

What is happening to the woodland birds of the Mount Lofty Ranges?



The native woodlands that once covered the Mount Lofty Ranges landscape have been reduced to about one-tenth of their former extent. This loss of habitat is affecting our woodland birds.

Our most recent analysis of woodland bird populations indicates that small insect-eating birds (insectivores) have declined significantly over the past decade. Creating new habitat through revegetation, along with careful management of remnant habitat, may be our best hope to stop this decline.

How do we know what is happening to our woodland birds?

The Mount Lofty Ranges Woodland Bird Monitoring Program provides a way to observe and understand the changes happening to bird populations across the landscape. Using this information we can take action to reduce the decline of woodland birds in the region.

'The Mount Lofty Ranges Woodland Bird Monitoring Program is one of the first long-term studies in Australia that is able to show which birds are becoming more or less common in the landscape over an entire region', says Professor Hugh Possingham from the University of Queensland¹, who instigated the monitoring program in 1999.

The program collects information from more than 160 sites located on both public and private land. Monitoring sites have been selected to sample a range of remnant Gum and Stringybark woodland patches of different sizes.

Each site is 2 hectares and is surveyed for 20 minutes following the standard Birds Australia Atlas method².

In addition to bird population data, vegetation condition information is collected at monitoring sites and can be used to further our understanding of habitat and its influence on woodland birds.

The Mount Lofty Ranges Woodland Bird Monitoring Program collects information from more than 160 sites on both public and private land.

Bird surveys are conducted by expert volunteers and ornithologists and coordinated by The Nature Conservation Society of South Australia (NCSSA)³. The Adelaide and Mount Lofty Ranges (AMLR) Natural Resources Management (NRM) Board⁴ largely funds the data collection for the Program.

The Mount Lofty Ranges of South Australia are nationally recognised for their ecological significance as one of Australia's 'biodiversity hotspots'. The Ranges support a remote island of native woodland with endemic subspecies that is separated by hundreds of kilometres from similar habitat in south-eastern Australia.

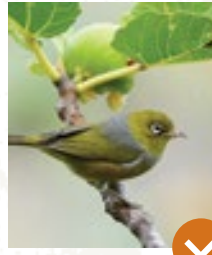


'Some bird species are increasing, some are decreasing'

Dr Megan Barnes



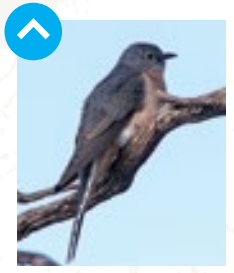
Decreasing
Chestnut-rumped
Heathwren



Decreasing
Silvereye



Decreasing
Mistletoebird



Increasing
Cuckoo species, various

Not only have we lost vast areas of woodland habitat in the Mount Lofty Ranges, but the health of the remaining patches is under increasing threat from introduced species, unsustainable use and the impacts of climate change.

Our best chance to ensure that this woodland wildlife is not lost forever is to understand the changes that are occurring and use this knowledge to protect and restore the region's natural habitats.

Increasing trends have been observed for larger generalist bird species more suited to fragmented and modified landscapes.

'Birds are excellent indicators of the quality of the environment. We are committed to understanding the effects of environmental change on the birds and conserving and protecting them where we can', said Professor Chris Daniels, Presiding Member for the AMLR NRM Board.

The Mount Lofty Ranges Woodland Bird Program helps the Board assess progress towards several of the 20-year regional targets under the AMLR NRM Plan, as well as evaluating the success of future management actions.

Things are changing annually

Advanced statistical methods were used by Dr Megan Barnes from the University of Queensland to determine trends in native bird species. The average annual change in the chance of seeing a bird of each species is indicated in Figure 1. Bars indicate the magnitude of the change in prevalence over time (trend) in the Mount Lofty Ranges between 2000 and 2012 relative to other species in the community.

