

# FRIENDS OF HODDLES CREEK NEWSLETTER



Thanks to Yarra Ranges Council for their generous printing of the Newsletter.

## Eucalyptus by Meryl Knoll

**Inspired by a recently read novel of the same name, I decided to do a little research on our iconic gum tree, the eucalyptus. While sources vary, it is generally accepted that there are over 700 species of Eucalyptus, the great majority of them native to Australia.**

When we talk about eucalypts, most of us picture either a tall gum tree (Mountain Ash *Eucalyptus regnans* is the tallest flowering plant species on earth), or a woodland of them, typically known as the bush. Overseas visitors can be confused by this reference, since the term is more strictly used for a small shrubby plant. In fact, many species of eucalypts are actually more bush like.

### Forest giants

Sadly, in 1884, the world's tallest tree – a *E. regnans* in Thorpdale Victoria – became the world's longest log, when felled by two brothers in order to measure its length and so discover what was, when standing, its height. It was measured as being 334 feet, or in our standard unit today, 101.8 metres.

The Ada Tree, in the neighbouring Baw Baw Shire, is considered to be among Victoria's biggest trees, with an estimated age of 300 years, a circumference of 15 metres and height estimated at around 76 metres. Topping this, the lesser known Artemis – currently accepted as being the tallest mountain ash in Victoria at 91 metres high – can be found even closer to home in Kurth Kiln Regional Park.

### What's in a name?

The term eucalypt was first used by French botanist Charles Louis L'Héritiert de Brutelle in 1789 to describe a specimen (in London) of flower buds collected from a rough-barked tree on Bruny Island, Tasmania, during James Cook's third voyage in 1777. He used ancient Greek terms "eu" for well and "kalypto" meaning covered, in reference to the cap covering the flower buds and he named this particular species *Eucalyptus obliqua*, commonly known as messmate or messmate stringybark and found throughout south-eastern Australia, including much of our

bush in Hoddles Creek. My father taught me that the fibrous stringy bark of the messmate is one of the best firefighters.

### Ancient history

Evidence of eucalypts has been found in the early Eocene epoch 52 million years ago, with fossils of leaves, flowers, fruits and buds recently discovered in South America where the genus is no longer endemic, although they have since been re-introduced.

Ancient eucalypts are thought to be similar to some of our existing tropical wet forest species and would have occurred among or on the edge of ancient rainforest. As Australia drifted north during the breakup of Gondwana, they adapted to drier climates, weathered soils and fire-prone landscapes. Many eucalypts have the ability to re-sprout from dormant buds located under the bark following damage from drought or fire which helps them to survive and dominate the harsh environments that evolved with Australia's changing climate over the last 30 million years or so.

I was surprised to learn that River Red Gum *E. camaldulensis* is the most widespread eucalypt, typically found along our waterways in all Australian mainland states. Renowned for its durability and strength as a timber, redgum has also found its way across the continent in the form of railway sleepers, hardwood floors, house stumps, fence posts, firewood and was commonly used as street paving in Sydney in the late nineteenth century.

### The novel

*Eucalyptus the novel*, by Murray Bail was published in 1998 and won both the Miles Franklin Award and Commonwealth Writer's Prize in 1999. In a mesmerising mix of fiction and fact his novel tells a story of the gruff widower Holland and two possessions he cherishes above all others: his sprawling property of eucalyptus trees and his ravishingly beautiful daughter, Ellen. I thoroughly recommend this book!

[https://en.wikipedia.org/wiki/List\\_of\\_Eucalyptus\\_species](https://en.wikipedia.org/wiki/List_of_Eucalyptus_species)

# Soundscapes: sounds of the bush

**We can all picture a landscape in our mind, but can we picture a soundscape? Landscape can be defined as the visible features of an area of land, often considered in terms of their aesthetic appeal: the scenery observed through a windscreen as we drive through the countryside, a panoramic view from the top of a mountain, or a painting of either.**

Photographs have captured images of our landscape since the invention of the camera and development of photography around the mid-nineteenth century. Prior to this, any images of the landscape and the world in history were in the form of paintings and sketches. Take a look in any world history book at any country and you will see how the landscape has changed in a relatively short period of time. Photography has captured these moments in time and given us a way to record that visual history.

