Research update: Effects of time since fire on woodland birds

by Carl Gosper

Data collected in the Birds of the Great Western Woodlands (GWW) project is supporting a variety of scientific studies that will inform the conservation management of the GWW. In a recently-published paper, researchers from the Birds in the GWW Technical Advisory Group investigated changes in bird communities with time since fire, with a focus on woodland birds declining in the western Australian wheatbelt. Below is a summary of this study and details of how it can be accessed.

Many woodland birds in southern Australia have declined as a consequence of habitat loss and fragmentation. The Great Western Woodlands supports important populations of many declining woodland birds, but the woodlands have been impacted by a number of large wildfires over recent decades. There has been limited investigation to date as to how birds that decline under land clearance and fragmentation are affected by fire in uncleared woodlands, and how the cumulative impacts of these disturbances affects the status of species and communities. Using the ~400-year *Eucalyptus salubris* (gimlet) chronosequence (a set of sites with similar attributes other than time since fire) established by the Department of Biodiversity, Conservation and Attractions and CSIRO, we examined how time since fire affects bird community richness, reporting rates and composition. Additionally, we tested whether taxa grouped on the basis of responses to vegetation clearance and fragmentation in the adjoining Western Australian wheatbelt were associated with either recently-burnt or long-unburnt woodlands. Consistent with substantial and prolonged changes in vegetation composition and structure after fire in obligate-seeder *E. salubris* woodlands, woodland bird communities were strongly affected by fire. Species richness and total reporting rates increased with time since fire, and community composition changed across the entire multi-century span of the chronosequence. Woodland birds most negatively impacted by vegetation clearance and fragmentation were strongly associated with long-unburnt woodlands. In a regional south-western Australian context, where extensive vegetation clearance has substantially reduced the range and populations of many woodland bird species, the ability of unfragmented woodlands in the GWW to support populations of these species will be strongly contingent on appropriate fire management. Specifically, as stand-replacement fires have affected 25–30% of GWW woodlands over recent decades, management to limit the extent of fire in remaining long-unburnt woodlands would appear a priority for conservation of woodland bird diversity.

This paper is available online, or alternatively contact Carl Gosper (carl.gosper@dbca.wa.gov.au) for a copy.

Citation: Gosper CR, Fox E, Burbidge AH, Craig MD, Douglas TK, Fitzsimons JA, McNee S, Nicholls AO, O'Connor J, Prober SM, Watson DM, Watson SJ and Yates CJ (2019) Multi-century periods since fire in an intact woodland landscape favour bird species declining in an adjacent agricultural region. *Biological Conservation* 230, 82-90.

Bird abundance, richness and composition changes with time since fire, reflecting changes in vegetation between recently-burnt (left), intermediate-aged (centre) and long-unburnt (right) *Eucalyptus salubris* (gimlet) woodlands.

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Woodlands on the Wing

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The Great Western Woodlands in Western Australia is the world's largest remaining temperate woodland. The Birds of the Great Western Woodlands (GWW) Project aims to assess distribution, population status, movements and ecology of the bird species there, to better inform the conservation and management of this significant region. The Great Western Woodlands Committee (BirdLife WA) oversees the project, which is now in its eighth year, 2019. The first four years (2012 to 2015) were funded by a partnership between BirdLife Australia and The Nature Conservancy

FROM THE CHAIR

A huge amount of effort by the GWW team and bird surveyors has gone into the 2018 season. Without this commitment the story of the bird population's wellbeing would go unnoticed by the Committee and Government. Thank you all.

We are arranging to have a Sundowner (including some prizes) to thank all GWW volunteers and Birdlife WA staff on Friday 8th March at 5.30pm to 7.30pm at the Ecology Centre, Perry Lakes Drive.

We are also planning another Credo Station training session from the 10th to the 13th of May. More details in WA eNews and WA Bird Notes soon.

A brief summary of achievements for 2018:

20 surveys were carried out by a total of 38 individual surveyors (some accompanied by partners) which covered eight of the nine survey areas. Thirteen more informal surveys were carried out by private parties.

The GWW Raffle was a great success and produced a profit of $2,424 after expenses. Thank you to all those many people who sold and bought tickets.

Winners were Jan Waterman from Albany with ticket number 0326 which scooped the first prize of $4,000; and Michi Maier from Leederville who won the second prize of $500. Congratulations.

The Credo Station training course organised by Tegan Douglas and assisted by Mark Henryon and Libby McGill in September was a resounding success. Fifteen participants attended the course which was enjoyed by all. Thank you Tegan - you are a champion.

We were successful in winning an ABEF grant of $7,000 to carry out a trend analysis of the bird data collected so far. Many thanks to Liz Fox for preparing the application. The results will be presented by Liz at the Sundowner on the 8th March.

Transline Spring Survey 2018

by Jan and Ron with Lorraine and Richard, Graham, Penny and Kim

Train near survey site
Photo by Lorraine Chyne

Every Great Western Woodlands survey is a great adventure and this being our fifth time on the transline we were immediately aware of the increased mining traffic. No less than three new ventures are operating since our last survey. The first survey we did we only counted five vehicles in five days. Now one has to be aware of what is coming up behind in the dust. Keeping the radio on channel 40 is imperative.

As before we noted that when trains pass the birds are quiet for around ten minutes and now with extra traffic there is another noise factor. Will the birds move a bit further from the 100 metres from the road?

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