-killers are cheap, spraying is worth the effort.

The worst weeds. There are two groups of weeds on Rummers Hill, grass weeds and woody weeds.

Grass weeds often are not noticed till they've got a strong hold. Grass weeds are generally worse because they are so invasive, they can totally replace introduced pasture and native grasses – leaving nearly 100% weeds. Because grass weeds are usually less tasty or less digestible for grazing animals, your weed-infested land will be able to feed and carry less livestock (and less wildlife).

Woody weeds are less of a problem on the Hill, since they slowly invade small areas and are easier to control. Keeping berry-bearing woody weeds may be linked to the decline in honeyeaters and wrens on the Hill. We think this is because Currawongs that once went away for the winter can now stay and survive by eating the berries of woody weeds like Sweet Briar, Privet and Cotoneaster. The Currawongs then can breed earlier in Spring and eat more of the eggs and nestlings of these small birds.



African Lovegrass forms dense tussocks with loosely branched seed heads held high above.



Coolatai Grass tussocks put up V-shaped seed heads.



Sweet Briar is a prickly, woody weed whose seeds are spread by the birds and foxes that eat its berries.

In some places, native trees and shrubs can be seen as weeds that need to be removed, such as along fence lines, tracks and fire breaks. Then the recommended control method for *seedlings* is different to the way you will control *adult trees and regrowth* after clearing (because of their well-established roots).

Weeds we can control and weeds we can't control. Some weeds – such as Blackberry, Sweet Briar and Privet - are declared 'noxious' (harmful) by the NSW government, which means you are legally required to control them. Some – such as Blackberry – are so widespread they are declared weeds of national significance (WONS).

For Blackberry on Rummers Hill, control is fairly easy. It's done by spraying and browsing (where animals such as goats and deer continually weaken the plant by eating off the leaves and fruit). Sweet Briar, Privet and Cotoneaster are fairly easy to control too. For all the other weeds, we need to look at each weed and decide – for our property - whether we can do something to control it.

Some grass weeds – such as African Lovegrass (*Eragrostis curvula*) – have already spread widely and are 'beyond control' in many parts of the Hill. You have to look at your property and decide whether you'll fight this one. African Lovegrass is a great invader of disturbed areas and often starts and spreads from regularly-graded road edges and property tracks.

Coolatai Grass (*Hyparrhenia hirta*) is worse than African Lovegrass, since it even invades undisturbed ground, including native bushland. Coolatai Grass is present on the Hill and it's definitely one to keep out of your property if you can.

Chilean Needle Grass (*Nasella neesiana*) is on parts of the Hill – including along the Beardy Waters – and it can be very difficult to control since it can produce up to 20 000 seeds per square metre! One wag said the best control is to cover it with 100 mm of concrete! Make sure you can identify it (very similar to the native Spear Grass), stop it entering your property and blitz it if it does.

Whisky Grass (*Andropogon virginatus*) is an easily-recognised weed that is spreading across the Hill via the roadside reserve. Vehicles – including council-funded slashers – may be spreading it. This weed will enter properties from the roadside but can be controlled with herbicides.

Some landholders may still be able to stop these grass weeds spreading onto their land, with low-cost spraying. For these landholders, spraying is certainly worth the cost and effort. Neighbours spraying together will give the best weed control for the Hill.

Be alert and act fast. We need to keep a sharp lookout for new weeds and identify any new or suspicious plant we find. Make sure you can identify the Hill's current weeds and future weed threats (see below).

Watch your boundaries and access tracks as points of weed entry. This gives you the best chance of eradicating a new weed before it gets established on the Hill. Other ways to prevent weed entry are:

- Be sure to only buy fodder (hay, grain) that is free of weed seeds;
- Don't create bare patches in your pasture where weed seeds can germinate, by overgrazing or burning too often. Graze to keep a minimum 100mm of grass height and over 80% of the ground covered. Newly burnt ground gives weed seeds a 'head start', as well as fertilising the soil for them!
- Brush, wash or air-clean your vehicles and equipment to remove dust, mud and seeds if they have been through serious seeding weeds. You can see how easily uncleaned graders, slashers or other vehicles have spread weeds along our local roads.



Chilean Needle Grass has distinctive seed heads and is quite tall if ungrazed.



Whisky Grass is an orange colour and stands out in the warmer months but fades to a straw colour through winter.

Control methods. The most common weeds and their control options are listed below. Understand that most weeds you treat will require follow-up treatment (of new seedlings or regrowth) next season. The best spraying months for all weeds are when the plant is well-watered and actively growing - usually November, December and January – ideally, once it flowers but before it sets seed. Woody weeds may be grubbed out with a mattock or tractor blade but any regrowth should be sprayed to kill the roots. Browsing by deer and goats does slow the spread of Blackberry but usually doesn't kill it. Remember that Foxes, Currawongs and other fruit-eating birds will continue to spread the seeds of Rummers Hill woody weeds – often many kilometres - onto all our properties if we don't kill these plants.

Grass Weed	Control	Use**	Notes
African Lovegrass	Spray or wick wipe	Roundup 360	Wick wipe, backwards and forward, with a strong mix
<i>Coolatai Grass</i>	Spray or wick wipe	Roundup 360, Taskforce	
<i>Chilean Needle Grass</i>	Spray	Roundup 360, Taskforce	Combine with physical removal, grazing pressure
Whisky Grass	Spray or wick wipe	Roundup 360	Especially on roadsides
Woody Weed	Control	Use**	Notes
Blackberry*	Grub, spray and burn	Grazon Extra	If growing in waterways, use Roundup Biactive
Sweet Briar*	Grub, spray	Grazon Extra, Brushoff	Find and treat seedlings
Privet*	Grub, spray	Brushoff	Find and treat seedlings
Cotoneaster	Apply to cut stump	Vigilant or Tordon gel	Gardens and driveway ornamental that birds spread in their droppings
Eucalypt/Wattle/Tea-tree seedlings	Spray all leaves	Grazon Extra	
Eucalypt/Tea-tree regrowth from root	Treat cut stump or spray basal bark	Tordon 75D/DSH Access/Garlon 600	

** Please see *photos* of all these weeds in the Weeds Management Guide booklet and refer to the Permit PER9792 for the best, most up-to-date recommended *chemicals and their application*.



Future weed threats to Rummerys Hill. Nearby outbreaks of highly invasive grass weeds should keep us on the lookout – and able to identify – the following weeds:

- Chilean Needle Grass* – a weed of national significance
- Serrated Tussock* – a weed of national significance
- Giant Parramatta Grass*
- Pampas Grass*

* These weeds are declared noxious under the NSW Noxious Weeds Act, with Shire weeds officers responsible for enforcement. Their growth and spread must be controlled to minimise their negative impact on the environment and economy. Landowners can be fined for not doing their bit. However local authorities are there to support, not punish. Don't be afraid to approach them.

Further weed information. You can get more detailed information for each of these weeds from the Department of Primary Industries and Forestry, Northern Inland Weeds Advisory Committee, Border Rivers-Gwydir Catchment Management Authority and GLENRAC - the Glen Innes Landcare network.