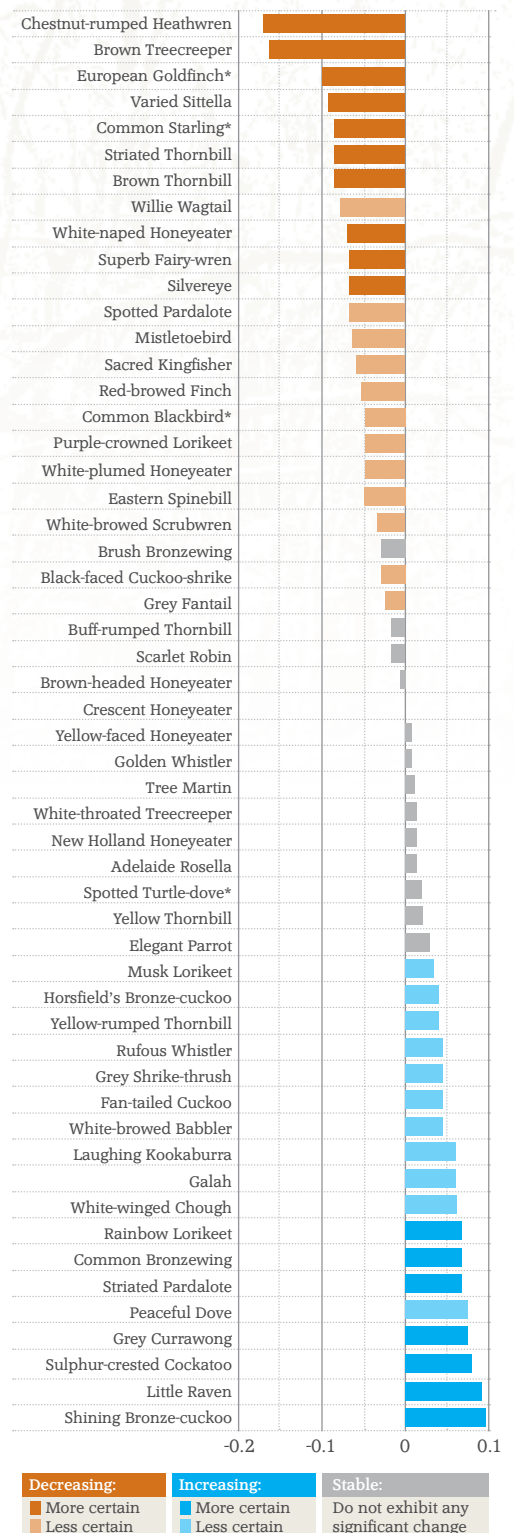
Species are ordered from greatest decliners (Chestnut-rumped Heathwren) to greatest increasers (Shining Bronze-cuckoo) in the community.

The two most common fruit-eating bird species (frugivores), the Mistletoebird and Silvereye, have both approximately halved in the probability of being observed.

Increasing trends have been observed for larger generalist bird species more suited to fragmented and modified landscapes, such as the Little Raven and Grey Currawong.

Interestingly, three species of parasitic cuckoo, the Shining Bronze-cuckoo, Fan-tailed Cuckoo and Horsfield's Bronze-cuckoo, have become significantly more common, which may be linked to the trends in some of the smaller insectivorous birds.

Figure 1. Average annual change in the chance of seeing a bird (*indicates non-native species).



Many small insectivorous bird species continue to decline

Careful inspection of Figure 1 indicates that many insectivorous bird species are declining. This is evident from the probability of observing these species from all our sites over time (Figure 2).

