



Conserving habitat calls for hands-on approach



BY JERRY VANCLAY

The number one priority of national parks is to act as 'strongholds for biodiversity conservation.' But, as the author points out, they more closely resemble fragile fragments, which need far more than a gate and a padlock to protect their precious habitats.

Jerry Vanclay is a member of the Southern Cross Group, a group of forest researchers and practitioners advocating incentives for better management of private native forestry.

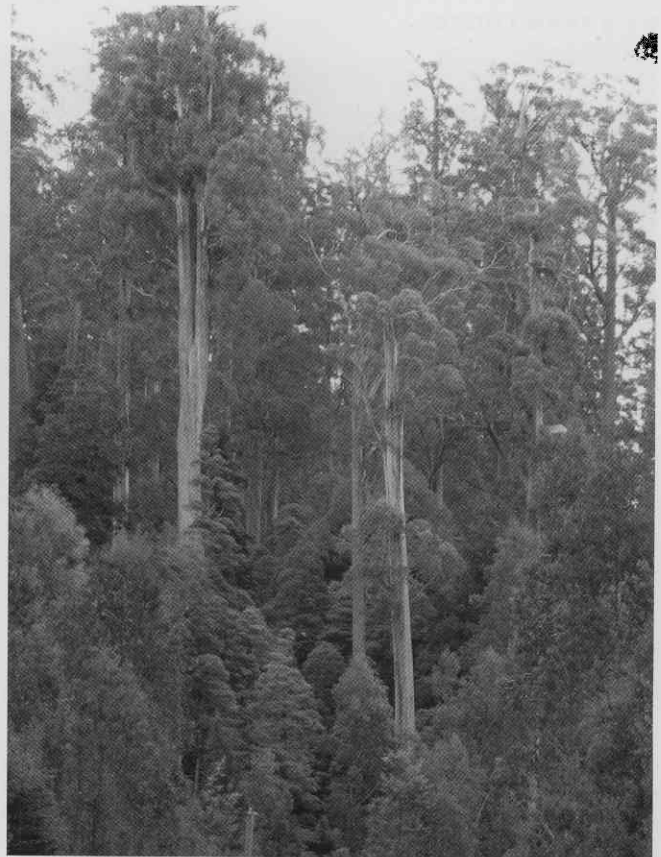
I love National Parks, and take a lot of my recreation within them. But I've gradually realised that most of them are not doing the job for which they were established. I was raised on the philosophy that 'protecting places' was

the right way to care for the environment, but I've gradually realised this isn't so.

My Easter break has just reminded me of this: my experience didn't match my memory, so I unearthed some old photographs to confirm my impression about detrimental vegetation changes during the past few decades. This is not new ground. There is plenty of published research that documents how vegetation is shaped by fire regime, by grazing pressure, and other management decisions. This means that conservation is about providing habitats, not about protecting places.

This distinction is important when one considers the impact of fragmentation: many of our conservation refuges (PNF as well as National Parks) have become islands in a sea of agriculture (and urban sprawl), and a fire, weed or feral predator can create havoc (e.g. the 1994 fires that burned most of Royal NP, or the 2003 fires in Kosciuszko NP). As climate change becomes more apparent, this distinction between habitat and place will become all the more important. Higher temperatures may drive some species to higher elevations, and parks are a good strategy for these species. But other species may be driven elsewhere by moisture or disturbance, and active habitat management may be needed to maintain these species. Recognising that conservation is about maintaining habitat, not about protecting places, is only the start of this journey.

Most keen observers of parks recognise that key threats include fragmentation and edge-effects, which allow weeds, feral animals and wildfires unfettered entry into the parks. Ideally, any forested park would be surrounded by natural forest managed to minimise these threats, but this is rarely the case. In Australia, conservation is often seen in 'black and white', as park and private land – but this is a blinkered view. To get the best outcomes, conservation needs to cover the whole spectrum from strict protected areas to managed multiple-use farmlands, and encompassing buffer zones and corridors. The fate of some organisms will depend on the management of private lands, at least as much as on the wellbeing and extent of parks.



Protecting mature forest like this in Tasmania requires active management. PHOTO: Ross Peacock

Context-dependent approach

Many people advocate strong prescriptions for buffer zones (and elsewhere), but I prefer a context-dependent approach. In some places in East Africa, tea plantations provide buffers that are effective at preventing incursions by hunters and gatherers. In other parts of the world, agroforestry offers the best option to balance conservation and production objectives in the vicinity of parks. Observing the efficacy of these two extremes, has taught me to avoid blanket prescriptions and consider each situation individually.

Oregon's experience with woody debris in streams offers another example of the folly of rigid prescriptions. During the 1960s and '70s, Oregon required loggers to remove all wood debris, whether natural or logging residue, from streams. Once the detrimental effect of this policy became evident, Oregon reversed their policy and now requires some logging residues to be placed into streams to improve fish habitat. One way or the other, Oregon did the wrong thing for fish habitat, statewide, for at least two decades. For me, the lesson is to avoid blanket prescriptions, and instead, encourage innovation and reward outcomes.