The free booklet '*Weed Management Guide for North West NSW*' (2009) by the Northern Inland Weeds Advisory Committee is an excellent local reference we should all have. Get yours from the council.

The best local weeds website, packed with information and referrals to other good sites is at: northwestweeds.nsw.gov.au Click on Weeds list/Coolatai/PermitPER9792 for everything you'd ever want to know about grass weed control sprays and methods.

Weed identification people. Take a complete weed sample in to Glen Innes to:

- Weeds Officer, Glen Innes Severn Council (who can also visit to inspect the site); or
- Invasive Species Officer, Border Rivers-Gwydir Catchment Management Authority; or
- Weeds and Pest Officer, NSW National Parks and Wildlife Service.

Note. All opinions, suggestions and errors are those of the author. They don't necessarily reflect the advice of GLENRAC or the Rummerys Hill Landcare Group. Please consult others, consider your particular circumstances and use your judgement before following any suggestions. Comments on this article are welcome at pt.king@bigpond.com

This project is supported by the Glenrac landcare network through funding from the Australian Government's Caring for our Country.



CARING
FOR
OUR
COUNTRY

Pest animal control on Rummerys Hill

Written by Peter King for the Rummerys Hill Landcare Group, June 2013



Smart pest control

The following notes are written to help you deal with pests - of the wildlife kind - that live on Rummerys Hill. There is a lot of information available (see 'Further information' below) and these notes just summarise what suits the Hill.

Control in these notes means 'reducing the damage to an acceptable level' not 'eradicating'. You'll be doing very well if you eradicate any pest animal from your property.

The best approach to pest control is multi-pronged, also called 'integrated' pest control. This means you should:

- Use several methods of control at the same time, not just one;
- Time your control efforts to the most vulnerable time in the life of the pest animal; and
- Coordinate actions with adjoining landowners for maximum area and pest impact.

Here are the main pests and the control methods that you can combine:

Pest and nuisance animals	Poison	Trap	Shoot	Biological controls	Other control methods	Main damage
Wild dogs (Feral Dog and Dingo*)	•	•	•			Kills livestock and wildlife
Fox	•	•	•			
Feral Pig	•	•	•			
Feral Cat		•	•		Spray bait?	Kills wildlife
Feral Goat		•	•		Muster	Removes food of livestock and wildlife
Feral Deer			•			
Rabbit	•	•	•	•	Remove cover	
Rat, mouse	•	•	•			Eats/contaminates stored food/fodder
Kangaroo, wallaby*			•			Removes food of livestock
Snake*			•		Trained catcher	Kill only if threatening people or pets
Possum*		•			Offer nest box	Eats garden plants/ house noise

*Animals native to Australia (here before European settlement in 1788) that have legal restrictions on their control.



There are general notes below, followed by notes on how to control the *main* pests on the Hill – foxes, rabbits, pigs, deer, wild dogs, and cats. Sources of information and help are given below for **all** pests.

Pests, poisons and the law

Landowners in NSW are legally required to control rabbits, pigs and wild-living dogs (dingoes or other dogs).

The use of poisons (1080, weed killers, insecticides, worm drenches etc) is legally regulated under several NSW laws – mainly the Pesticides Act of 1994. You shouldn't see these laws as another restriction of your freedom to do whatever you like. Unfortunately the law is necessary to protect the community, wildlife and the environment from a few 'inconsiderate cowboys' who mindlessly - sometimes knowingly - poison soils, waters and animals, including people. Landowners' gleeful tales of mass killings of ducks, parrots and other wildlife with Lucijet (a fly-strike poison, now off the market) always overlook the obvious pain and distress caused to the poisoned animal.

To use pesticides, *non-commercial* users such as householders, gardeners and hobby farmers just need to know details of the Pesticides Act (www.environment.nsw.gov.au/pesticides). Farmers – and other commercial users who use pesticides as *part of their job* – must be trained and have a Chemical Card. Short courses, run by the Livestock Health and Pest Authority for hobby farmers to use of 1080 and Pindone are inexpensive and worth doing. There are big penalties - \$120 000 to \$250 000 - if your use of a pesticide impacts on your neighbours.

Animal welfare. Killing any animal should be as quick and pain-free for the animal as possible. If it isn't, it becomes 'unnecessary cruelty' in the eyes of the community and heavy fines can apply if you are reported. So live capture traps - used for wild dogs, cats, pigs, rabbits etc - need to be checked daily and any captures quickly despatched. The expected standard procedures for this are clearly explained at www.dpi.nsw.gov.au. Note that the old bare-jawed leg-hold rabbit traps can no longer be legally used. Convert them to soft jaws and you can use them. Spring wire 'break back' traps designed for rats and mice are legal but shouldn't be used if you might kill or harm native animals (see 'By-catch' notes below). Researchers believe that 1080 and Pindone poisons kill without much pain. They say an animal dying from 1080 does show nervous convulsions - like an epileptic fit in humans – but it suffers little pain. Pindone is a slow-acting poison that stops blood from clotting, so the animal dies quietly from internal bleeding.

Native animals. Our laws generally recognise native animals – those in Australia before European settlement – as 'protected', that is they cannot be killed or harmed without approval. If you are found killing (or harming) a native animal, without a permit to do so, you may get a big fine. This includes common nuisance animals such as crows, ravens, parrots and possums. The more abundant or dangerous native animals that become pests – such as Dingoes, kangaroos and wallabies – can be killed, at specified places and times. Dingoes can be killed without a permit but to bait with 1080 you'll need a Chemical Card or other training and to sign an indemnity form. Kangaroos and wallabies can be killed under permit. Don't believe the folklore: if you really have problems with excess kangaroos or wallabies, it is a simple process to get a permit to kill some from the local National Parks and Wildlife office. Then you are legal, with no worries.



Possoms will sometimes enter your house roof and become a pest but they can't be legally killed. They can be easily trapped alive, but they can't be successfully relocated because the possums that already 'own' that territory will attack and eventually kill the newcomer. So what can you do? It is simplest to possum-proof your house and provide an outdoor possum box nearby, where your possum can live without becoming an indoor pest. The NSW National Parks and Wildlife Service has full possum control details on its website.

Dangerous snakes on Rummerys Hill are mostly Red-bellied Black Snakes and Eastern Brown Snakes. Both are venomous but luckily for us, they will avoid humans whenever we give them the chance. So if you surprise one, stand still and back away as soon as you can do it without frightening the snake. It's illegal to kill them unless they are threatening life (people, pets or livestock). Untrained people should not try to kill or handle these snakes – as this is when most bites happen. There is no reliable snake control method but good house-keeping around your house and sheds helps. Keep lawns mown, remove possible snake cover (lift stacked wood/tin, shift rocks etc) and poison any rats or mice. Make sure you know how to treat snake bite and you're pretty well prepared.