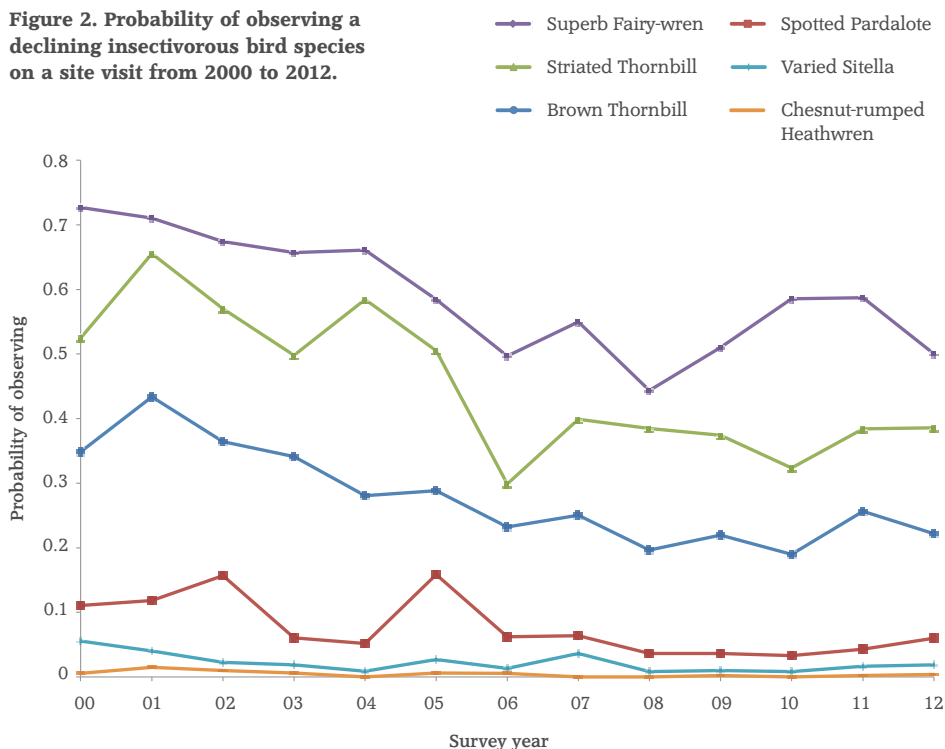
Striated Thornbills and Spotted Pardalotes have both declined significantly. In the case of the Striated Thornbill, our dominant canopy insectivore, the frequency of sighting in a 20-minute count in the first part of the century was around 60% but is now 40%; the Spotted Pardalote has fallen from about 15% to 5%.

The Varied Sittella is one of our most charismatic and least common woodland insectivores. It makes its livelihood gleaning insects and spiders from small branches in the woodland canopy and mid-canopy. At the beginning of the survey there was about a 5% chance of finding this species per site visit, now there is less than a 2% chance of finding this species.

The Brown Thornbill and Superb Fairy-wren, two of our most common woodland birds, feed on invertebrates lower in the forest understorey. The chance of seeing either of these species in a 20-minute survey has fallen by about 1% per year over the survey period.

The Mount Lofty Ranges Chestnut-rumped Heathwren, a small insectivore, is one of the most threatened birds in the Mount Lofty Ranges. This is a nationally endangered subspecies listed in the *Environment Protection and Biodiversity Conservation Act, 1999*⁵. While sightings in our surveys are rare, sightings have dropped from six to one per year since 2000.

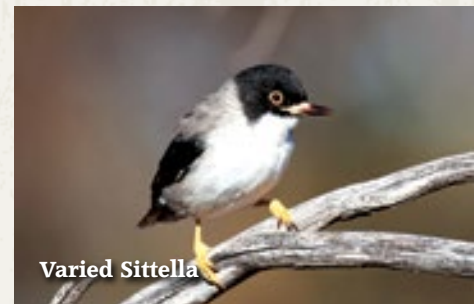
Figure 2. Probability of observing a declining insectivorous bird species on a site visit from 2000 to 2012.



