

What if urban plans gave natural systems the space to recover from the cities built over them?

February 22 2023, by Louise Wright and Catherine Murphy



The reconstructed Greenfields Wetlands in Salisbury, Adelaide. Credit: Ben Macmahon

Our cities have altered their original landscapes so greatly that their natural systems are profoundly compromised. These systems—such as swamps, rivers, creeks, aquifers and bushland corridors—need more space to function properly. Sometimes they assert their underlying presence through land subsidence, floods and fires. As Margaret Cook

wrote in her [history of Brisbane floods](#), the Brisbane River is "a river with a city problem".

In Australia, Melbourne in particular has been hugely altered. Historian James Boyce [wrote](#):

"Of all Australia's major cities the natural environment of Melbourne before British settlement is perhaps the most difficult now to imagine. This is in part a product of the city's size and flat topography, but it also reflects the extent to which the region was dominated by swamps and grasslands—the two ecosystems that were most comprehensively transformed by the conquest."

In response to climate change threats, cities around the world are making space to restore natural systems such as creeks, rivers, wetlands and vegetation on a larger scale. But this is an enormous task. These systems have been concreted, filled in or built over since the industrial revolution.

Sometimes ecosystems are restored

One example of restoration is in Elsternwick, a suburb of southeast Melbourne. Here an ephemeral wetland behind the [coastal dunes](#), on the [traditional lands](#) of the Yaluk-ut Weelam, Boon Wurrung clan of the Kulin Nation, was drained and filled. It became a parkland, trotting track and then golf course. Now a [constructed wetland](#) is transforming Yalukit Willam Nature Reserve (formerly Elsternwick Park) into a [modified version of its former self](#).

There are many such projects, but still not nearly enough. They tend to be site-specific and isolated, lacking the connection to larger landscape-scale systems so crucial to their proper functioning. For instance, while water from the Elster Creek now flows "naturally" through a chain of

ponds in the former Elsternwick golf course, for most of its length the creek is still a channel under and above ground.

When more space needs to be reserved for public benefit and use, the government can compulsorily acquire it through legislation, such as the Land Acquisition and Compensation Act 1986 (Vic), and through planning schemes, via an instrument called a [public acquisition overlay](#).

The overlay was used in Victoria to [remove the suburb of Summerland on Phillip Island](#) over 25 years to conserve and restore habitat for penguins.

Similarly, housing in high fire risk areas was compulsorily acquired to reforest land in the Dandenong Ranges east of Melbourne in the 1970-80s. More recently in New South Wales this approach is being used to move housing away from flood zones in Lismore and the Northern Rivers.

More often natural systems lose contest for space

Most commonly, such mechanisms are used to make space for roads and other infrastructure. A current example is in the Melbourne suburb of Bulleen, just 50 meters from the Birrarung (Yarra River). Around 80 industrial buildings are making way for the [Manningham Road Interchange](#) of the [North East Link](#) project.

Meanwhile, the natural systems of the Birrarung struggle for enough space.

The story of the dispossession and transformation of the river corridor along the bends, floodplains and billabongs known as [Banyule-Bulleen Flats](#) is repeated across Australia. This important [cultural place of rich food and resources](#) for the Wurndjeri Woi Wurrung was capable of

sustaining up to 500 people. It was cleared, farmed and grazed [from the mid-1880s](#).

Piecemeal development has intensified the use of this once cheap, low-lying, flat land. This 2km by 1km parcel of land has been given over to an 18-hole golf course, 27-house estate, six sporting ovals, six soccer pitches, six clay tennis courts, three indoor basketball courts, an archery field, parking across multiple sites for at least 600 cars, a large social club with restaurant, futsal court and convention rooms, major electrical pylons, the large scar of a former drive-in cinema, a web of paths, fences, barriers, toilets, clubrooms, playgrounds and, until recently, an industrial estate.

Very soon, there will be a six-lane tunnel. The land being used for its construction is the subject of "[future development potential](#)".

All this human activity is located there largely due to floodplains not being valued. Yet this area contains the [last significant remnants](#) of a network of billabongs and riparian woodlands with centuries-old river red gums.

How can urban plans help restore natural systems?

Planning schemes are meant to recognize the environmental and cultural value of land. They regulate the use of land, what can be built there, and how we should go about it.

However, each intervention is mostly assessed at the scale of the parcel of land. The process has little to do with the land's role in a wider, underlying and connected ecological structure.

We need an alternative urban plan that foregrounds and provides space for ecosystem regeneration. New and robust planning tools and

governance processes are required if we acknowledge we cannot continue to urbanize areas of ecological significance and should repair and strengthen others.

Yes, we have detailed and careful regulations and controls for protection of vegetation, significant landscapes, land subject to flooding, and so on. But the fact is most buildings and development are not compatible with healthy natural systems that support the complex web of symbiotic relationships between soil, plants, animals and an array of other organisms.

We need urban plans that consolidate space for [natural systems](#) in our cities. This process will require long-term frameworks that strategically return land to enable connected ecological systems to function over large territories. To free up this space, urban density will have to increase in other areas through more intensive use of existing buildings and infrastructure.

This alternative approach will improve the quality and sustainability of our future cities.

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