By-catch. Sometimes your pest traps can catch innocent bystanders. When trying to trap an introduced rat or mouse, you might instead catch a native rat, a native antechinus (pronounced 'anti-kine-us') or a native dunnart. This is an accident and the law allows that you are not liable for a fine if you took reasonable precautions and you release the caught animal unharmed. If you suspect a native animal is your pest, then you should 'take reasonable precautions' - that is, not use a killing break-back trap but use a live capture cage or box trap, so you can relocate and release any native animal that you trap.

One uninformed local, using break-back rat traps was repeatedly killing native antechinus in his shed. He didn't know that they don't eat grains, so were not the pest eating his bagged wheat. This was a shame since antechinus are clean and charming little mouse-like natives that eat spiders, scorpions, centipedes and grasshoppers. So they are useful to have as pest-controllers around the garden and in the shed! The identification tables below may help you avoid confusion.

Which mouse?	Tail is ..	Smell and teeth
House Mouse (introduced pest)	Pink-brown, almost hairless	Musky smell; chisel teeth
Antechinus or Dunnart (natives)	Brown, hair-covered	No smell; needle-shaped teeth

To learn more, search using scientific names *Mus musculus* (House Mouse), *Antechinus flavipes* and *Sminthopsis murina* (Dunnart).



This project is supported by the Glenrac landcare network through funding from the Australian Government's Caring for our Country.



CARING
FOR
OUR
COUNTRY



Which rat?	Ear: if folded forward it ..	Tail: if folded forward it ..
Black Rat (introduced pest)	Does cover part of the eye	Does exceed head-body length
Bush Rat (native)	Doesn't reach the eye	Doesn't exceed head-body length

To learn more, search using the scientific names *Rattus rattus* (Black Rat) and *Rattus fuscipes* (Bush Rat).

Farm hygiene helps. Foxes, pigs, cats and wild dogs are scavengers and will eat the carcasses and guts of dead sheep, goats etc. This 'free feed' helps the breeding female produce more milk and wean more young. Also a fox that is 'full' may not eat fox baits but may move and store them (even on a neighbour's property) which becomes a danger for farm dogs. Allowing wild dogs and foxes to feed on the guts of dead animals also means that hydatid tapeworms can complete their life cycle on your farm, raising the risk that you will be infected. Do limit the number of carcasses used to attract foxes for spotlight shooting and in all other situations:

- bury or remove your dead animal guts and carcasses; and
- wash your hands thoroughly after handling foxes, wild dogs and killed or injured livestock.

Killing rats and mice reduces snake visits and is best done with poisons. The introduced Black Rat is a great climber that often leaves the bush and takes up residence in house roofs and sheds when the weather is turning cold - around April. It can be hard to kill because it is naturally shy of some new things, including certain baits. Baiting is best if you use the newer poisons – with active ingredients Brodifacoum or Bromadiolone (not Warfarin) – and every couple of weeks, swap to different active ingredients and different formations (wax blocks to pellets) until the rats are gone.

Control needs commitment. One reason many of the pest animals are pests is their breeding ability. Foxes, pigs, rabbits and cats have litters of young, not singles or twins. This means if you want to reduce their population, you have to remove at least 75% of the population. If not, you will have a steady increase in pest numbers, limited only by environmental factors like drought, predators and disease. An effective control program means you 'leave no gaps':

- control pests *every year*;
- on *as many parts of the Hill as possible*.

The good news. New poisons (PAPP, sodium nitrite) and delivery techniques (ejectors, pig hoppers and Econobait, toxic traps and spray tunnels) are now being approved and commercialised. Some will be available from 2014 and they should greatly improve our control of foxes, wild dogs, pigs and cats.



Things to note about each pest

Rabbits – pests you must control by law

The problem with rabbits is they breed like rabbits. Doe rabbits mostly give birth after the first growth of high-protein plants - around September-October on the Hill – and can continue breeding for seven months. Does mate straight after giving birth, so they can have a litter every month – averaging four kittens but this rises to eight as the season progresses. Over the seven breeding months, a doe's 3-month old doe kittens also begin to breed each month. This means one doe, under good conditions, is easily responsible for 100 young a year. Luckily for us, the natural death rate in young rabbits – due to weather and predators such as eagles, hawks, ravens, cats and foxes - can be as high as 75% in an ordinary year. However in a good year, deaths can drop to less than 25%.

Every rabbit you see has a huge potential to breed and if you only remove 75% of them this year, next year you can be back to the same rabbit population.

On average, nine rabbits will eat as much as a dry sheep or goat (and 90 rabbits = one young steer).

Myxomatosis disease (caused by a myxoma virus) and coccidiosis (caused by intestinal parasites) also 'flare up' periodically and are helpful biological controls that do kill many local rabbits. The Rabbit Haemorrhagic Disease (due to a calicivirus) doesn't appear to be working here but new virus strains are being developed.

Spotlighting gives the truest indication of rabbit numbers and whether they are increasing or not. With rabbits, it is most important to *'kick 'em when they're down'*. That is, don't relax when their numbers are naturally low. That's when you can have the biggest, most long-lasting effect on the damage they can do to your property. If your control program removes 90% of the rabbits, then doing it when you have 100 rabbits has less impact than doing it when rabbit numbers are lower, at say 10. So controls applied to a population of 100 will leave damage to be done by 10 rabbits, while the same controls applied to a population of 10 leaves damage being done by only one rabbit.

The recommended local approach is to:

- poison (to remove the majority of rabbits) in August;
- at the same time as your neighbours do it;
- then trap and shoot the remaining rabbits; and
- fumigate and destroy burrows if you can find them.

Poisoning can be done anytime but is best done in the non-breeding time of year when the rabbits are more mobile and when food is getting scarce, so more rabbits will find the baits. Around Rummers Hill this means the best time is August. Local LHPA Rangers should be involved in any poisoning program. Poisoning means free feeding several days with unpoisoned oats or carrots to help rabbits find the food trail, then laying poisoned oats or carrots treated with 1080 or Pindone (Rabbait). If you use 1080 on carrots, you must pick up dead rabbits as they are a risk to working dogs. Use Pindone-treated oats in a heavily grazed paddock, where you'll keep livestock away until you've had over 100mm of rain to denature any remaining poison.



Removing rabbit cover – such as warrens, log piles and blackberries – is a major control method successfully used elsewhere. On many parts of the Hill it doesn't seem to be practical, because the country is too rocky to rip and has rabbits that seem to live above-ground in shrub cover as well. Trapping with wire barrel nets or ferrets-and-nets means you need to find burrows – often hard to do on the Hill. Or you can fumigate warrens with pellets that generate phosphine gas (and we may soon be able to borrow motorised carbon monoxide generators from LHPA or CMA). If all you can find are well-used mounds, mop-up the remaining rabbits with leg-hold traps.

Pigs – the second pests you must legally control

Feral Pigs are present in low numbers on the Hill and their damage comprises:

- Spring killing of lambs and goat kids – up to 33% losses to pigs have been reported;
- pasture and crop damage while feeding; and
- wildlife eaten, including lizards, frogs, tortoises – where pigs turn over stones and logs to find them.

Pig poison dosages of 1080 are much higher than for foxes, so baits pose higher risks to livestock and to dogs that eat dead pigs. So pig baiting using current methods is hard to justify on the Hill. A trial of the commercially available 'Hog Hopper' and new baits may show that baiting can be more effective.