Cinematography took this one step further with the creation of a moving image, a movie. Landscape is what we can picture in our mind through what we can see; however, this forms only one aspect of our environment. Where landscape is generally thought of as a fixed image in time, soundscape gives us the notion of something more dynamic – the motion of sound.

## What is a soundscape?

The term ‘soundscape’ has historically been used to describe the component sounds of a piece of music and, more recently, the component sounds of an environment. A soundscape can be likened to a snapshot of a landscape in sound. Soundscape is a term that has been used by numerous disciplines (from urban planning and musical composition through to biological studies) to describe the relationship between a landscape and the composition of its sound. It is this latter discipline of biological study that has now developed as Soundscape Ecology – the science of sound in the landscape – emerging as an important area of research in understanding our environment. It involves the measurement and analysis of sounds in an environment, recording these soundscapes in a similar way to

photographing landscapes to create a bigger picture of what we can see and hear.

## The elements of a soundscape

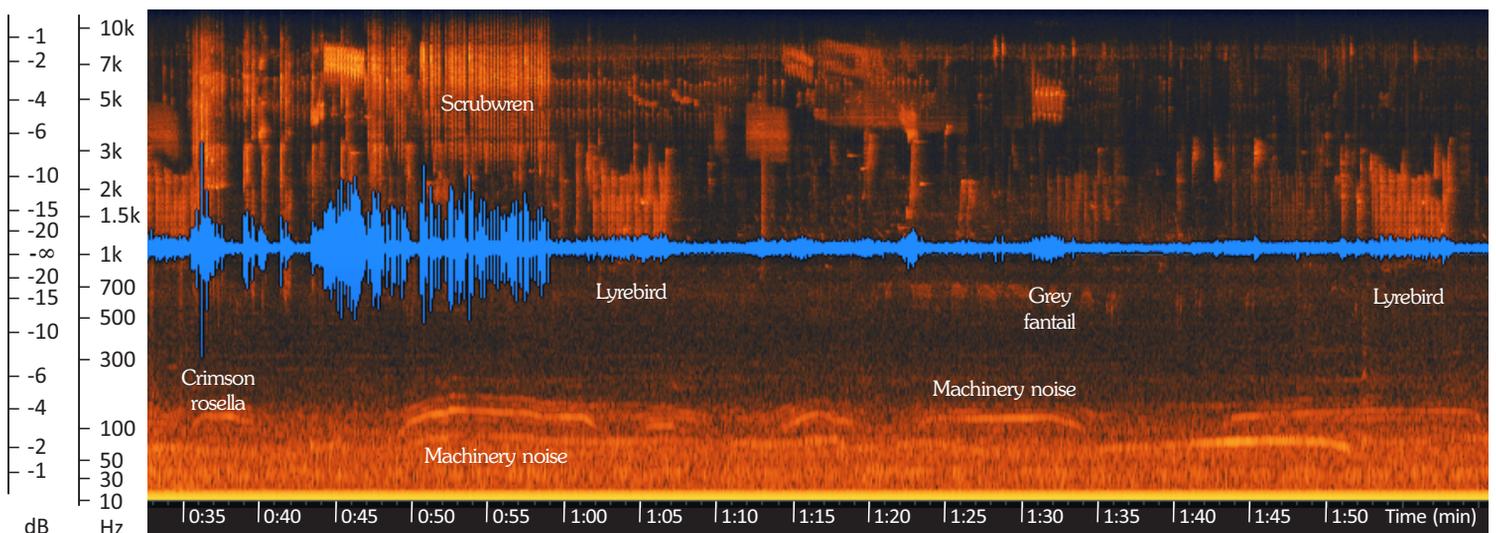
As with any science there have been new terms developed to help describe the various components: **biophony** to describe the collective sound of all organisms, from microscopic to megafauna; **geophony** to describe nonbiological sources of sound including the effects of wind, water, weather and geophysical events such as earthquakes; **anthrophony** to describe man-made sounds caused by humans and their machines.

