



**I wanted to focus today on how it can be really sustainable, what we can use on site to create really great outcomes for wildlife and for our communities as well.**

**Dr Beth Mott**  
Threatened Species Officer  
NSW DECCW

## IDEAS FROM PLCM EVENTS

An information sheet for conservation-minded landholders and others interested in conservation land management

**Theme** Habitat augmentation

**Source event** *Adding complexity to restoration sites* – field day at Berry 19/09/24

**Landcare host** Shoalhaven Landcare

**Traditional Country** Dharawal

# Adding complexity to improve habitat around a dam



### PRIVATE LAND CONSERVATION MATTERS

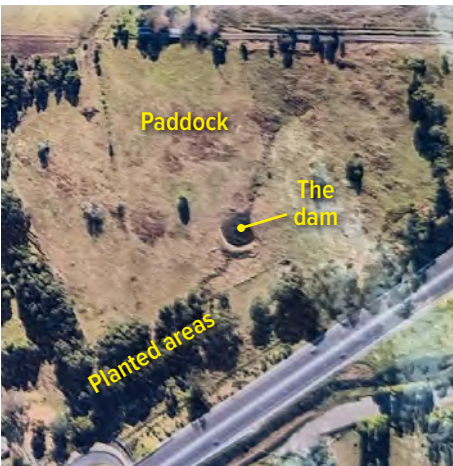
Landcare NSW and the NSW Biodiversity Conservation Trust are working together to raise awareness, and support private land conservation efforts across the state.

**How we can use resources that sit on a site to benefit wildlife?**

– to build micro corridors within the site?

We can create islands that allow the wildlife to move through the landscape.

It's just thinking about where you can connect one bit of edge to the next on your property.



We can have a look at what regeneration looks like when we're not putting a whole heap of money into it, because we kind of think about restoration and regeneration as 'let's go and plant a tree' and really we can step beyond that and ...

**have a look at what the land can do, in terms of how it can regenerate itself – and we just help that process along**

Everything that we're doing isn't rocket science.

Once we kind of understand the tricks of what we're trying to achieve, it should be pretty straightforward and easy.

**We're basically standing in the middle of the ocean for wildlife**

This paddock is like the ocean, and we have to find a way to actually bring those animals into the landscape across all of this ocean area.

A lot of wildlife are very scared about crossing that space from the trees over there to where we are. Small birds won't do it – it's just too far and too dangerous for them. Usually that flight distance would be no more than about 30 metres for some of our really small species to even think about coming in to use whatever the resource is that we're putting there.



*Before exploring the property we disinfected our shoes with methylated spirits, to avoid bringing in any pathogens that we might have picked up elsewhere. A particular threat is root-rot fungus, Phytophthora cinnamomi.*

**Presenter** Dr Beth Mott, Threatened Species Officer, NSW Dept of Environment Energy Climate Change and Water.

**Topic** Some ways to improve wildlife habitat around a small dam.

Dams can play an important role in restoring ecological function.

Messing it up and thinking 'outside the box' can enhance habitat for a range of animals including endangered species.

This property had been cleared for grazing, but is now managed for conservation.

### Key points

Corridors, islands and stepping stones allow wildlife to move through the landscape.

Native animals need places to be safe from predators such as cats and foxes.

A feral animal control program might also be needed.

Create habitat piles of timber and / or rocks.

Rubbish like corrugated iron and old ceramic pipes can make great habitat.

Perches and lookout points are important.

Use structurally and floristically diverse plantings to link areas of habitat.

Reptiles are often underappreciated, so be sure to consider their needs.

Frogs – battling chitrid fungus and other threats – need all the help they can get.

The complexity that wildlife needs often appears messy and untidy to us.

Retain tree hollows and dead trees whenever possible.

## Planting to create corridors

So when I think about how I'm going to do a planting for building corridors, it's what it provides access for – first it's going to be things like birds, because they'll hopscotch across the landscape, then potentially small mammals. There'll be frogs that get in there if we have a water source.

We want a sort of alleyway leading down to the dam at least on one side, but to have those sentinel trees further back. Because that's when the birds can move through that alleyway, sit up here and go: *'now I can stay and look for danger – and when I see that it's all okay, then I can go down and have a drink'*.

