



# Biodiversity Conservation at Boorowa

Isabella Piper, Elle McIntosh,  
Emma Craig and Carrie Smith of  
Boorowa Central School





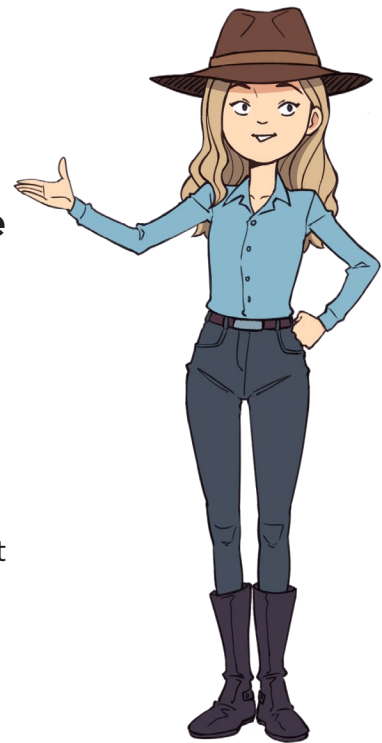
# Biodiversity Conservation at Boorowa

Isabella Piper, Ella McIntosh,  
Emma Craig and Carrie Smith of  
Boorowa Central School



**Bayview and Grassmere**  
Boorowa  
NSW

Bayview and Grassmere are two properties in Boorowa. Boorowa is a country town in the South West Slopes of NSW, Australia, and is west of Sydney. Box-gum grassy woodland is characteristic of the Boorowa area, with rolling hills of tussock grasses, herbs and shrubs and an overstorey of gum trees.





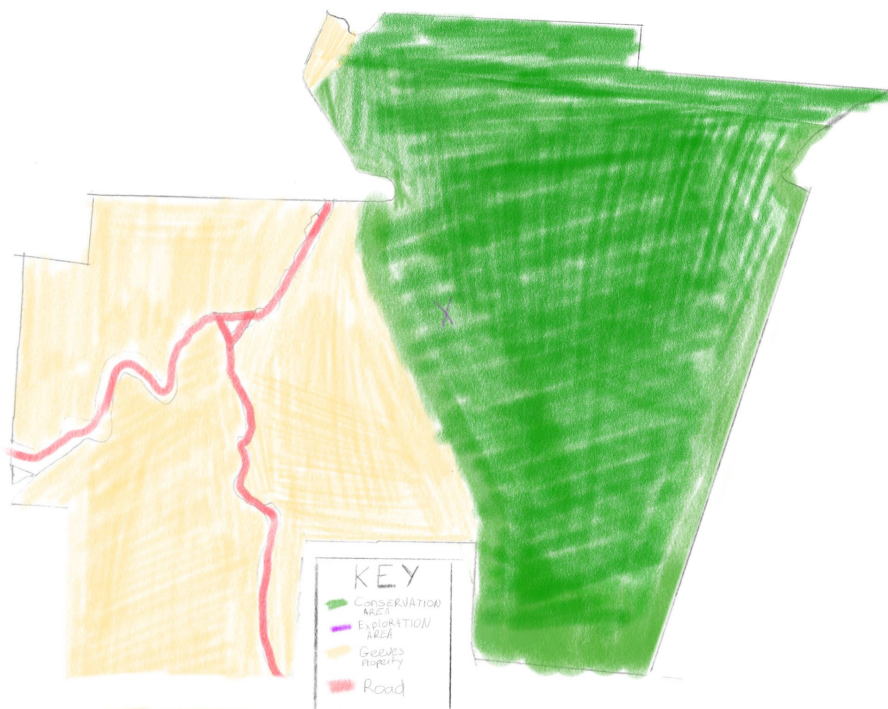
We are proud of our community at Boorowa, and our community is proud of the Superb Parrots we have in our area. The Superb Parrot is a very distinctive bird. It has bright green feathers on its wings and shades of yellow and red on its face and throat. The Superb Parrot nests in the hollows of trees and eats mainly eucalypt flowers, fruits, nectar and pollen. Because its natural habitat is being destroyed in many areas, the number of Superb Parrots in the wild is shrinking, and it is considered a 'vulnerable' species in New South Wales (NSW).

We wanted to find out what can be done to protect the Superb Parrot and other native species in our community, so we visited two properties in our area — Bayview and Grassmere Woodlands.

