

The race to save a highly specialised possum



Zoos Victoria, Melbourne Water and Parks Victoria are working hard to save one of our most elusive and endearing creatures from extinction.

Photo: Sarah Summers

There are less than forty lowland Leadbeater's possums left in the world, and Zoos Victoria's program to breed the little marsupial in captivity has yet to bear fruit. Protecting the only habitat where they are known to exist - a small pocket of swampy floodplain forest within the Yellingbo Nature Conservation Reserve (Reserve) - has therefore become an urgent priority.

Melbourne Water has embarked on an exciting project to help restore the natural water flows within the Reserve. Its goals are to improve the condition and regeneration of the vegetation on which the possum relies.

Parks Victoria and Zoos Victoria are supporting Melbourne Water's efforts through initiatives aimed at reducing damage to that vegetation caused by feral deer. Parks Victoria (and an army of volunteers) is running its annual control program in the Reserve, and is collaborating with Zoos Victoria to build an exclusion fence around a critically important pocket of remaining possum habitat.

In the background, Zoos Victoria is monitoring the lowland Leadbeater's possum population, and investigating the feasibility of new options to prevent the extinction of this unique population.

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A rapid loss of habitat

Genetically distinct from the Leadbeater's possums found in the nearby highlands, the lowland Leadbeater's possum has adapted to life in a low-lying, swampy floodplain environment.

The lowland habitat, which is characterised by highly productive soils, dense thickets of paperbark and tea tree and a canopy of mountain swamp gums, was once expansive; now, all that remains intact is a narrow, 7km stretch along Cockatoo and Macclesfield Creeks.

There are two major causes of this loss of habitat. The first is that much of this highly productive land was cleared for farming in the first part of last century. The second is that farmers altered many of the surrounding waterways in the 1950s. This included building levee banks to protect their land from flooding, which caused some areas to be inundated with water (see photo), and others to become too dry.



Photo: Dr Joe Greet, University of Melbourne

By the 1990s, many of the plant species that the lowland Leadbeater's possum relies upon for foraging and movement had either disappeared from the area or were struggling to survive, because of the man-made changes to the water flows.

More recently, feral sambar and fallow deer have been hindering nature and park managers' attempts to regenerate the area by eating or trampling new seedlings and saplings.

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“Turbo-charged sugar junkies”

Zoos Victoria’s Threatened Species Biologist, Dr Dan Harley, describes lowland Leadbeater’s possums as “turbo-charged sugar junkies” on account of their extraordinary athleticism and high energy needs.

Weighing less than an apple, and measuring 16cm in body length, the lowland Leadbeater’s possum is able to propel itself across distances that are more than eight times its body length! And, unlike the sugar glider (which it resembles, but is not closely related to) the lowland Leadbeater’s possum travels without the assistance of a gliding membrane.

What the lowland Leadbeater’s possum does need for its nocturnal commute, however, is a dense canopy or midstorey of intertwining stems and branches - the thicker the better. Dan likens this mass of vegetation to a road network, adding that lowland Leadbeater’s possums are very reluctant to travel along the ground.

The lowland Leadbeater’s possum also need huge amounts of energy, which it gets by licking the sap from mountain swamp gums, and the excretions from the insects that also live on those trees.

The mountain swamp gums provide another important resource: hollows for resting throughout the day, and breeding. “Lowland Leadbeater’s possum families - which typically comprise mum, dad and a couple of kids - are very fussy when it comes to choosing somewhere to live,” explains Dan. “They want a house with a small door and a large, open-plan living area in which they construct a complex nest of finely shredded bark. All of the family members huddle together deep within the nest to stay warm.”