**When we think about what gives the best benefit to biodiversity, it's not just about canopy trees, it's not just about understory, it's about that level of complexity that goes all the way from the top to the bottom.**

You can hear some little foliage birds chipping away at the top of this

## Q and A

***"People say that you shouldn't plant shrubs too close to the dam wall?"***

Well, it depends what it is. When I'm planting, something like paperbark – *Melaleuca* – which I know won't hurt the dam – I generally just leave access ways, and I would plant that shrubbery down the bottom.

And then I would have a sentinel tree that sits beside or behind the planting away from the dam, where it's not going to affect the structure.

canopy. They wouldn't be here if we didn't have that level of complexity.

So for every one metre that we see up a tree trunk, that's generally a different species of bird coming in here to forage and use that layer. And that's what builds us really diverse communities – when we build that complexity,

Sometimes we can't wait for those trees to get really big to build that sort of complexity, and then for a mid story

to grow in between – sometimes we have to create that. And you can do it easily by pruning – managing your trees to keep them low and bushy.

And really, I think in a lot of regeneration, one of the elements that we miss is that really complex mid story that's going to bring all of that benefit to the patch that we're trying to recreate.

So today when we do our small garden, we really want to focus on bringing the shrubbery. Because that's what's really going to bring the biodiversity.

**And the other thing to always think about when you're doing a planting is encouraging pollinators**

I think that's a part of that low shrub layer that we really don't pay attention to a lot of the time. But anything that's providing good pollen (if we can put in *Melaleucas*, I would always include those) – that'd be great for the insectivorous birds, and they'll make an insect diversity that everything else can feed on as well.

### This is a slow game, you know

So put in some fast-growing things that you'll be able to look at and go, *'yes, you're growing'* – but just remember to be patient with it all.

**A lot of wildlife are very scared about crossing that space from the trees over there.**

**Small birds won't do it – it's too far and too dangerous.**

**Usually that flight distance would be no more than about 30 metres for some of our really small species.**

*Planting a high density of ground layer plants, shrubs, and trees to create an alleyway from nearby vegetation to the dam.*



**these are going to be awesome for small mammals, for our reptile fauna, and also for small birds and frogs.**

### **Habitat piles**

**It's really great to create islands inside the ocean of the paddock, to allow the fauna to move through**

When we're building the piles, it's just a matter of jigsaw. None of this is rocket science, but you want to be really careful about the way you create density inside the pile.

**We're piling that up so there's no empty space inside, in a way that's safe – so they won't crush an animal**

**It's really important that you chink up the holes to make sure that you're not creating a haven for predators**

What you want is a haven for the wildlife you're trying to encourage.

We want that to be as densely packed as we can, and we'll have some small timbers that we're going to thread in amongst the rest of the pile to chink up the gaps, because that's going to create little retreat sites, which will be great for our reptiles and small mammals.

Whether we use some small timber, whether you chuck some bark in, or whether we use rocks to chink up those holes – any of that space is still predator haven – so we need to fill the space up.

**So often we have this idea of clearing up – and burning off timber piles is a big part of it – but I would always encourage people to retain those.**

Generally, I would say when we build them out of timber, they're better than when they're built out of stone, because the timber is degrading – it's

throwing nutrients back into the soil, it's creating microsites for plants to regenerate, it keeps the water in the landscape.

Rocks are good on the outside, where the reptiles will be able to use them.

And that's where we're seeing – the beginnings of our ground fauna diversity start to develop inside these.



**We need to make sure there's no cat-sized holes.**

**Otherwise, we're just making a haven for everything to get eaten.**

## Provide some access to open water

The first thing I notice is the amount of vegetation covering the dam's surface.

That might be lovely if you're a rail, and you want to get through some

weedy stuff. But most birds actually can't use that water source, even though it's there, because they can't access it when it's that thick on top.

If we had a bit more resources and time, we'd have been building a little bird drinking dam above this dam.

I would think, if this was my dam, about removing some of that weedy cover – at least just in one corner – and then creating access points for the wildlife.



**It's fantastic to have these perches,**

**because they will allow the birds to start coming and sitting –**

**using the resource of the dam, and dropping seeds – which will help boost our regeneration.**

## Perches and lookout points

One of the things that we want to do today is use some of the small sticks that we see to create some perching areas right at the edge where we do have a bit of free water

– that will provide access for some of those birds.

I started just throwing sticks across the waterways, and that changes the accessibility.

The honeyeaters would come down and go: 'yes, this is a dam that I can sometimes drink from – but predators are going to get me when I go to the edge.'