#### LEFT

Photography by  
Peter Spencer





Bayview is on the edge of Wyngala Dam in the South West Slopes of NSW, Australia. It is west of Sydney and 75 kilometres north of our school, Boorowa Central School. Wyngala Dam was constructed in 1935 to provide a source of water for the towns and farms in the area, including farms like Bayview. Importantly, the dam supports the biodiversity on these farms.

The Geeves family have owned Bayview for 18 years because they wanted their children to learn and grow outdoors and in nature. The Geeves knew that Bayview was special.



Nutrients  
Animals  
Trees  
eucalypts  
Rivers  
Emu



"I could see that we were really lucky to have this place because it is really different from a lot of the places you see. Most properties are 90 per cent cleared with a few stands of timber here and there, whereas this place is pretty much 60 per cent native bush. This is all sheep country, super-fine Merino country," Chris Geeves said.

Chris used to have 300 sheep on the property. After spending 12 months at Bayview, the sheep would have much finer wool than when they first arrived. The Geeves family now allow a neighbour to stock sheep on Bayview instead of owning and managing sheep themselves.





In 2019, Vicky and Chris Geeves partnered with the Biodiversity Conservation Trust (BCT) to allocate 60 per cent of Bayview into a conservation agreement. This means that this landscape is conserved for biodiversity and can never be cleared. The ecosystem in the conservation area of Bayview is not well protected in NSW, and so the BCT has several other agreements close by to protect this landscape and many Vulnerable plants and animals, such as the Superb Parrot, that wouldn't be protected otherwise.

We chose Sir David Attenborough's birthday as the day to travel to Bayview (the 8th of May) to meet with BCT staff Adam Hook, Alice McGrath and the BCT ecologists. There we learned about what biodiversity is, why it is essential, and how Vicky and Chris Geeves is working to conserve biodiversity on their property.



As we entered the property, we saw Wyangala Dam below us and a variety of plants stretching out along the hillside as far as the eye could see.

We met Alice, Tiffany, Adam and Chris on the top of the hill to discuss why Vicky and Chris were so eager to conserve the property. As soon as we got to the top, we looked up and saw Wedge-tailed Eagles circling above, and we could hear a melody of frog noises in the grass below.

“Conserving the area is the right thing to do, and the area we are conserving is not much good for anything else,” said Chris.

We learnt a lot about biodiversity in the area. Biodiversity means the differences, or variety, among living things. We looked at five different kinds of grass and could see the differences in their stems and seeds.

From where we were standing, we could see the difference between the bare paddocks surrounding us, and the treetops a bit further away. Adam explained that the area with lots of trees is still being managed by the Geeves family. The difference is, it is being managed for conservation and not production while maintaining other productive areas on the farm. Chris said that one of the main reasons Vicky and he chose the agreement was, “The peace of mind that if we sold the property, the Conservation Area will remain and be managed forever”.

Next, we hiked down to the conservation area and everything looked very different. Birds were flittering through the trees, and the sun was shining down on the rocky creek bed. Everything was beautiful down there.

Australia  
Native  
Biodiversity  
Mammals  
Farms  
Learning  
Shelter









Part of the conservation area is made up of Box-Gum Grassy Woodlands. These woodlands are characterised by large scattered eucalypt trees, native grasses and wildflowers, and are a very special part of the landscape of eastern Australia. Most of these woodlands have been cleared to become highly productive farms. In fact, so much land has been cleared that only about five per cent of these woodlands remains, and they are now listed as 'endangered'.

At first, Box-Gum Grassy Woodlands may appear to be just eucalypt trees, grasses and wildflowers. But they actually consist of many complex layers of wildlife and diverse animals and plants.

As we were walking along the creek bed, we found a hole in the ground. Tiffany explained that it was a wombat hole and that wombats always have three entry points to their burrow. Immediately we went wandering around to find the other two holes. Carrie found one and Isabella found the other by the creek.

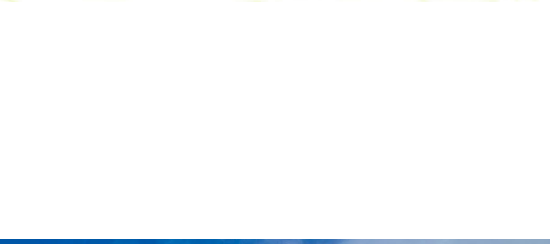
Alice spoke to us about the layers of the ecosystem within the conservation area. She explained that these layers provide varied habitats for the different species. The layer of treetops is called the canopy, and the Wedge-tailed Eagles live up here.