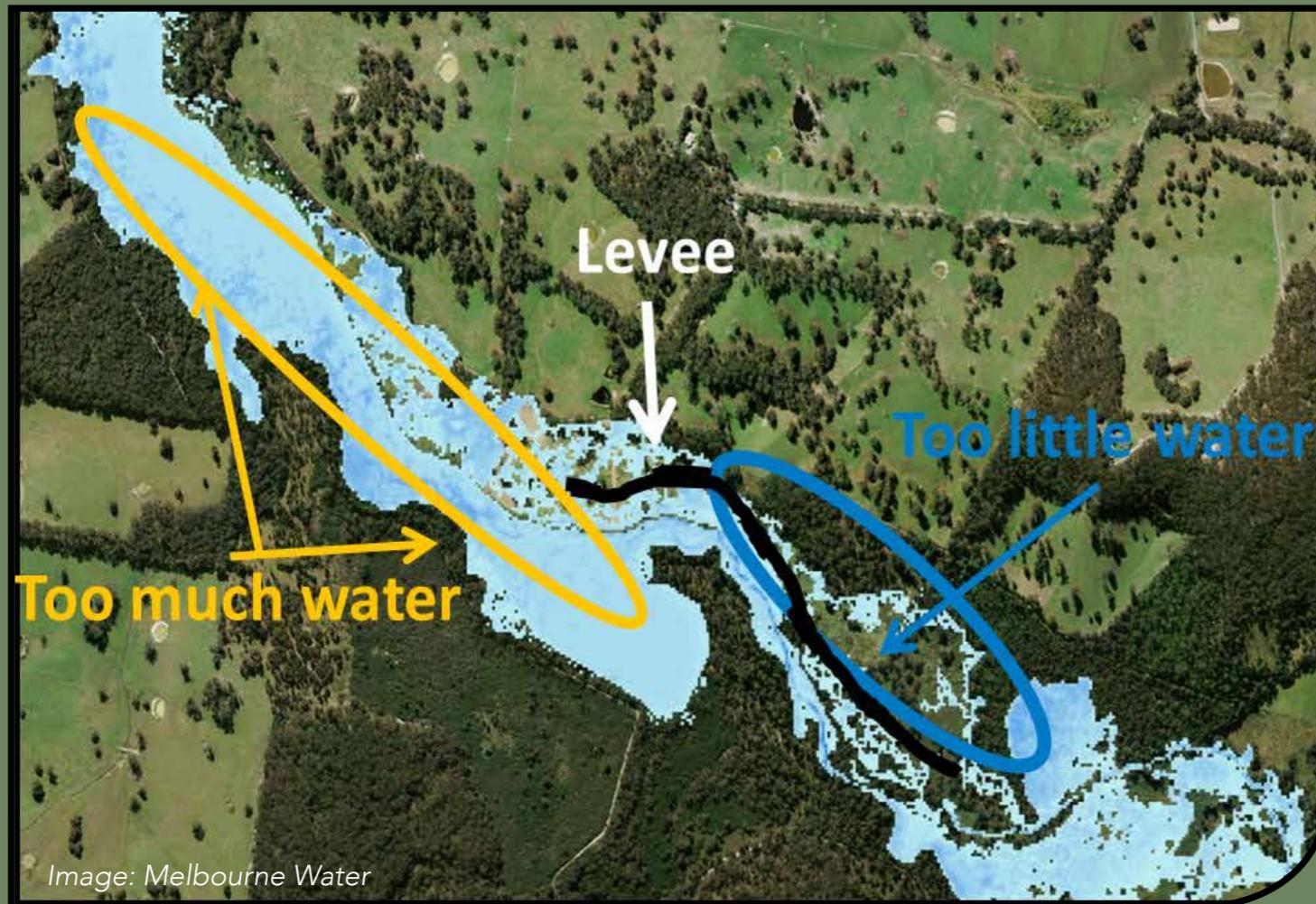
When they find the right place, it’s a forever home. Lowland Leadbeater’s possums spend all their daylight hours ‘indoors’ and become extremely bonded to their particular patch, which is why the loss of their native habitat is so devastating. In ideal conditions, a breeding pair will produce one or two young twice a year. Unfortunately, this has not been the case in the Reserve for some time, causing numbers to plummet to such lows that a single event, such as a bushfire, could wipe out the last lowland Leadbeater’s possums forever.

Photo: Dan Harley



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The key to survival - recreating healthy floodplain forest



Melbourne Water's Cockatoo Swamp Rehabilitation Project (Project) evolved after extensive consultation with a range of stakeholders and consultants.

Its goal is to help restore the natural water flows that occurred in a key area of the Reserve before the 1950s, so that the floodplain forest can regenerate.

This is being achieved by removing parts of the historical levee banks in strategic locations, and installing a temporary above-ground pipeline and pumps to draw down water levels in waterlogged areas.

The water that is pumped from this area will be returned into Cockatoo Creek at a discharge point further downstream.

Removal of the levee banks (which will let more water onto the floodplain) was carried out in summer 2017-18, and work to install the pipeline and pumps began soon after.

The Project was carefully designed to minimise any negative impacts on the Reserve, which also supports the last population of the critically endangered helmeted honeyeater.

A team from the University of Melbourne will monitor changes in the vegetation over the next four years to help measure the success of the Project. While improvements will not be seen overnight, it is hoped that positive changes will be visible by 2020.

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The problem with deer

Deer eat and trample young seedlings and saplings and, during rutting season, the stags rub their antlers against the mature trees. This effectively ringbarks, and eventually kills, those trees.

Unfortunately removal of all deer from the Reserve is not achievable. A more manageable approach involves excluding deer from key areas and reducing their numbers (and therefore, their impacts) in the rest of the Reserve.

Parks Victoria and Zoos Victoria are collaborating to build three fenced compartments (5km in total) to protect the most critical area of remaining possum habitat from feral sambar and fallow deer. Thousands of seedlings have been planted in this precious pocket, but deer activity is suppressing their growth.

Before the compartments are completed, Parks Victoria will carry out a 'deer drive', to ensure that no deer are inadvertently fenced in.

It will also continue the deer control program that has been underway in the Reserve since 2015 with the Sporting Shooters Association Australia (SSAA) and the Australian Deer Association (ADA). Skilled and accredited ADA and SSAA volunteers are critical to the success of the program which is carried out under very strict animal welfare and public safety conditions.

Faecal monitoring is being carried out to get an accurate picture of the size and behavioural patterns of the deer populations within the Reserve. Parks Victoria will use this information when planning future control activities.



Photo: Parks Victoria

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Photo: Sarah Summers

The benefits will flow far and wide

It is not only the lowland Leadbeater's possum that will benefit from the restorative work being carried out along this short length of swampy floodplain forest.

Many other species, some of which are also endangered or threatened (such as the helmeted honeyeater), rely on the area to breed, forage, or to travel safely throughout the broader landscape.

And, as well as providing habitat for wildlife, native swampland vegetation helps keep harmful nutrients and sediment out of our waterways. As the floodplain's condition improves, the area will play a bigger role in keeping this part of the Port Phillip and Westernport Catchment clean and healthy.