

Overall Summary 2019-2022 | Hunter

# Halls Creek Catchment Woodland Bird Monitoring

## Why do bird monitoring?

Woodland birds are often used as indicators of ecosystem health due to their sensitivity to environmental change. Birds are also relatively easy to survey making them excellent subjects to monitor over long periods and across large areas.

Here, woodland birds were monitored to help understand the overall ecological health of the Halls Creek catchment and changes in habitat condition over time.

Kleinfelder Australia and Habitat Environmental Services Pty Ltd were engaged to undertake surveys each Autumn and Spring from 2019 to 2022 (excluding Autumn 2021). All surveys were carried out by Dr. Daniel O'Brien, Ornithologist.

This monitoring formed part of the Halls Creek Catchment Health Improvement Program, a partnership project between Hunter Local Land Services and Glencore aimed at improving land management practices and riparian health.

Surveys followed a standardised method at each monitoring location (2-hectare survey for 20 minutes). All bird species, identified by sight or call, were recorded.

Surveys were undertaken between dawn and 10am, when bird activity is known to be at its highest. Photos were also taken of the monitoring area during each survey to visually note any significant changes in habitat condition over time.

During the monitoring program, weather conditions varied dramatically, with the first-year survey rounds occurring during and after an extended drought which then eased as the region experienced three successive La Nina weather events. This provided an opportunity to understand the response of woodland birds to extreme weather events.



Figure 1 Rainbow Bee-eater observed at four properties during 2021-2022 surveys.

## 2019-2020 Surveys

Seventeen permanent monitoring points were established across four broad habitat types within the Halls Creek catchment, namely grazed paddocks, riparian (creek frontage), sparse woodland and woodland. Each of the sites were surveyed during Autumn and Spring of 2019 and 2020.

Throughout this monitoring period a total of 102 bird species were recorded. This included 11 threatened species such as the Painted Honeyeater (vulnerable), Hooded Robin (vulnerable) and the Speckled Warbler (vulnerable). A further 5 species of significance were observed, being those that are infrequently recorded in the Hunter Valley region or have been identified as species in decline. This included the Red-capped Robin, Spiny-cheeked Honeyeater and the Western Gerygone.



Figure 2. – Grey-crowned Babbler. Listed as Vulnerable in NSW. Observed at four sites between 2019-2022.

Approximately 60% of species were perching birds (Passerines). The most encountered species across all sites were the Australian Magpie, Eastern Rosella, Galah, Noisy Miner and the Australian Raven.

Sites with greater habitat complexity were generally able to support a greater number of woodland bird species. For

example, woodland locations had an average of 86 different species present during the surveys. This was followed by riparian sites (63 species), sparse woodland sites (41 species) and grazed sites (39 species).

## 2021-2022 Surveys

The final round of surveys saw some changes to the sites being monitored to include more project sites where on-ground works had been completed through funding from the Halls Creek Catchment Health Improvement Program.

The monitoring locations were comprised of riparian (creek) and woodland habitats at each survey site. This was to allow comparison between woodland sites and riparian sites where on-ground works including stock exclusion and revegetation had been undertaken.

Six project sites from the first round of surveys continued to be monitored (11 excluded - these being mainly on Travelling Stock Reserves or TSR's). Nine new monitoring sites were established. Surveys were completed in Spring 2021\* and Autumn 2022.

A total of 81 bird species were recorded in 2021/22. This includes nine species which were recorded for the first time.

Eleven species recorded are considered significant as are listed as threatened, are uncommon in the Hunter Region or are a declining woodland bird species. These included: Brown Songlark, Eastern Yellow Robin, Grey-crowned Babbler, Little Lorikeet, Rainbow Bee-eater, Red-capped Robin, Rock Warbler, Rufous Songlark, Rufous whistler, Speckled Warbler and Spiny-cheeked Honeyeater.

Again, the majority (63%) of the bird species recorded were perching birds (Passerines) eg: Speckled Warbler. The

most common bird species recorded across all monitoring points was the Australian Magpie, followed by the Australian Raven, Galah, Eastern Rosella and Superb Fairy-wren. The Australian Magpie was found at every monitoring location in 2021-2022.

A notable finding was that the Noisy Miner was recorded less frequently in the 2021-2022 surveys (62% of surveys) than during 2019-2020 surveys (84% of surveys). Noisy Miners are known to aggressively protect their territory. Due to this aggressive behaviour, areas inhabited by Noisy Miners often support less birdlife.

The average number of bird species recorded at each monitoring site was 20 which is a reduction on earlier surveys which saw an average of 28, likely influenced by weather conditions. As expected, woodland habitats had higher bird diversity than riparian habitats.



Figure 3. Halls Creek in flood, November 2021.

The severe flooding that occurred in Spring 2021, resulted in the destruction of riparian vegetation and reduced accessibility to some sites. Following the easing of floodwaters, vegetation and debris was observed up to five meters high in trees. This substantial flooding

event likely reduced the habitat suitability for many bird species that take cover along stream edges.

An additional feature of the 2021-2022 surveys was that at each monitoring location, data was collected on habitat attributes such as presence of dead stags, hollow-bearing trees, regeneration, dominate tree species and evidence of disturbance.

Woodland habitats generally showed greater complexity.

### Some Stats

- **111 bird species recorded between 2019-2022.**
- **17 monitoring points across four private properties and four TSR's in 2019-2020**
- **15 monitoring points across seven private properties and one TSR in 2021-2022**
- **Most common bird: Australian Magpie**
- **18 threatened bird species recorded between 2019-2022.**
- **61.5% of bird species recorded were perching birds**
- **Highest number of species recorded at a woodland site = 96**
- **Highest number of species recorded at a riparian site = 78**

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“Habitat types under most threat within the catchment include remnant native woodlands, grasslands and riparian areas occurring at lower elevations. These habitats have been greatly simplified by agricultural activities yet still remain a critical resource for birds, and other fauna & fauna, within the region”.

Dr Daniel O’Brien, Ornithologist

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Figure 4 – Spiny-cheeked Honeyeater observed at three properties in 2021-2022. Considered uncommon resident in the West of the Region.

### Conclusion

Trends indicate that bird diversity is ‘stable’ within the catchment. Continued surveys in the future will provide a greater understanding of the ecological response to on-ground works, while also taking into account climatic variability.

Repeated detections of many rare and threatened species demonstrate the importance of these woodland habitats for birds within the catchment. The proper conservation and management of woodland habitats, and the species that rely on them, should continue to be a

priority management objective in the future.



Figure 5 – Large woody debris in Top Martin TSR is an important woodland habitat feature for insectivorous birds. It also builds new soil as the debris breaks down.

For more information

Contact your nearest Local Land Services office on 1300 795 299 or visit our website [www.lls.nsw.gov.au](http://www.lls.nsw.gov.au)

\* Four monitoring locations not surveyed in Spring 2021 due to being inaccessible.

Photos 1,2,4,5: Daniel O’Brien

Photo 3: Adam Stair

