

Summing up: Reflections and evaluation of the Symposium

Dr Jim Radford

Principal Research Fellow, Future Landscapes Initiative, Department of Ecology, Environment and Evolution, La Trobe University, Melbourne

Transcript edited and summarised by Dr Peter Mitchell, Biolinks Alliance

“Never doubt that a single property managed by thoughtful, committed owners can change the landscape; indeed, it's the only thing that ever has”

Reflecting on all the talks and workshop presentations, there are four themes that are representative of the day.

Theme 1: Connectivity

First is the enormous complexity and variety in the dimensions of connectivity that we can think about. I have done a lot of work on terrestrial landscapes looking at corridors and functional connectivity, particularly with birds but also with mammals and reptiles, and I am used to thinking about the concepts that were repeated in a number of talks but from an aquatic perspective. Some aspects in the dimensions of connectivity in freshwater systems are unique or emphasised more than in terrestrial systems.

The obvious one is longitudinal in-stream connectivity. This is particularly evident in Nick Bond's talk of Carp Gudgeon and Galaxids, and the way they use the water as a medium for movement and dispersal, and the differences between breeding and non-breeding, and the presence of refuge areas. Longitudinal connectivity is a fairly obvious idea but it also has implications for the spread of disease and pollution and other negative connotations. This obviously has implications as to how you manage these issues in systems that are inherently flowing and connected.

We are becoming more aware of lateral connectivity adjacent to streams – the floodplain connectivity. And the importance of overbank flows (and environmental watering for overbank flows) for joining the instream aquatic ecosystems with the riparian/floodplain ecology with its associated soils and vegetation. Don Driscoll spoke of the importance of the matrix in terms of the ability of frogs to cover ground to access different types of habitat and return to the dams (in his study) but also the wetlands and rivers for breeding. So you have

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connectivity along the streams and across the floodplains and then into the upper slopes as well. In this context, riparian health is important in providing a buffer along waterways.

There are other less obvious dimensions of connectivity in freshwater systems. Vertical connectivity is the connections between surface water and groundwater. In a physical sense, this connectivity contributes to the maintenance of ecosystems from below. It also represents connectivity in a policy sense. The temporal dimension has also come through very clearly. Michelle Casanova clearly showed this with the values of ephemeral wetlands changing over time with land use and with climate and the wetting and drying cycles. Clearly the connections between different points in time are another way to think about connectivity.

Finally, there are the cultural and social dimensions to connectivity. Darren Griffin and Ben Muir clearly articulated the cultural connections to country for the first peoples in Australia. But this can be extended to the social connections we all need – for example, the people in this room, and the landholders with their community groups and relationships to agencies and government. Social connections and networks need to be developed and nurtured to enable some of the recovery and restoration plans and activities we are keen to see happen, and that many people are already involved in and actively doing. These connections are really the key to getting things off the ground and ensuring the efforts are sustained into the future.

Theme 2: Resilience and Resistance.

The second theme is one of resilience – or actually resistance. Resilience is the capacity for a system to bounce back and resistance is the capacity of a system to withstand shocks - and resistance may be more important. Nick Bond's model predicted shifts in the ranges of fish under climate change, and raised the question that perhaps the traditional notions of altitudinal and latitudinal shifts that we expect are probably not as important as simply protecting and maintaining the conditions in those streams that are now in the best condition – that is, those streams most resistant and resilient to change. It is an important point to make in all aspects of biodiversity conservation. We can sometimes get too wrapped up in fancy predictions of what will happen and wanting to make restorations that advance or increase habitat and ecosystems – and that is important, of course. But protection and proper management of those bits of the landscape that are in the best condition now is the most cost-effective way to achieve biodiversity conservation and provide insurance for nature.

Michelle Casanova addressed the resilience of ephemeral wetlands to bounce back after cropping. Here, the seed-bank with many long-lived seeds is important, and there doesn't need to be a large seed-bank to get recovery after water returns to the wetland. Depending on the degree of degradation and heavy cropping, there is still capacity in these ephemeral wetlands to recover – particularly if treated to some tlc.