We learned that it is important to keep any dead trees that are standing because, after 100 years, they create hollows. These hollows provide shelter for many animal species such as Superb Parrots or Squirrel Gliders. These are important so that predators don't eat eggs or baby animals.

The next layer is the understorey. The Bayview conservation area has many shrubs and flowering plants as well as younger trees in its understorey, and this is a food source for many animals.















## TOP RIGHT

Spotted Marsh Frog  
*Lymnodynastes tasmaniensis*  
Mantis Design

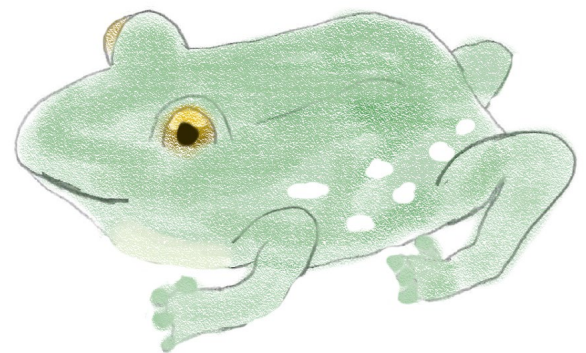
## Create your own frog habitat:

### In your backyard:

- Build a pond.
- Plant some native reeds or tussocks around the edge.
- Keep chemicals such as fertilisers, herbicides and pesticides away from your pond.

### On the farm:

- Collect native vegetation such as fallen timber, rocks and leaf litter on your farm.
- Fence off some of your dam for frogs.
- Maintain wildlife corridors.



We met Donna and Geoff, two BCT ecologists that were monitoring the biodiversity of Bayview. Geoff (pictured left) explained why it is important for the BCT to make sure that they do a 'fair test' when they monitor an area. A fair test is one way for scientists to compare things over time and over different regions.

"We are looking at how this site might change over time. What's really important, to make sure the environment is healthy, is that over time our impact as humans doesn't get too much and that we are able to try and use these places in a way that doesn't impact the biodiversity of the land," said Geoff.

We looked at a third layer, the ground layer, and imagined what this area would look like if we were a frog or a reptile. She told us that frogs are unique because they can be found in every landscape in Australia — not just in tropical areas, but beneath the soil in the desert, and also in the freezing mountains. Frogs are very sensitive to changes in their habitat because they absorb chemicals through their skin from the air and water.





**The woodlands need  
To be  
Better  
We will be  
Its protectors  
When we care for it  
We will together  
... By Mikaya ...**

We asked Chris what he thought would happen if he didn't conserve the area for biodiversity. "The landscape will degrade, and we will lose species and lose that diversity," he answered. "The more species and diversity that is in the area, the better chance nature has to adapt and survive any other threats."

Donna added, "What could happen is that native vegetation would be removed, and this would remove habitat for frogs, insects and reptiles."

Geoff explained that the removal of the ground layer and understorey layer of the area would remove habitat and food sources for many animal species and that the biodiversity of the area would decline.

Tiffany gave an example of a species that needs these layers. Scarlett Robins are birds that need a bit of fallen timber and leaf litter on the ground, because these are habitat for insects and spiders. She said, "The way these birds hunt is they sit on perches close to the ground and scan the area for food."

When a Scarlett Robin sees its prey, it jumps down and pounces on it, then returns to its perch to eat it. "So, all of the fallen timber on the ground is important for these birds because they provide habitat for the things the Scarlett Robin eats," said Tiffany.





We thought that these were the only layers of a woodland, but there is actually a secret hidden layer that plays a vital part in the health and biodiversity of the area. In fact, it is the most diverse layer. Underneath the ground layer are hundreds of thousands of roots from all of the plants above. There are also animals and bacteria and our wombat friend whose holes we were looking for earlier. This is something we didn't realise before we came to Bayview. Now, we understand that all of these layers work together to create one extraordinary, diverse area right near our town.

We kept walking along the creek edge in the conservation area, and saw more bird species zipping in and out of the trees. The area also had wonderful diversity in plant species. It was so amazing exploring the conservation area and Bayview. Thank you, Vicky and Chris, for welcoming us onto your amazing property to learn all about conserving biodiversity on farms.





Another property conserving biodiversity is Grassmere Woodlands. Our class and three other classes, from St. Joseph's Boorowa, Wyangala Dam Public School and Woodstock Public School, all went to Grassmere to learn about the balance between productive farming and biodiversity conservation.

