

Victorian woodland bird numbers collapsing

Victoria could be facing a wave of extinctions following a dramatic crash in bird numbers in the Box-Ironbark forests of northern and central Victoria over the past five years.

This is the dire warning from new research by leading ecologists Professor Ralph Mac Nally (Director of the Australian Centre for Biodiversity at Monash University), Professor Andrew Bennett and Dr Jim Radford (both from Deakin University).

A systematic study across northern and central Victoria (covering a 30,000 km² region) over the past 15 years has shown that about two-thirds of bird species, including lorikeets, pardalotes, thornbills and honeyeaters, have declined dramatically.

Most worrying is that species thought to be secure, such as the Red Wattlebird, Striated Pardalote, Grey Shrike-thrush and Laughing Kookaburra, have declined as much as or more than species already of conservation concern – those listed as threatened, vulnerable or endangered, such as the Crested Bellbird, Black-chinned Honeyeater and Brown Treecreeper.

The proportion of declining species did not depend on the birds' ecological characteristics so, for example, seed-eaters, insect-eaters and nectar-feeders have declined in similar ways.

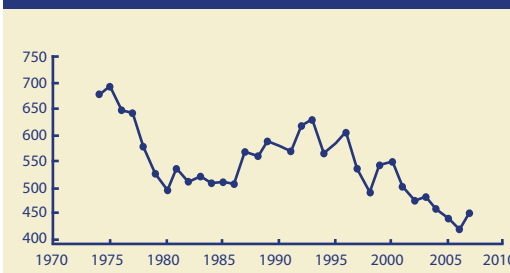
Falls linked to big dry

What we are seeing is a regional-scale phenomenon that is affecting woodland birds in national parks as well as in agricultural landscapes. It seems likely that bird losses are linked with the extended dry period.

The area where this study was undertaken has seen a steep decline in rainfall (40% compared with long-term averages) over the study period (see graph), and a substantial increase in mean annual temperature since 1950. This is consistent with predictions from climate change models.

The region had been largely cleared and the remaining woodlands poorly managed over many decades, making the system more vulnerable to the effects of climate change

Mean 5-year average rainfall (mm)



The study area has seen dramatic falls in rainfall averages.

and the severe drying we have seen since 1996.

The scientists think that bird numbers have declined because climate change (particularly decreased rainfall) has resulted in reduced habitat quality and greatly reduced food availability. This has compounded the already serious effects of broad-scale habitat loss, degradation and fragmentation.

The scientists argue that the collapse in numbers of so many different bird species strongly suggests that the availability of all food resources has crashed.

Flowering of Red Ironbark trees, which provide food for nectar-feeding birds, has declined greatly as a result of the drought. In five of the past eight years Red Ironbark eucalypts have flowered little or not at all, whereas the historical average for failure to flower is less than one in six years.

Bird breeding activity also seems to have fallen sharply. In 2007-08, while only 40% of species showed any evidence of breeding, there was little evidence of successful raising of young birds even in the largest remaining forest areas.

The scientists think that the recent plunge in bird numbers reflects a longer period of breeding failure, so that when adults die, there are few young to replace them.

Remnant bushland

Widespread habitat clearing over the past 150 years has greatly reduced the amount and quality of habitat available for birds. Remnant bushland is largely isolated 'islands' in the midst of our agricultural landscapes.

There appears to have been substantial

Website
www.victorianaturally.org.au

Project leader
Karen Alexander
0439 306 829
karena@vnpa.org.au

Project officer
Carrie Deutsch
carried@vnpa.org.au

Community engagement
project officer
Yasmin Kelsall
yasmink@vnpa.org.au

Photos
Bird images by Chris Tzaros, except for the kookaburra, used courtesy of marj k, www.flickr.com/photos/marj_k/



All Victorians enjoy the benefits that come from a healthy environment – good quality food and wine, clean water, holidays at the beach and in the bush. Biodiversity is the basis of this prosperity. But our unique plants and animals are under increasing pressure from land clearing, habitat destruction and climate change. We need firm and enduring action on these issues now if we want our kids to enjoy the benefits we do.
– Don Henry, Australian Conservation Foundation executive director





Varied Sittella



Swift Parrot



Black-chinned Honeyeater



Yellow-tufted Honeyeaters



Laughing Kookaburra

These are just some of the birds disappearing

BIRD SPECIES	PERCENTAGE DECLINE BETWEEN 2002-03 AND 2006-07 SURVEYS
Black-chinned Honeyeater (threatened)	68%
Crested Bellbird (threatened)	64%
Brown Thornbill	57%
Sacred kingfisher	57%
Varied Sittella	55%
Crested Shrike-tit	54%
Restless Flycatcher	54%
Mistletoebird	53%
Eastern Yellow Robin	43%
Hooded Robin (threatened)	38%
Superb Fairy-wren	36%
Laughing Kookaburra	30%
Red-capped Robin	30%
Willie Wagtail	26%
Yellow-tufted Honeyeater	20%



declines in the condition of remnant bushland. On top of this, most of the remaining large old trees in the region pre-date European settlement. Many are on private land and are likely to die in the next 50-100 years as they reach the end of their lifespan.

However, few new trees have grown to replace these trees due to a range of factors including grazing and on-going clearance.

National parks are not enough

The magnitudes of bird declines were similar in larger remnants of native vegetation (some of which are national parks) and in heavily-cleared landscapes. This is important because it has been assumed that large, relatively intact areas being managed for conservation will almost 'guarantee' persistence of species.

The results of this research indicate this is not the case.

Relatively intact areas cannot be relied upon to sustain species under current conditions and management practices.

There are several reasons for this. Most nature reserves and national parks are on relatively dry, infertile or steep land. These areas will be particularly hard hit by climate change because they lack the resources plants need to successfully cope with harsher conditions.

The existing reserve system is necessary but not sufficient for sustaining biodiversity. The bird survey results confirm that on its own, the reserve system is unlikely to sustain biodiversity especially under the greater ecological stresses that will be experienced with a drying, warmer climate.

Habitat needs improvement

The message is that the urgency and magnitude of action required are many times greater than what is currently being done. To turn things around, the quality of existing habitat needs to be improved. There is a

critical need to restore habitat in more fertile areas (such as floodplains) and adjacent to existing remnants.

Very large scale restoration of habitat is required to reconnect isolated bushland remnants.

The research team reported some positives. They found more breeding in relatively young replanted sites, especially on more fertile soils, suggesting that widespread replanting may be part of the solution to reversing the declines.

Revegetation in fertile areas offers multiple benefits, including faster tree growth than on poor soils and more flowering of eucalypts.

The scientists concluded that the urgency and magnitude of remedial action required are many times greater than current practice.

If we are to respond effectively to this dire situation there is an obvious need for much larger, long-term sustained investment in Victoria's environmental infrastructure.

This research was recently published in the international journal *Diversity and Distributions*. See Mac Nally, R, Bennett, A. F., Thomson, J. R, Radford, J. Q., Unmack, G., Horrocks, G., Vesk, P. A. (2009) *Collapse of an avifauna: climate change appears to exacerbate habitat loss and degradation. Diversity & Distributions, Vol. 15, No 4, pp. 720-730.*

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Website

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