You may well ask, what makes all this hullabaloo in the biophonic orchestra? On land, especially here in Hoddles Creek, it's the vertebrates and certain groups of insects (crickets, grasshoppers, cicadas) that make much of the sound we hear.

Amphibians such as frogs and toads that rely heavily on their distinct croaks to attract mates. Almost all birds use their tweets to attract mates, defend territories, sound alarms and communicate other types of information. Numerous terrestrial mammals, including native and introduced species such as koala, possum, deer, fox, bats and wombats also contribute their voice.

It has been discovered that creatures who cohabit in an environment structure their sounds in a sort of organised fashion, comparative to instruments in an orchestra, so that each can be heard distinctly from the other. Recordings taken during a research study in Borneo has the sounds of frogs, birds, insects and mammals each occupying a specific frequency on the sound spectrum. Research has also shown that birds sing at higher frequencies in noisy cities than they do in quieter rural sites, in order to differentiate themselves from the city background noise.

On a still summer day there isn't much geophony to contribute to the soundscape. Wind cannot be seen or heard, but it's effects can be in the rustling of leaves, the swaying and squeaking of branches and whistling through



crevices. Sounds created by water can be intricate and vast from the trickle of a small stream over rocks to the crashing of waves on the beach. Rain can be heard as a gentle pitter-patter, while hail can create a crashing clutter as it hits the ground and other surfaces. Thunder rumbles, avalanches grumble. Geophony varies seasonally and diurnally (throughout the day).

Anthrophony can impact heavily on the soundscape of any environment for all creatures including the human species. And if you feel disturbed by high revs of a motorbike screeching through the bush, spare a thought for those smaller species with more sensitive ears. Industrial noise in towns and cities is generally regulated for the consideration of human residents, but to date there has been little thought given to the native indigenous species. There have been calls in soundscape ecology research to assess the impacts of humans on soundscapes and also assess the impacts of soundscapes on humans and wildlife.

## The recording of soundscapes

Bernie Krause, an American musician, composer and audio engineer is regarded as the founding father of soundscape ecology. In the 1960's he was better known for introducing the synthesizer to the likes of The Monkees, George Harrison, The Byrds, The Doors and The Rolling Stones. His fascination with electronic music led to him start recording soundscapes in nature and, in 1968, he founded his organisation Wild Sanctuary, dedicated to the recording and archiving of natural soundscapes.

In an interview for ABC's Catalyst in 2016 he explained his belief that biology was typically studied from a visual perspective, where researchers were unable to gain a full picture of the environment without adding sound to the mix. "A picture is worth a thousand words, a soundscape is worth a thousand pictures," he said.

Soundscapes can be measured using automated digital recording systems. Digital acoustic recorders store the timing and intensity of the sounds detected by microphones, which allows signal processors to reconstruct the frequency distribution and signal intensity over time. Analysis of the recordings is achieved by the production of a spectrogram. A spectrogram contains three dimensions of sound with time, along the x axis; frequency, along the y

axis; and energy or amplitude, normally colour coded or plotted on the z axis. Reading a spectrogram, sometimes called a sonogram, is done in a similar way to reading sheet music where notes are arranged linearly through time with higher frequencies or pitch at the top of the musical staff.

## Friends of Hoddles Creek sound project

Last year Friends of Hoddles Creek received generous funding from DEWLP to purchase their own Soundscape Monitoring Equipment. We now have two automated digital recording systems with which to begin recording soundscapes in Hoddles Creek. Through this monitoring we hope to discover what actually lives in our bushland and forest, in order to better understand potential impacts of fire, human disturbance and climate change. While collecting the data is a relatively simple task, it will take us some time to master the art of analysis. But we've started . . .