Control by trapping combines safety with low cost. Traps can be placed where the pigs are and the labour cost of checking a trap can be offset by selling the trapped pigs.

There are several designs for pig traps - all being enclosures with one-way gates - and options are shown at www.feral.org.au

Trapping success requires that the pigs get familiar with feeding in the trap - over a few days - before the gate trigger is set. Locally successful trap food includes soybean or corn and molasses mix (fermented first, the alcohol smell makes a good attractant). Trapping in winter - when pigs are hungrier- is often more successful and has a good effect because this is just before the lambing/kidding/wildlife-breeding seasons.

Wild dogs – the third legally-required pests to control

Legally in NSW a wild dog is any wild-living dog, whether it is a Dingo, a Feral Dog or a domesticated dog (e.g. pig dog) that is now living in the wild. It does not include any dog that is kept as a companion dog (defined in the Companion Animals Act 1998). This act says that dog owners must keep their dogs on their property or under supervised control.

Livestock attacks by dogs are localised and rare on the Hill. They are usually the result of a 'problem dog'. The natural behaviour of wild dogs (and others in the dog family such as foxes and wolves) includes 'surplus killing' so the damage in killed and mauled livestock - from just one visit - can be very distressing and costly.

Problem dogs should be reported to the Livestock Health and Pest Authority whose rangers can help with traps and baiting. Trapping and shooting are the main control options currently used on the Hill.



Cage traps designed for possums will also catch Feral Cats like this tabby-coloured one. Larger cage traps will also catch foxes and Wild Dogs.

Large cage traps can be borrowed and used quite effectively for the sorts of problem dogs we get on the Hill. Soft-jaw leg-hold traps can also be used but you need to be a skilled operator, since there is the danger that a near-miss will make the dog trap-shy and impossible to catch. Trappers can get an instructional video and standard operating procedures at www.feral.org.au

The M44 dog-operated ejector delivers 1080 and is being used in national parks. If it becomes available for trained operators to use on private lands, it could be a very practical control method for dogs (and foxes) that are shy of traps and current baits.

Foxes – should be controlled for the benefit of the Hill’s wildlife and livestock

Foxes are relentless killers of lambs and goat kids, with losses reported up to 80%. Their nightly presence in lambing paddocks distresses lambing ewes and also causes deaths through mis-mothering.

Post-mortem notes. Foxes usually attack and kill live lambs and kids *only* from the front. So muzzle, neck and shoulder will show damage and, entering behind the ribs, heart, lung, liver will be eaten first. Ravens and crows kill and penetrate the carcass at ‘*body holes*’ - such as anus, umbilical cord, eyes and tongue. Foxes cannot crush large bones; dogs and pigs can. Pigs remove whole heads and may leave just skin-and-bones or no carcass at all. Around August, foxes may also remove whole lambs and kids to feed their young in dens.

Foxes also eat rabbits and they exert some control on rabbit numbers. However this doesn’t help when conditions favour growth in the rabbit population. Foxes eat mice and ground-dwelling native animals such as frogs, lizards, tortoises and small marsupials. They eat fruit too and probably play a big part in spreading Blackberry and Sweet Briar seeds across the Hill.

Foxes (and wild dogs) carry a microscopic parasite (*Neospora caninum*) that causes abortions. The parasite multiplies in the gut of foxes and infects grazing pasture. This is a major concern in cattle (and also affects sheep, goats and deer). Abortions affecting up to 30% of cows – ‘abortion storms’ – are common in north-east NSW but often go undiagnosed. Calves that aren’t aborted can even carry the parasite and eventually pass it on to their young. So cattle producers should join with sheep and goat producers to control foxes.

Foxes often carry mange and hydatid tapeworms which can infect dogs and people.

When food is abundant, foxes will bury excess food. This is known as caching (pronounced kay-shing). When food is scarce, such as in winter, this food is dug up. So foxes have an excellent nose, easily finding and eating buried meat baits. This caching behaviour does mean that uneaten baits can be carried onto a neighbour’s property, putting their dogs at risk. Using just enough baits, tying them in place and retrieving uneaten baits can help solve this problem.

Foxes are solitary hunters but live in family-held territories, each territory usually covering several properties. Adult foxes probably travel less than 10 kilometres per day. However they can move out of their territories, such as when food is scarce (up to 25km) or when their young 'leave home' each year in Autumn (30km). One young dispersing fox was tagged and travelled from Cowra to Narrabri, almost 600 kilometres!

So your property could easily have 50 foxes within a two kilometre 'striking distance' of your lambs and kids (and 300 foxes within five kilometres). Successfully keeping fox numbers low requires neighbours to put in a sustained effort, every year, otherwise foxes will quickly re-infest your property.

Foxes *mate* in winter and *give birth* in spring. Baiting is best done just before these two events - in April and August - when foxes are getting ready and are hungrier. Baiting must be sustained over years to give effective control. Excellent results have been reported elsewhere, where landholders baited *twice a year, every year*. In the second year (not the first) fox numbers had fallen to less than 5% of their original number and the survival rate for lambs and kids was very high.

So smart fox control means:

- bait in April and August – when they are most vulnerable;
- on as many properties as possible;
- follow-up with spotlight shooting and trapping; and
- repeat this every year.

Spotlighting is helpful but not enough of a control on its own. It can be random or can visit prepared dead animal 'food stations'. Foxes will check carcasses every night when they are hungry in late winter. Shooting this way will remove a surprising number of foxes, often the older ones that shy away from baits.

Spotlighting can also monitor the effectiveness of baiting by counting how many foxes are seen before and after baiting. This is best measured as foxes per kilometre of driving.

Guard dogs are another way to limit fox damage on your property, in effect pushing fox damage to the neighbours' properties. Details are well explained in 'Guardian Dogs: Best Practice Manual for the use of Livestock Guardian Dogs', available from the Invasive Animals Cooperative Research Centre, University of Canberra, ACT 2601.



Jaw traps for rabbits, cats, foxes and dogs must by law have rubber-covered, soft jaws. You can use old leaf sprung rabbit traps that have been upgraded or buy these coil sprung coyote-type traps.



Deer – the hidden pests that overgraze your property

Fallow Deer are common on Rummers Hill. Since they hide in cover most of the day, their numbers are often underestimated. Along with livestock, kangaroos and wallabies, deer add to the 'total grazing pressure' that is constantly applied to the shrubs and grasses of the Hill. You can move your livestock off a paddock but you can't move those other grazers. So, unless you control those 'uncontrollable' grazers, your best paddock grasses never get a break and are probably being overgrazed.

Overgrazing is a big problem not just because you lose grass but because it causes a long-term shift in which grass and shrub species survive. Naturally the kangaroos and deer prefer to eat the most palatable and nutritious plants first – the 'ice cream' plants – leaving the rest for last – the 'brussel sprouts'! Unless your paddock plants get a decent, regular break from grazing, you'll be a landholder that is left with mostly the unpalatable, less-nutritious plants. Long-term, you'll have run down your natural capital, with nothing much left in the bank for livestock and wildlife. Removing deer is one of the easiest ways to give your paddocks the break they need, to recover and keep their full variety of shrubs and grasses.