Within 30 seconds of putting sticks down, families of honeyeaters were down drinking on the dam off these little sticks.

So if you can, think about what those birds want to access – think about the diameter of the perching areas for the birds to get on and be able to access the water.



**“ This will make a great basking site for blue tongues. ”**

## Reptiles are a huge part of it

And I think we really underestimate them because we just don't pay attention to them – or people don't like reptiles.

But reptiles are integral to building that biodiversity, because things have to eat them and they love to eat things. And all of that's a really important part of the food web. So encouraging those small reptiles and our ground fauna is a really great thing to be able to do. And that's really what we're going to do today.

## If I didn't have wood, I would be laying sheets of corrugated iron

There's old sheds down here on the back of the property. I'd be laying cover boards down as a part of what I would create in my corridor to get over to this habitat pile, and then potentially further up the hill too. Those things are fantastic for reptiles. They usually take about six months to settle in, and then can provide homes for a long time – for all of those scaly guys and for frogs too – and a heap of insects of course, that we want to bring in.

## Tree guards can be habitat

It doesn't always have to be with trees. Sometimes you can think about the amenity of the other things that you have there.

We don't realize how important the amenity of the equipment that we put around our trees is for wildlife. I've seen brown antechinis move through a paddock three days after matting has gone down – just hopscotching plant guard to plant guard to get right across the paddock – which was amazing to see.

I've seen birds get down and use tree guards. So we want to encourage birds first because they'll poo – they'll bring seed from the forest.

People love to hate corflute tree guards – these hard plastic tree guards. When you have a water element, those corflute guards are amazing. You can use them two, three or four times sometimes, and change them between plants. Frogs find them a fantastic place to go and retreat.

So when you've got a dam, I would always use corflute near the edge of the dam, because you're providing habitat for those frogs while your trees get up and grow.



I've seen five or six species now get down on tree guards within half an hour of them being up. And I thought, 'oh, you're just having a sit on the tree guard - it's a nice place to perch', but I actually watched them for a while, and they were using them as sallying points to go down and forage into the rest of the patch.

## A well-planned feral animal control program makes the landscape much safer for native animals

“So generally, a cat or fox would be here at night, eating frogs out of this drainage line and into this dam.”

Today we're doing all this beautiful tree planting and restoring habitat around this dam.

We can build all these things and bring native wildlife back, like bandicoots – but the feral cats are here waiting.

So this would be an ideal spot to set a cage trap.

We use a lot of these traps in the peri-urban setting where we can't use other methods like baiting or shooting. And sometimes we use these in conjunction.”



**Ryan Wall**

Fox Control Program Coordinator  
Shoalhaven Landcare



### Clay pipes are great for frogs

I have some clay piping – I got it on Facebook marketplace for free. We will use those specifically for retreat sites for frogs.

We're going to put them on the edges of the piles to make sure that they're catching sun.

We really want them to be on the western side of the piles, so they get really hot. And that will give opportunities for frogs that are being

exposed to chytrid to actually get in there, heat themselves up safely, and hopefully shed that chytrid disease so that they're healthy.



### Protect tree hollows and dead trees

We know that we're losing hollows far, far quicker than we can replace them. So retaining hollows is always something that we should have our eye on whenever we're thinking about regeneration, because they'll add huge value back into our biodiversity.

There's a whole heap of things that will only come and use your areas when tree hollows are present for them to breed, or potentially even to feed for some of the species.

So whenever you've got hollow bearing trees, small or large, you need to try to retain them.

#### Dead stags are great too.

And we're talking about 80 years for hollow the size of a sugar glider to form, and a big hollow like owl sized or glider sized is 150 to 200 years, depending on your tree species.



Grab some bits of this baky stuff and then lay that over one side – so you've got a cool side and a hot side.

### Frogs, chytrid disease and tree hollows

*Chytridiomycosis* is a disease that is sweeping through all of our frog populations and decimating them.

And one of the things that we know can defeat chytrid is heat.

You might find living frogs already impacted by diseases that haven't yet died. They tend to sit out in the sun where you don't expect a frog to be. So they're often really visible in the daytime, in odd places where they're getting a lot of heat.

So we'll be building some what we would call frog saunas – and that's a

place for frogs actually get in there, heat their bodies up, and that will allow them to shed chytrid.