## Hoddles Creek in sound

The spectrogram below shows two short segments from a one hour sound recording near Yellowgum Road in Hoddles Creek on Sunday 28th June around 8.00am. The distant vehicles are a good example of anthrophony. Bird calls create a range of sounds in the biophony from 1-5.5 kilohertz (kHz), including crimson rosella, lyrebird, grey fantail and other unidentified calls. Also present is a dog barking.

This analysis has been conducted manually from listening to the recording and identifying the sounds, but this is a time consuming task, and so our next step is to subscribe to pattern recognition software that can be used to analyse the recordings automatically – we can't wait to bring you the next chapter on our research.

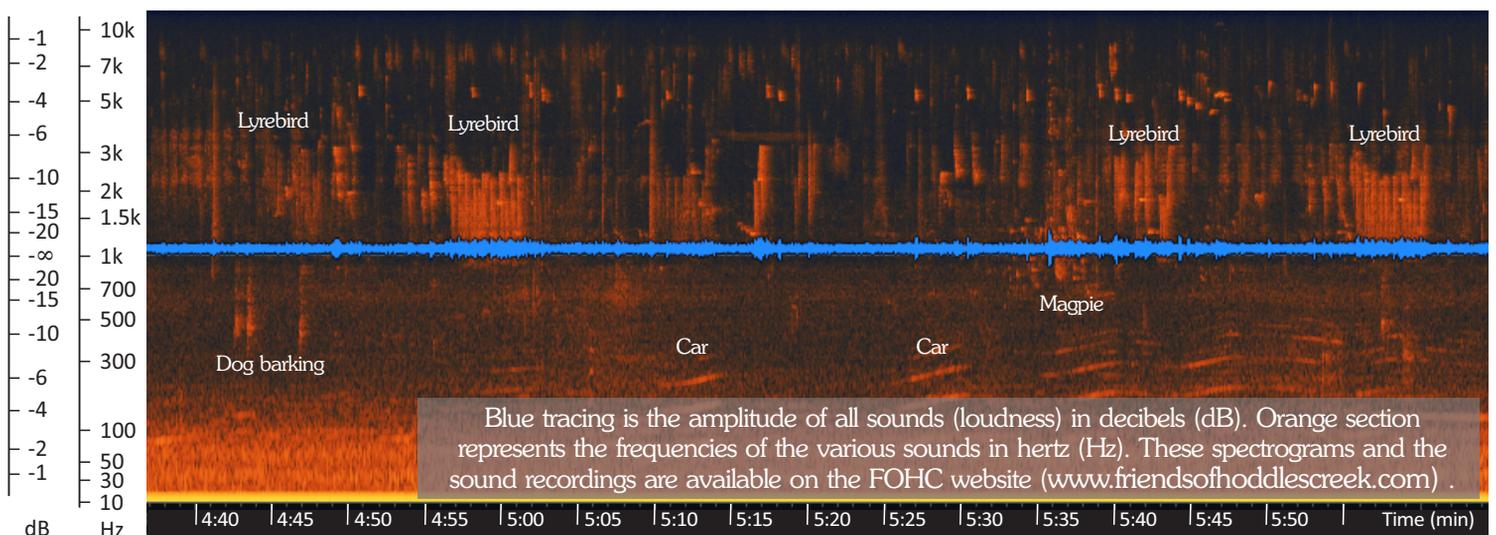
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Anatomy of Soundscape: Evolving Perspectives by Bernie Krause [https://www.researchgate.net/publication/257943187\\_Anatomy\\_of\\_the\\_Soundscape\\_Evolving\\_Perspectives](https://www.researchgate.net/publication/257943187_Anatomy_of_the_Soundscape_Evolving_Perspectives)

Soundscape - the world according to sound <https://www.abc.net.au/catalyst/soundscape/11016648>

Urbanisation is changing the way birds sing by Sam Hardman <https://ecologicablog.wordpress.com/2015/02/19/urbanisation-is-changing-the-way-birds-sing/>



# Bird Song

Observations by Pamela Wiencke

## What can bird calls tell us?

One of the joys of living in the Hoddles Creek area is the bird life. We are fortunate that the majority of bird species are native, with very few feral species. On my property the only feral species is a couple of pairs of Blackbirds in the garden. Kookaburras and goannas keep their number under control, by raiding their nests.