Shooting is the main control method for deer and they are easy night-time targets with a spotlight. Legally deer are a game species and since 2004 hunters need a game licence (G-licence) and must abide by other conditions. This doesn't apply to landholders (and their employees) shooting deer on their own land.

The breeding cycle of deer involves mating in early April, with just about every female giving birth in Spring. Female deer leave their newborn young hidden in grass, so you'll rarely see them. These young depend on their mother's milk until they are weaned around January. So a landowner should not shoot female deer from September to December inclusive, as that will result in the cruel, slow death by starvation of those unseen fawns. Only shoot males during these months, to avoid unnecessary cruelty. Apparently the NSW Game Council cares more about antlers, since the open season it established allows private shooters to shoot any deer from March 1 to October 31 (i.e. from when antlers are hard to when they are dropped).

Cats – the challenge for all pest controllers

Cats are living wild on Rummers Hill and it's probable that any part of the Hill is 'owned' and constantly hunted by a Feral Cat. With cats, what you see is only part of what you've got.

Domestic cats are beautiful animals and no threat to wildlife if they are well-managed. For good cat management tips, see www.environment.nsw.gov.au/pestweeds/FeralCats.htm.

Think of the cat as a single species that comes in three models: domestic, stray and feral. Most Feral Cats naturally develop the 'tabby' colouring after living wild for several generations. Locally I've seen some wild-living cats that are tabby-coloured and many that are black. So I suspect that many domestic cats are escaping strays or being dumped here regularly - keeping the black colour abundant - otherwise most of the feral cats we see would be tabby-coloured. The stray cats that live around homesteads are often tolerated in the mistaken belief that they only eat the rats and mice in the shed. They have to eat a lot more than that, so the nearby wildlife gets hammered. Those cute little balls of wet fur that Puss brings to the door mat could easily be the last Feather-tailed Gliders in your area. It's better to bait the rats and mice in the shed and give your wildlife a break.

Rummerys Hill cat numbers and their impact on wildlife are both probably large but no-one knows for sure. In a similar habitat, the home range for a male cat is about 300 hectares and for a female 150 hectares. Cats do heavily suppress wildlife, including rabbits, possums, young quolls, native mice, birds, lizards, frogs and insects. The cat's impact on wildlife is highest on offshore islands - where wildlife is confined and can't escape - and on islands the cat has caused the extinction of several native animals. The cat's impact may also be quite high on Rummerys Hill, since its wildlife clings to this well-treed 'peninsula' in a 'sea' of cleared pasture land that a lot of wildlife won't enter.

Cats usually breed twice a year from September to March and I've often heard breeding tomcats calling around March-April. This is probably a good time to focus your control efforts, perhaps as part of a multi-pronged, integrated pest control program during April that deals with rabbits and foxes at the same time.

Control of feral cats by baits, traps and shooting does have its problems. Cats don't like buried baits, they are sometimes shy of traps and they tend to avoid humans that might shoot them! New baits and delivery methods (spray tunnels) will soon be available that could change this situation. Till then take the control opportunities whenever you can.

If you see or hear a Feral Cat, spotlight and shoot it or borrow a cage trap and bait it with an opened tin of cheap sardines. If it's shy, the cat may not enter the trap for a day or two but I have had success even seven days after setting the trap.



Fox control programs can use meat baits injected with 1080 poison like these or manufactured biscuit baits that contain 1080.



Cooperating with neighbours, twice a year is the secret to long-term success when fox baiting.



Sources of help

Livestock Health and Pest Authority, Glen Innes, phone 6732 1200 – contact the Ranger for Rummers Hill area for poisoning and trapping programs.

Border Rivers-Gwydir Catchment Management Authority, Glen Innes, phone 6732 2992 – contact the Invasive Species Officer for equipment loan and other support.

National Parks and Wildlife Service, Glen Innes phone 6739 0700 – contact the Pest Officer for permits to kill kangaroos and wallabies.

Further information on pests and their control

Good summaries on all pests, case studies and photos are at www.feral.org.au and they have good training DVDs:

- Managing Vertebrate Pests - Introduction to using foot holds for the capture of wild dogs and foxes.
- Guide to Practical Pest Animal Management – A practical guide to pest animal control methods, new products and monitoring techniques.

Standard operating procedures from NSW Department of Primary Industry www.dpi.nsw.gov.au

- DOG001 Trapping of wild dogs
- FOX005 Trapping of foxes
- RAB008 Trapping of rabbits

Also see the commercial site: www.animalcontrol.com.au

Another good source of pest information is the Queensland Department of Primary Industries www.dpi.qld.gov.au however be aware that different laws apply in NSW, especially regarding the poisons and baits you can use.

Text and photos are by Peter King, June 2013. Note. All opinions, suggestions and errors are those of the author. They don't necessarily reflect the advice of the Australian Government, the GLENRAC landcare network or the Rummers Hill Landcare Group. Please consult others, consider your particular circumstances and use your judgement before following any suggestions. Comments on this article are welcome at pt.king@bigpond.com



This project is supported by the Glenrac landcare network through funding from the Australian Government's Caring for our Country.



CARING
FOR
OUR
COUNTRY



Fire management on Rummers Hill

Part 1: Protecting you and your property

Written by Peter King for the Rummers Hill Landcare Group, June 2013

Rummers Hill is highly flammable country and it surprises me that it doesn't burn more often. Our usual bush fire season is from September (August in dry years) to March inclusive - when you'll need a Rural Fire Service (RFS) permit to burn-off grass, wood piles, or other fire hazards.

When summer has dried the bush thoroughly, it only takes a lightning strike to start a fire. Summer is the main season for lightning but it is often the associated rain that prevents ignition. If a lightning strike does start a fire on the Hill, then the isolation of the fire can soon have a strong bushfire going before fire crews can act.

This happened here in February 2003 when a 'dry lightning storm' - one with plenty of lightning strikes but not much rain - passed over the already-dry woodland. A lightning strike ignited ground fuel in an isolated gully that fire-fighters couldn't reach. Strong daytime winds soon had a fierce, two-kilometre fire front spreading across the inaccessible country. Fire-fighters could only try to contain it with 'back burns' - where they got ahead of the fire front, lighting fire lines that burnt back towards it, to remove the fire's fuel.

Back burns were lit along tracks and quickly-cleared fire breaks. Each day, strong winds, high temperatures and low humidity favoured the fire, so it jumped across several of these first lines of defence. This was a very damaging crown fire - burning all the natural fuel from ground cover, up through shrubs to include the crowns of the trees.

People in the path of the fire had to be evacuated, fire-fighters had to retreat, and buildings were left to their fate. During any fire on the Hill, the narrow, one-way tracks into many properties are potential 'death-traps', where it's too dangerous to send in fire crews, in case they get trapped by fire blocking their retreat.