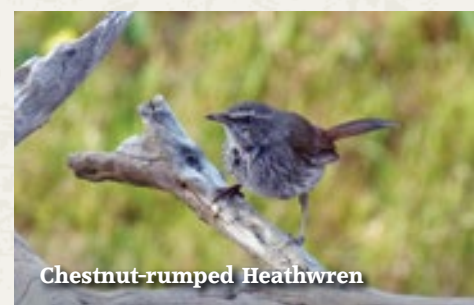
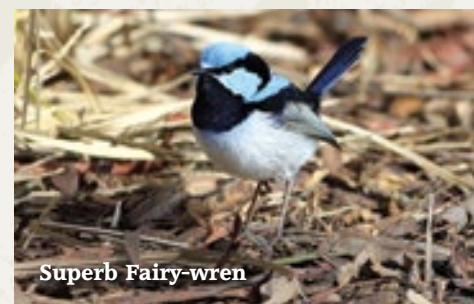
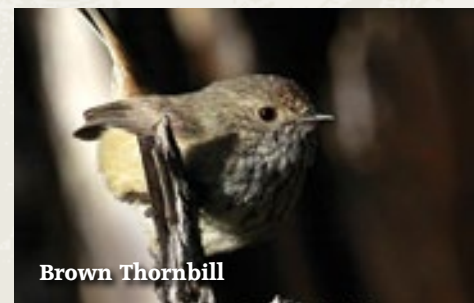
Canopy



Mid-canopy



Understorey



What monitoring should we do in the future?

‘Ten years of good data provides a solid baseline for measuring future changes in bird numbers. Some rare birds will require monitoring to continue for more years just to establish a baseline for their numbers’, says Professor Possingham.

The Mount Lofty Ranges Woodland Bird Monitoring Program becomes more powerful the longer it continues. ‘With more years of data, we will be able to detect smaller changes in bird numbers and a greater range of environmental influences on more bird species’, says Dr Stuart Collard of the NCSSA.

Some questions the monitoring will help us answer in the future are:

- Why are small insectivorous birds decreasing, and what can we do about it?
- What are the priorities for protecting and restoring our woodlands?
- What are the effects of revegetation, habitat restoration, and weed and fox control programs on our woodland bird species?
- What are the impacts of fire management?
- What is climate change doing to our bird species?

The NCSSA is working with the AMLR NRM Board and the South Australian Department of Environment, Water and Natural Resources to establish more survey sites across areas of the Mount Lofty Ranges. In the not-too-distant

future, we hope to be able to answer some of these questions.

The MLR woodland bird survey is entering an exciting new phase in which we can evaluate management actions and determine the return from our investment.

‘The Mount Lofty Ranges is like a canary in a coal mine for Australia’s woodland landscapes—what happens here is an early warning for Australia’s other landscapes’

Professor Hugh Possingham

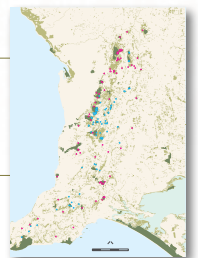
Summary

The Mount Lofty Ranges Woodland Bird Monitoring Program is an essential part of conservation management for the region. It has been built on quality scientific research, using standard, repeated and thorough methods to collect important data. Local experts do the bird monitoring and help ensure the program is a cost-effective way of keeping watch over what is happening to the birds of the region.

So far the project has established excellent baseline information on the large range of bird species found in Stringybark and Gum Woodlands in the Mount Lofty Ranges. The results of monitoring for the past 15 years show that some large generalist bird species and the cuckoos are becoming more common, while many smaller insectivorous birds and frugivores are becoming less common.

The addition of new survey sites and ongoing monitoring will be important to help determine why bird numbers are changing and how we should focus future work to prevent the loss of our precious native species.

Download a free A3 poster of our project map at ncssa.asn.au



Contact

The Nature Conservation Society of South Australia
260 Franklin Street Adelaide SA 5000
Phone: 08 7127 4630
www.ncssa.asn.au

Scientific papers and data download

The University of Queensland
<http://uq.edu.au/spatialecology/mlr-birddata-66440>