There is a large variety of colour, shape, size and calls in our native birds. Their behaviour and calls can tell us what is happening on our properties. Many species have more than one call. Bird calls can help us identify species, as well as tell us whether they are happy, or reacting to something taking place in their territories.



The Laughing Kookaburra, known for its boisterous laughing call, especially at dawn and dusk, is an example. This call is for establishing territory and for signalling there are intruders in their territory – perhaps other kookaburras that are not part of the family group, other birds they see as a threat, e.g. the Red Wattlebird, or predators. The Laughing Kookaburra has a less raucous call it uses for communication with family group members. Juvenile Kookaburras seem to take time to learn the laugh, which can sound amusing.

We have two types of Wattlebirds, the Little Wattlebird and the Red Wattlebird. The Red Wattlebird is the more commonly spotted and is the bigger and more aggressive of the two. It will guard its territory fiercely, using a number of calls, depending on what is going on.

The Red Wattlebird and Laughing Kookaburra rarely share territories and both become very vocal and aggressive if either species intrudes into the other's territory.

Although Wattlebirds are often seen in Wattle trees they are actually named for the rounded, pendulant flap of skin (the wattle) on each side of the neck, below the eye. The wattles on the Red Wattlebird are quite conspicuous, whereas the wattles on the Little Wattlebird are difficult to see without binoculars.

The Red Wattlebird has loud and harsh calls: contact call - an explosive *kwok*; territorial call - a guttural coughing *yak-ah-yak*. When breeding may give a quiet whistled *kieww kieww kieww*. This species is gregarious, in small groups to large flocks, and actively chases smaller birds from food sources.

The Australian Magpie's territorial, flute-like carolling is one of the most characteristic sounds of the Australian bush. The female is the most talented, and is usually the one that has the longest and most melodious call. Magpies use a variety of conversational warbling, known as sub-song, with interspersed mimicry. Being highly territorial, magpies will make a sharp raucous squawk to warn off intruders, and will fly high in the air to drive away birds of prey.

Many of our smaller and less aggressive birds have melodious calls, e.g. Honeyeaters, Grey Shrike-thrush, Whistlers, Grey Butcherbird, Striated Pardalote, etc. Most of these species calls vary according to the season and if there are predators in the area, especially when there are young in nests.

Many of our tiny birds, Wrens, Thornbills, Scrubwrens, etc, become very noisy when there are predators around (a cat, goanna, Butcherbird, or Kookaburra) and will often work in groups to try to drive the predator away. I can tell if there is a goanna in my garden by the reaction of the tiny birds.

These are only a few examples of what we can learn about habitats on our properties, by not only observing the behaviour of our resident birds, but their calls.

It appears many species of birds are becoming more active and vocal and I wonder if this in preparation for the breeding season?

While Soundscape Monitoring Equipment referred to elsewhere in the Newsletter is incredibly helpful in developing a picture of life in many habitats – particularly those remote from human habitation – we can all learn much about what is happening on our properties by simply observing, not only with our eyes, but also our ears.

I had noticed there were very few frog calls over the past months and assumed it was due to the cold weather. However, over the past week frog 'song' has again become a joyous sound in the surrounds of my garden.

Reference: The Australian Bird Guide.

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**Like to join FOHC?** The Friends of Hoddles Creek are always on the lookout for new members to add new ideas, new helpers and new friends to our group. If you'd like to join, simply contact us with your name, address and phone or email details. You can mail these to FOHC, PO Box 298, Yarra Junction, Vic 3797, or email us at [friendsofhoddlescreek@gmail.com](mailto:friendsofhoddlescreek@gmail.com).

See more at our website ([www.friendsofhoddlescreek.com](http://www.friendsofhoddlescreek.com)) or on Facebook – just search 'Friends of Hoddles Creek' or 'FOHC'.