Eventually the 2003 fire was contained, after around 7000 hectares were burnt - fortunately with no loss of human life. Hundreds of kilometres of fences and two buildings were lost. Countless animals, from ground-dwellers to koalas and possums also died a painful death, during and after the fire.

The fire history of the Rummers Hill area suggests such a large summer bushfire - started by lightning or arson - has happened about every 10-20 years. Many smaller fires, often from an escaped burn-off have also occurred but these were quickly put out. Climate change could make these average time intervals meaningless.

So it's clear that each landowner needs to manage their situation to keep themselves, their house, livestock, fences - and wildlife - as safe as conditions will allow. How do you do this - especially if you are new to the area?



Reducing the level of natural fire fuels around your house - with a hazard reduction burn - makes good sense. Under certain circumstances it may even be possible to get brigade assistance.

Here are some suggestions:

Smarten up – go to the NSW Rural Fire Service and learn what to do to prepare for bushfire, to understand the risks and decision you have to make when a bushfire threatens. Staff of the Northern Tablelands RFS office (6732 7046) will supply handouts and advice. Their website www.rfs.nsw.gov.au has plenty of information.

Gear up – ensure you have the necessary pumps, household items and personal protective gear. Remember that you may have to put out a fire by yourself.

Skill up – if you can, consider joining to train with your local Rural Fire Service brigade to understand the use of fire fighting equipment and get familiar with fire behaviour. Members of your local Reddestone Brigade will make you welcome.

Prepare your property – there are many things you can do before a bushfire (see RFS publications) and they can make a big difference – whether you choose to stay and defend your property from bushfire or not. For Rummers Hill, I think it's important to:

- clear trees and shrubs to at least 50 metres from your house – if left, they can catch fire and become a scorching wall of *radiant heat* and from that distance will easily crack windows and set your house alight. Fire shutters that cover windows may help too.
- keep your surroundings free of *flammables* – keep grasses low or burnt for summer, clear gutters and keep firewood and rubbish away from buildings. This is easy to overlook but worth checking every August, before the bushfire season.
- block all points of entry for *embers* on buildings and – as a fire front approaches, your house and sheds could easily be in a shower of hot embers for an hour and embers will certainly start fires.
- maintain or create vehicle tracks that allow *two exit routes* from your property – with turnaround space every few hundred metres – so that you and fire crews can escape an approaching fire.

Store off-site – hard-to-replace valuables, including key documents and photos can be stored off-site with banks, relatives or on the internet (e.g. photos). This might be some consolation if your house burns down while you are away.

Insure – insure your house, contents and other property for replacement after a fire. Fences – or a portion of them – can also be insured, as they can be a big financial loss during a fire.

Watch for smoke – if you see smoke rising from the Hill in the September to March bushfire season, report it immediately by phoning 000. You'll need to explain your location to an officer who will arrange to have the report checked. It could be a known fire (e.g. a neighbour that has a permit to burn) but your report may be the first, and the early response by fire crews could successfully contain the fire.



Burn-off with care – if you plan to reduce the fire hazard in a few hectares around your house (called an Asset Protection Zone) you must meet the law regarding the safety of your neighbours and I think you should also safeguard local wildlife as much as you can. There is a lot of guidance available through RFS on your legal obligations. A separate article explains what you can do to save more wildlife.

Write your Fire Plan – this is a detailed list of things to do for your place when a fire is nearby or approaching. Stick it up somewhere so all people present can see what needs to be done and can share the numbered tasks. Get the excellent *Bushfire Survival Plan* booklet from RFS. Their Bush Fire Household Assessment Tool at <http://bfhat.rfs.nsw.gov.au> is also worth a look.

An example follows - just to get you thinking - but you need to write one exactly for *your* property and your abilities. Ideally, you write a plan and then test it in action.

House Fire Plan (example)

1. **Stay and defend?** In Severe-Extreme fire rated weather, as a fire approaches; douse spot fires; stay in the house (2nd bathroom/laundry); monitor windows and door gaps for embers or fire; go out when safe, look under ramp, in carport, on roof, then around yard, in sheds (including wood shed and chook shed) - and put out the fires. The house is made with fireproof materials so should not burn.
2. **Leave early?** In Catastrophic fire weather (>40 degrees Celsius + winds to >80 kph), with fire anywhere on Rummerys Hill, prepare the house then go. **Call 1800 67 97 37 to check the fire danger rating for each day.**

Prepare every third year – in August

Keep ground fuel levels low 100-300 metres out from house, my Asset Protection Zone.

The un-grazed eastern approach to the house (where a fire approaching uphill will be dangerously fast) should be burned late winter, about every third year to reduce fuel of shrubs, leaf litter and sticks. Reduce fuel on the northern approach by spray-killing shrubs and burning them and grass whenever necessary. Grazing of the western and southern approaches should keep shrub and ground fuel low each year.

Prepare every year – in August

Remove outdoor flammables

Grasses – against sheds and ramp, spray kill grasses then rake away by September

Leaf litter/clutter - rake/remove around house and high tank

Tractors – move off grass, with motorbike, filler hose and wheelbarrows

Test fire-fighting equipment

Fire pump – mount, fuel-up and test fire hose

Garden hoses – connect and test hoses, leave all connected and ready till March

House smoke alarm – test and date mark each new battery, replace battery if required



Preparation checklist - when a fire is approaching the house

This assumes house and contents are insured and high value items/documents are stored off-site.

1. **Fire refill dams accessible** – have livestock out of House Dam Paddock and open north gate
2. **Livestock are mobile** – open gates so livestock can access the cleared Flat Paddock
3. **Vehicle exit/entry to property** - unlock padlocks on adjoin property gates
4. **Ladders, metal buckets, rakes, hoe** - put all out, standing against buildings
5. **Downpipes house and workshop** - block 4 outlets with sand socks; put water in gutters
6. **Electric fences** - switch off and unplug in workshop
7. **Metal window shutters** - put up along eastern and front sides of house
8. **Gas cylinders** - turn off both taps
9. **Flag** – take down from flagpole
10. **Door mats and cushions on outdoor seats** – put these into laundry, away from door gaps
11. **Dogs** – wet kennel bedding and drop door flaps, release dogs, then chain on back verandah, then finally into laundry
12. **Car** – load with the following, then back into southern carport behind lowered roller door:
 - Bolt-cutters, pliers, blankets, chainsaw, axe, small rake hoe;
 - Dog leads, bowls, dry food
 - Personal 'grab bag' (wallet, clothes, toiletries, camera, torch, phone, watch, portable hard drive)
 - Photo albums - in plastic crates (to be digitised by next fire season)
13. **Water for indoors** - fill laundry tub, buckets, watering can, garden sprayers; dog bowls
14. **Windows closed and curtains down** – check; unhook curtains from all rooms, put in 2nd bathroom
15. **Ember-seal doors** - wet towels on floor in house (2 doors) and workshop (1)
16. **Personal protective gear on** – yellow clothing, boots, gloves, mask/ bandanna, goggles

Fall-back plan – for when things don't go to plan and 'stay' becomes 'go'

Escape and Shelter – drive the West Track or South Track (if powerlines aren't down) to *shelter* at Flat Dam. *Exit* south through adjoining properties if my entry road is fire-blocked.