Naturally frogs, particularly tree frogs, would do this by climbing up into tree hollows and overwintering, and then they would shed all of that disease, and dry out enough that they wouldn't have the chytrid. But usually when they come back down to the water to breed again, they get reinfected unfortunately.

When we walk through a water body, we can spread chytrid on our shoes.

We really need to be careful about how we walk through water – or ride a push bike through water ...



We used a plank bridge to cross the creek.

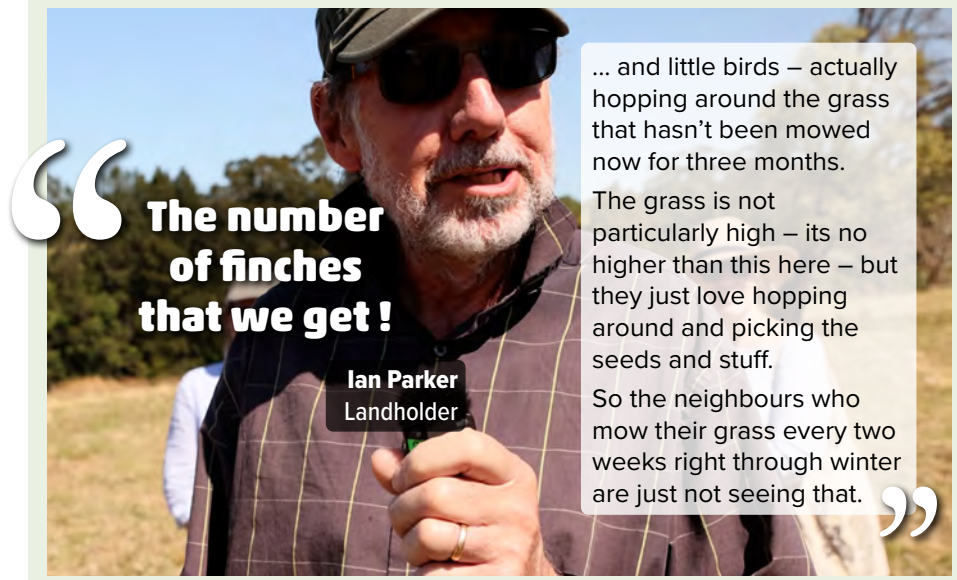
Untidiness is absolutely the complexity that we're aiming for when we want to bring wildlife into the landscape

I know that we're looking at whiskey grass and it's a bad thing, and people hate it, but really, this grassy element in between the plants – provided it's not strangling your plants – is incredibly important for wildlife.

We have emu wrens that used to be on this property, and they may still be here if we're lucky.

There's a whole decline in our bird fauna in the small grass-using birds, and the small foliverous birds – they're just disappearing out of rural landscapes and out of urban ones – because we keep taking away the bits of habitat that are so important. They're stuck in that layer of habitat that they need to use, and it's not one that we promote. And grasses – long grasses – are a big part of that.

So don't look at your planting and go, 'It's untidy – I've got a slash between my plants.' Provided you've got enough space for your plant itself to grow, and it's not being impacted, you want to leave those grasses there – and really, to encourage them.



Thanks to the organisers, presenters, participants and agency staff, who allowed us to record this event, and assisted in developing this resource.

The main text is derived from speakers quotes. Captions and green headings are additions.

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### Further information

Landcare NSW [Partnering in Private Land Conservation](#)

[NSW Biodiversity Conservation Trust](#)

[Study conservation land management online](#). Includes a range of conservation land management e-learning courses.

**Is it a weed or not?** Unless you are really sure, check with local authorities or use a readily available citizen science app like [NatureMapr](#) or [iNaturalist](#) to identify it. We don't want to be removing native species!

## Ideas for action

- Take time to observe how your natural areas connect. Are they regenerating? What can you do to support this?
- A biodiverse landscape is all about complexity, so focus on fostering complexity across all layers, from ground

to canopy. What's missing in the landscape that you can add?

- Avoid creating habitats that attract pests like foxes and cats. Instead, think about how native animals can escape and find refuge in tight spaces.
- Look at the landscape from a small animal's perspective. How would you safely move,

and find food, shelter, or nesting spots?

- What might seem messy to us, like corrugated iron or old timber, often makes great habitat for native wildlife!
- Tree hollows and dead trees (stags) are crucial habitat for so many of our native critters, preserving these is a no-brainer to provide habitat for a variety of species.