Grassmere Woodlands is owned by Liz and John Baker. Like Chris Geeves, they are part of Hovells Creek Landcare. Both Boorowa and Hovells Creek Landcare are working hard to conserve and regenerate habitat for Superb Parrots and other native animal species.

The day started with a Welcome to Country by Isabel Coe, a Traditional Owner of the area. John then told us about how he plants trees on his property. He showed us that there is a diverse woodland area on his property and another diverse area a few kilometres away. The landholders in this area have been planting trees to create a corridor, or pathway, to allow animals to travel between the two fields.





Next, we met Tobi from the BCT, who showed us why the corridor the Bakers are creating is important. We made squirrel gliders out of paper and pretended they were real gliders, flying from one cone ‘tree’ to another without getting eaten by a ‘fox’ or ‘cat’. This was easy when we had imaginary trees in between to stop at and rest, but when Tobi came and took the corridor away, most of us couldn’t make it to the other side. This really made us think about why it is so important to have these corridors.

Alice showed us the importance of the underground layer. We got to see all of the roots up close and measure how healthy an area is by studying the roots and soil clumps. This was really interesting to see, and we learnt that healthy soil is the building blocks of a healthy landscape. We thought it was fascinating that native grasses and trees can survive in fairly acid soils, without any need for lime! A healthy soil supports productivity on farms by resisting erosion and helping nutrients and water move into native plants and crops to help them grow.





Kathie, a water scientist who works with water bugs, had a chat with us next. Kathie showed us that you can tell how healthy a dam or waterway is by looking at the species of insects in there. We had thought we'd seen biodiversity before, but WOW! There are so many species of bugs in the water. We saw water boatmen and leeches, as well as caddisfly and dragonfly larvae. The more water bugs found that are sensitive to changes, the healthier the water. Healthy water is very good for farm productivity and the environment, because the healthier the water is, the more robust the livestock and native animals will be.

#### TOP ROW, LEFT TO RIGHT

Caddisfly Larvae

Water Boatman

Dragonfly Larvae

*Murray-Darling Freshwater Research Centre*









Donna showed us how to look at ground cover from the perspective of a frog, a seed or a cockroach. We identified plants, leaf litter, rocks, logs, fungi, moss and a lot of other types of ground cover too. We weighed two sponges full of water and then placed one sponge out on the bare ground and one sponge under leaf litter and left them out for a while. When we re-weighed them a few hours later, the sponge under the leaf litter had more water in it. The sponge on the bare ground had lost all its water because of evaporation. This really helped us understand why animals like frogs need good ground cover, but also how good ground cover can support groundwater on farms too by keeping the precious water on the farm.





We then met Isabel, George and Harry, Traditional Owners from Wiradjuri Country. Isabel taught us Aboriginal people are connected to everything. Everything including the land, rivers, rocks and trees. She taught us Aboriginal people have been Caring for Country for over 60,000 years, and the relationship Aboriginal people have with the land has allowed Aboriginal people to be one of the oldest ancient cultures. Isabel shared some of the Traditional methods of Wiradjuri native plant use and how plants had multiple uses in Wiradjuri day to day living. Isabel showed us different native plants and explained how each plant could be used for things like fibre, grains, damper, medicine and weaving. Isabel reminded us that while we Care for Country, we must also Yindymarra (respect) Country.





Next, we met Damon Oliver and John Rankin, who took us for a walk into the conservation area on Grassmere Woodlands. Damon spoke about how the Superb Parrot is impacted by human activities and he also spoke to us about the importance of pollinating bird species and their role in maintaining a healthy and diverse ecosystem.





“Woodlands provide many different types of habitats for birds and other fauna,” John said. “These include trees that provide hollows, foliage and food for many birds. Shrubs and dense smaller trees like the black cypress pine provide protection, nest sites and food. On the ground layer, grasses, herbs, forbs and fallen timber and leaf litter provide habitat for prey like invertebrates.”

John also talked about the importance of connectivity between remnants as some birds can’t move across open areas because of the risk of predators. This reminded us of the corridors on Liz and John Baker’s property, and what Tobi showed us.