A hazard reduction burn doesn't have to be 'hot' and burn everything. It can effectively remove the fine ground fuels while still leaving shrubs, fallen branches, logs, even patches of unburnt grass – so that your wildlife can survive.



Wood piles from bulldozer activity should be burnt when they are near your house. Out in the paddock, they can be left to provide much needed wildlife habitat.

Text and photos are by Peter King. All opinions, suggestions and errors are those of the author. They don't necessarily reflect the advice of the Australian Government, the GLENRAC landcare network, the NSW Rural Fire Service or the Rummers Hill Landcare Group. Please consult others, consider your particular circumstances and use your judgement before following any suggestions. Comments on this article are welcome at pt.king@bigpond.com

Fire management on Rummerys Hill

Part 2: Caring for the Hill and its wildlife



Written by Peter King for the Rummerys Hill Landcare Group, June 2013

All residents of Rummerys Hill need to carefully consider fire protection for themselves and their property, which is discussed in a separate article in this series. We also should consider the effects of fire management on those other residents of the Hill, the wildlife.

Most of us enjoy the wildlife on Rummerys Hill but some fire management proposals could devastate or remove whole wildlife populations.

It is the broad-scale fire protection measures for Rummerys Hill that could do this. These proposals boil down to:

- establishing low-fuel *fire protection zones* around threatened property; and
- burn-offs or *hazard reduction burns* across large blocks of the Hill.

Both these ideas seem to be common sense: you burn away the fuel, so your property and the woodland can't catch fire. So why not do it?

I think the first idea does make sense. Unfortunately the second idea makes less sense when you ask:

1. how often would parts of Rummerys Hill need to be burned to reliably stop a bushfire?
2. what will be the effects – on the grazing, woodland and wildlife – if we burn this often?
3. how great is the risk to the people and property from such burns?

Consider these details and you'll see that *hazard reduction burns* create a great risk for a small gain:

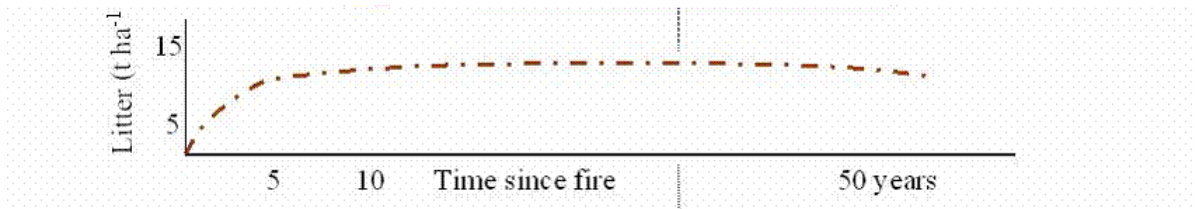
1a. Fuel levels and their build up. Rummerys Hill woodland typically carries a high maximum total fuel load of 15 tonnes of dry matter per hectare (not counting tree canopy fuel). This consists of:

- Surface fuel - 8 tonnes in grasses and fallen leaves or branches;
- Elevated fuel - 5 tonnes in shrubs and hung-up sticks; and
- Bark fuel - 2 tonnes in tree bark.

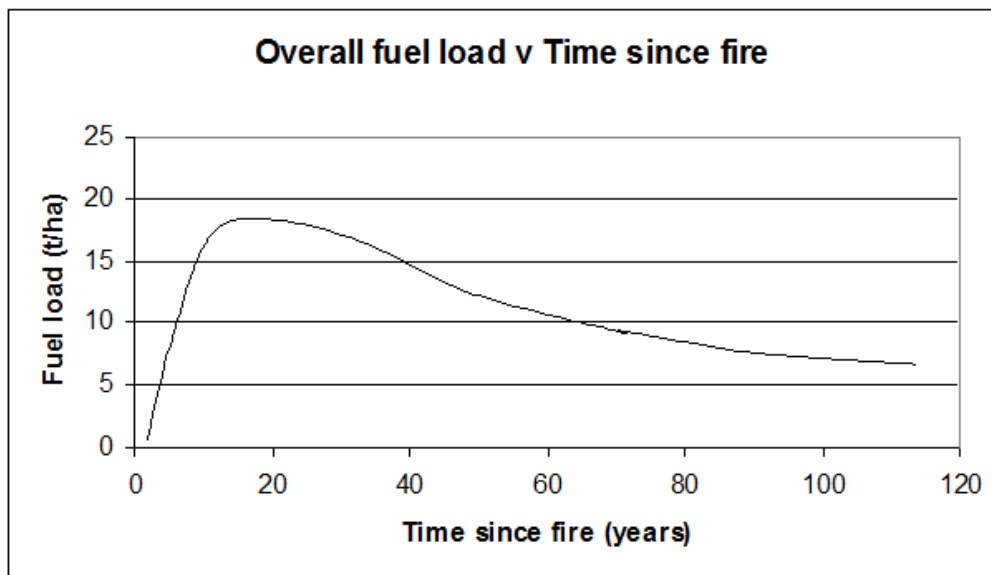
In our woodland, the surface fuel will reach this maximum level just five to seven years after a fire, depending on the seasons. Then it remains stable at this level - until the next fire - because the old leaves and branches that rot away below the ground layer roughly equals the new ones falling onto it from above.



1b. How often would we need to burn? A low-intensity burn off conducted in autumn – a ‘cool burn’ – would remove most of the surface fuel and shrub fuel. Such a burn leaves most of the bark fuel, the tree canopies and dead standing trees unburnt. The removed grasses and shrubs would then regrow, taking about *two years* to get back to where they will carry a fire again and as little as *ten years* to get back to their maximum fuel levels. This graph shows how quickly surface fuel (called Litter) builds up - and how the fuel level will ‘level out’ rather than keep increasing.



Even if we consider the total fuel load, adding trees, shrubs and bark, we see that fuel doesn’t keep building up endlessly. It peaks around ten years after fire, then it begins to decline.



So an area given a low intensity ‘cool’ burn might stop a travelling bushfire for the following two to five years. Might is the key word. In a dry, bad fire season like 2003, bushfires can even travel across country that was burned the year before, using fuel from the unburnt leaves that fell after last fire and the crowns of trees.

So does this mean that on Rummers Hill we would need to burn the same country every few years for it to give us some fire protection – when that still isn’t guaranteed to work?

2. What will be the effect if we burn this often? Frequent burning affects many things, including:

- the grazing value of the area;
- the plants and wildlife that live there; and
- the ‘bounce-back resilience’ or ability of the country to recover after drought.

Grazing. One effect of frequent burning can be seen locally in the hills and gullies that are covered in Blady Grass. This grass has thick underground roots so it survives fire, quickly regrowing and spreading and out-competing other grasses. Livestock don’t like to eat Blady Grass, so too much burning will remove grazing value from your land.



Healthy woodland has a mix of standing trees (dead and alive, with some old enough to have hollows), a layer of shrubs and a ground cover of grasses, fallen branches and leaf litter.