This desire for outcome-oriented incentives and non-prescriptive approaches extends beyond buffer zones to all land, whether managed for production or reserved for conservation. Conservation is not well served by an approach that standardises practices statewide. Instead, ornithologists



A mosaic of many different habitats: agroforestry can provide one of the best buffer zones to conserve the biodiversity in a core park refuge. PHOTO: Sharn Lucas

should have the freedom to create bird-friendly habitat, herpetologists to create reptile-friendly situations, and other enthusiasts to do their own thing; together they will create a diverse, biodiverse and resilient landscape. The Southern Cross Group have suggested one way to promote such endeavours (see *Forest Grower* Vol 29 No 4, p.28).

PNF research is limited

When I was asked to contribute this piece, I was asked to discuss what research says about biodiversity in PNF and how it varies under differing management regimes. I've shied away from quoting published research quite deliberately, because it's my view that the research is limited and often biased. There is ample anecdotal data to support my views, but the formal literature is sadly limited. It is limited because the literature reports findings, not absences, and because it often confuses 'not found' with 'no data.' It is limited because too many wildlife specialists devote most of their attention to parks and reserves where they know they can find their organism, and neglect private lands. It is limited because too often a comparison is drawn between a park and an exotic plantation rather than between different management alternatives for a contiguous forest. It is limited because too often the subject is a charismatic species rather than a pivotal species.

Many years ago, I participated in an attempt to map biodiversity hotspots in the Wet Tropics World Heritage Area using records of herbarium specimens, but our attempts were completely confounded by opportunistic records that made all roadside picnic areas appear as hotspots. Not all species occurrence data are flawed in this way, but my experience suggests that too many records are opportunistic rather than

deliberate (i.e. derived from systematic surveys); and that too many record place rather than habitat, thus providing an inadequate basis for reliable inference.

Predicted species distributions could be improved more rapidly if authors published maps of confidence intervals, so that sampling could be directed at locations and habitats with the greatest uncertainty. However, funding pressures usually mean that researchers go to places where they are most likely to find their target species, and this hampers our understanding.

Managed biodiversity

So how does biodiversity vary according to management regime? Again, I consider the formal literature deficient, but suggest some general principles. In most cases, the number of organisms will correspond to net primary productivity, and the diversity of organisms will correspond to the habitat diversity. So it should be no surprise that biodiversity will be higher in a well-managed natural forest, which has been thinned to maintain peak productivity and allow some light to reach the forest floor, than in an overstocked monoculture in which the forest floor is devoid of vegetation.

Not all biodiversity is equal, however, so blanket prescriptions should be avoided and landholders should learn and provide for their own endemic species. In some cases, reliable advice is readily available, but in many instances a landholder may want to devise their own approach to foster biodiversity. Adaptive management is a good approach, and involves following a 'best bet' while simultaneously trying a few little experiments to see what happens when conditions are varied slightly. These experiments can in turn be used to refine the best bet, and to inform the next generation of experiments. However, some care is needed in interpreting these experiments, to account for any edge (and lag) effects and in recognition that 'mother nature' may simultaneously be doing little experiments of her own.

Finally, I must conclude with a plea to shed more light on managing biodiversity. I've been critical of biodiversity researchers and of the formal literature, and the only way to improve the situation is to encourage those with rare species to share their secrets with researchers. Sharing such information is not without risks, both to the rare species and to the landholder who may face unwelcome constraints, but may be the best way to foster a better understanding of our biodiversity.

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A sighting of a single black-winged stilt in spring, 2003 was followed a year later with a sighting of 40 at a newly built, recently inundated wetland. That was a real highlight.

Is there a difference in bird numbers between remnant or older vegetation, newer revegetation corridors and agroforestry? One might expect that more birds would gravitate to remnant or older revegetation than to newer reveg or the single species of agroforestry. Not always, it seems. In 2007, there was an influx of yellow-tufted honeyeaters observed in flowering spotted gum plantations. This was possibly an anomaly caused by failure of flowering in the box-ironbark woodlands of central Victoria. And, of course, the answer is more complex than one example.

Jigsaw Farms has been included in a soon-to-be completed study conducted by Dr Rohan Clarke and his team at Deakin University. It researches the biodiversity benefits of revegetation and remnant vegetation within agricultural systems in the Glenelg-Hopkins region of south-western Victoria. Birds have been used as the primary indicator, with butterflies, mammals and frogs included as sub-sets.

The value of Murray and Rohan's research is that it covers both changes in birdlife over time and across types of vegetation. We value their expertise greatly and know the importance of scientific 'proof.' Given that, as far as we can tell, there are a lot more birds around the place since we've been planting trees. The pleasure this brings both ourselves and our children helps to make the whole project worthwhile.