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And then there is the resilience of people. Many of the people in this room have been working on the same systems for years and years. They persist – with guts and determination – and keep working at it, and are not too deflated by what is going on around them and whether they might be seeing success in their patch - or not. The courage to keep going is an incredible element to resilience that needs to be emphasised.

Theme 3: Solutions

The third theme is around solutions. The Research Centre for Future Landscapes that I am involved with has a vision to undertake research that informs solutions about land use and management for landholders. These solutions will increase the environmental sustainability of their land, and their economic and personal well-being. So solutions are really important and it was good to hear today about some of the solutions that are coming on board: Nick Bond spoke about low-flow by-passes for dams; discussions around blue carbon demonstrated a viable way to reward farmers for better management of their wetlands; examples of wetland recovery through re-plugging and “de-draining”.

Don pointed out that individual species are responsive to the way we manage our landscape. Which means that small actions work – what we do at a local scale does have an impact for the species and ecosystems that are there and hopefully coming back. It mightn’t always be spectacular, it mightn’t be “the recovery of the Orange-bellied Parrot”, but it might be that you are helping to lessen the decline of some plant or animal.

Don also talked about technological advances in monitoring such as video assessments. There are many technological advances that are helping us improve our assessment methodologies such as **Lidar** and other remote sensing and the like that give us a better baseline for knowing what we need to do and how to go about it, then how to monitor the changes over time. There are many examples where these technological advances are helping us with the changes we need to make on the ground.

Theme 4: The Future of Landscapes

Finally, the fourth theme is the future of landscapes. We need to recognise that we have choices as individuals, as communities and as a society as to the types of landscapes we want to live in – what we want for the future. And that we need to be creative and, as Ben Muir said, we need to look forward. There is no point harking back – as much as we would like – to pre-European landscapes to see how wonderful they might have been for nature and biodiversity. We are here now and have to look forward to see what we can do from this position into the future.

That is going to take whole of landscape thinking. Each property is part of a landscape which is part of a catchment. To steal a phrase – every property is sacred. And all properties have a contribution to make – your place, your neighbour’s place – to look after the health of that landscape as a whole.

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And a plea to be ambitious. Those who are concerned with nature and biodiversity conservation are conservationists by name but conservative by nature. Other sectors of society have no qualms about making outrageous statements about how successful they are going to be: a billion dollar profit; dig up a hill for minerals; turn the north into a food bowl; turn the rivers north. Even Brendan Gale said a few years ago that Richmond would win a premiership – and they did. So other sectors have no inhibitions about thinking big and being visionary. Collectively, those of us involved in nature conservation need to re-calibrate the scales in which we think. We need to think bigger and more ambitiously.

There is no reason why we can't have platypus back in the Wimmera River. We have the knowledge and know what needs to be done. There are still platypus elsewhere – they are not extinct – so we can re-introduce platypus to the river. But it's going to take solutions and creative thinking and – of course – resources. And that's part of our challenge: to make the rest of society who are not converted to understand the importance of these matters – to convert them to thinking "Well. That is worth doing, it is something we want in our landscape and in our lifetime."

There are plenty of examples of big thinking for the future. Look at the latest edition of [Wildlife Matters](#) and you will see a massive 44km fence down the middle of Newhaven Wildlife Sanctuary. The Australian Wildlife Conservancy has plans to eventually fence 100,000ha and remove all feral predators – it sounds crazy but may well go ahead. Wolves returning to Yellowstone National Park was crazy thinking 30-40 years ago but it happened. New Zealand's Black Robin was down to five birds with one breeding female but now there is a healthy and viable population.

I will leave you with another bastardisation of a quote, this time from Margaret Mead: *"Never doubt that a single property managed by thoughtful, committed owners can change the landscape; indeed, it's the only thing that ever has".*