After a bushfire, dead shrubs like wattles drop their seeds and we get a mass germination of wattles like Oleander Wattle and Sickle-leaf Wattle. Around Rummers Hill you will see thickets of these same-age wattles, sometimes only 300mm apart, competing with each other after a fire. This can be good for the fire-ravaged soil (wattles are legumes whose roots can naturally release fertiliser in the form of nitrogen gas) and for the insects that feed on wattles. Because this reduces grass cover, it isn't good for graziers and their livestock. Ten years after the fire, most of these wattles have completed their life cycle – done their ecological job as 'after-fire band-aids' – and a more even mix of grasses and shrubs returns.

Plants and wildlife. For most local wildlife any bushfire is a disaster. The low number of Koalas seen on Rummers Hill today is most likely the result of past bushfire control methods. In the past it was common for landholders to light the Hill 'whenever it needed it' – perhaps every ten years - and let it burn till the fire reached the cleared grazing land and was extinguished. Fires on the Hill that were lit by lightning were apparently 'controlled' the same way. Such a burning cycle doesn't allow enough time for slow-breeding wildlife to recover.

Other wildlife, particularly the small and less-mobile, are easily killed by fires. To keep wildlife on Rummers Hill we need to keep large areas free from fire, to protect critical wildlife habitats (feeding sites and homes). These habitats include:

- a. **Leaf litter** – almost all burnt during hazard reduction fires. This is the most essential part of our woodland for wildlife – its Woolworths and Coles. It is the main habitat for insects, spiders and other small creatures, which are food for the frogs, lizards, small snakes and marsupial mice that also live in the leaf litter. Leaf litter is vital for birds too. It supplies food for ground birds (such as the quail-thrushes, pigeons and fairy-wrens) and it provides nesting materials for many other birds. Leaf litter also has a crucial role in nutrient cycling, where litter is 'composted' to re-fertilise soils and feed all plants. Frequent hazard reduction burning would stop the build up of litter, impoverish the soil and quickly reduce local wildlife.
- b. **Shrubs** – most are burnt during hazard reduction fires. Shrubs are where about 40 species of birds nest in our area. Shrubs are also important to birds for foraging and night-time roosting. Burning reduces the cover provided by the shrub layer, which leads to big increases in:
 - nest robbing (where cats, butcher birds, currawongs etc take eggs and nestlings);
 - nest parasitism (where cuckoos lay their eggs and kill young of the host bird); and
 - starvation (due to increased food competition amongst the birds).
- c. **Bark** – about half of it burns during hazard reduction fires, including loose hanging bark from smooth-barked eucalypts and the outer fibrous bark of stringybarks. These barks are the main feeding surfaces for some birds (tree creepers, sittellas and honeyeaters with young). Up to 25% of prey taken by insect-eating birds in woodlands comes from the bark of trees. Geckos and skink lizards, some snakes and some bats use bark for shelter and feeding. Bark is a really important place for insects and spiders.



- d. **Hollow logs** - removed by fires, either in one 'hot' bushfire or over several years of deliberate 'cool burns'. Recent fire research shows that removing hollow logs and fallen branches has a very big impact on wildlife. When such large fallen timber is removed, the bush loses the important shelter and food supply for small creatures (termites, ants, centipedes, scorpions etc). These creatures are themselves the food supply for so many other wild animals (lizards, birds, echidnas etc). It takes decades to accumulate the number of hollow logs that are present in healthy woodland.
- e. **Tree hollows** – probably not greatly harmed by hazard reduction burns but many are removed during bushfires. Tree hollows are essential for the survival of about 25% of local wildlife species including possums, gliders and certain birds (owls, cockatoos, Kookaburras etc).

So will burning to reduce the fire hazard always devastate the local wildlife, even if it isn't done too often? Is there a way to do a hazard reduction burn that limits the harm to wildlife?

If a landowner still wants to burn the woodland for fire hazard reduction, the best way they can preserve their wildlife is by preserving their fallen logs.

A low intensity fire that saves logs will also save many other parts of the wildlife habitat - including small unburnt patches that become refuges for surviving wildlife. Such a burn is best done by only burning in the following conditions:

- Time of year – autumn, after recent rain. The woodland won't be so dry which will save many habitat logs from burning. This will also reduce the impact of shrub-removal on the many birds that are soon going to nest, in late winter and spring.
- Weather – look at weather forecasts and pick days with expected temperature around 25°Celsius, wind speed under 15 km/hour and relative humidity no lower than 30%. With too low a humidity, you will burn valuable habitat logs.

3. **What is the risk to life and property?** With every deliberate burn there is some risk that the fire will escape to become uncontrolled and threaten property and residents. This has happened on the Hill several times in the last twenty years. That no houses or lives have been lost is probably due to the combined efforts of many local fire crews ... and good luck.

The slopes and tree cover of Rummers Hill pose a particular risk, because any escaping fire can quickly run uphill, into tree-covered ridges that fire crews cannot reach. Many local houses are built on these ridges and if fire crews cannot safely be sent in to them (due to one-way entrance tracks) the houses will mostly be unprotected from an approaching fire.

There's always a risk of a hazard reduction fire escaping in this terrain and the consequences could be devastating.

So what can we do on Rummers Hill to protect ourselves and our wildlife?

Fire Protection Zones. Probably the best way to limit the regular burning of large areas of Rummers Hill is to plan to maintain different fire protection zones. All of the Rummers Hill area can be divided into different zones where the fire fuel level in each zone is maintained according to the risk of fire damage. High risk areas where there are occupied houses and other buildings may require that fire fuel is kept to a minimum. These small areas can be burnt more often and most of the wildlife there is sacrificed.

Fire trails. Wildlife can still live in the larger areas of Rummers Hill that are rarely burnt, especially if fire trails allow fire-fighters to quickly limit bushfires to smaller blocks of country. Talk with the local RFS staff to see if your property has tracks that can be usefully maintained as fire trails.

Have your say. The Rural Fire Service and other agencies maintain a regional Fire Management Plan that identifies the fire risk for Rummers Hill as extreme. To limit that risk, the RFS staff prepares detailed plans to manage fire on Rummers Hill and all residents are invited to take part in that planning. Please attend any meetings they arrange.



The unpalatable Blady Grass naturally occurs in small patches. Burning too often gives it a head start on other grasses, so it can take over to become the only grass present.



The needles that fall from Black Oak compress into an airless 'felt' and form a partial fire break that can slow the spread and lower the flame height of a hazard reduction burn.



Even after it was pushed over, the hollows in this tree would have made great wildlife habitat, if not burnt by a bushfire or sawn-up by firewood collectors.

Note. All opinions, suggestions and errors are those of the author. They don't necessarily reflect the advice of the Australian Government, the GLENRAC landcare network or the Rummers Hill Landcare Group. Please consult others, consider your particular circumstances and use your judgement before following any suggestions. Comments on this article are welcome at pt.king@bigpond.com

Acknowledgement. Dr Peter Croft, Glen Innes ecologist kindly supplied his PhD research findings on local fire and wildlife interactions, including the graphs.