## BIRDS WE FOUND

### TOP ROW LEFT TO RIGHT

Grey Fantail - Patrick Kavanagh

Red Wattlebird - Peter Spooner

Eastern Yellow Robin - Rod Waddington

White-eared Honeyeater - Patrick Kavanagh



### SECOND ROW LEFT TO RIGHT

Galah - Peter Spooner

Wedge-tailed Eagles - Caitlin Olsson

Superb Fairy-wren - Peter Spooner



### THIRD ROW LEFT TO RIGHT

Yellow-faced Honey-eater - Patrick Kavanagh

Common Bronzewing - Patrick Kavanagh

Sulphur-crested Cockatoo - Andrea Shaffer

White-throated Treecreeper - Mike's Birds



### BOTTOM ROW LEFT TO RIGHT

Weebill - Patrick Kavanagh

Willy Wagtail - Paul Balfe

Eastern Rosella - Mark Gillow

Grey Shrike-thrush - Patrick Kavanagh











We learnt so much at Grassmere Woodlands and Bayview. All species, including us, rely on other species to live. Biodiversity is the variety of living things, and we are proud to be Conservation Champions who protect the living things in our area with landholders like the Geeves and the Bakers.

We can now see that biodiversity conservation can happen on private land. Our area of Boorowa and Hovells Creek is extraordinary because we have so many unique species living here.

The Geeves and the Bakers are 'Kicking goals for biodiversity'. Thank you, Vicky and Chris Geeves and Liz and John Baker, for showing us around your properties and teaching us how biodiversity conservation can be done on our properties too. Our community is proud of the biodiversity in our area.

*"No one will protect what they don't care about, and no one will care about what they have never experienced."*

- DAVID ATTENBOROUGH





## STUDENT REFLECTIONS

---

### ISABELLA

I am a Conservation Champion because I will remember to not knock down dead trees because hollows make a good home for birds and insects. I believe there can be a balance between farms and biodiversity because if you plant lots of trees, you can provide shade for farm animals and make a good habitat for birds and native animals.

### CARRIE

There can be a balance between farm productivity and nature because when you have lots of habitats, not only does it help native animals but also your farm animals too.

### RICKY

I learnt that birds like dead trees with hollows and that it is good to keep dead trees with hollows up for habitat.

### FINLAY

I am a conservation champion because I will separate my sheep into paddocks in case there is a drought to protect the groundcover which is important.

### ECLAIR

Biodiversity means the differences between living things, I learnt that wombats' poop is square and frogs can live in deserts and some can make homes out of snot! So cool.

### KYLE

I am a conservation champion because I will plant more trees so my farm animals can have shade and other animals can have a corridor to travel to their home.



## Biodiversity Conservation at Boorowa

### Authors

---

Isabella Piper  
Elle McIntosh  
Emma Craig  
Carrie Smith

### School

---

Boorowa Central School

### Technical support

---

Caitlin Olsson, Petaurus  
Education Group

### Photography

---

All photos courtesy of BCT  
unless otherwise stated.

### Design

---

Nicole Ho

### Front cover photo

---

Chris Geeves and BCT staff  
member Adam Hook

### Acknowledgement

---

We would like to acknowledge  
the Traditional Owners of this  
land and pay respect to their  
Elders — past, present and  
future.

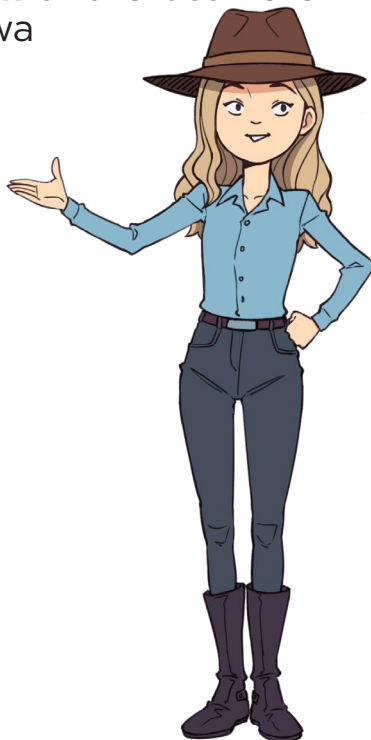
© 2019 Biodiversity  
Conservation Trust,  
[www.bct.nsw.gov.au](http://www.bct.nsw.gov.au)

This book has been delivered  
in partnership with Petaurus  
Education Group,  
[wirraminna.org.au](http://wirraminna.org.au)



## Bayview and Grassmere

Boorowa  
NSW



### Biodiversity Conservation Program

---

In 2019, students from  
Boorowa Central School  
participated in creating a book  
as part of the Biodiversity  
Conservation Trust's  
*Conservation Champions*  
Program in Boorowa.