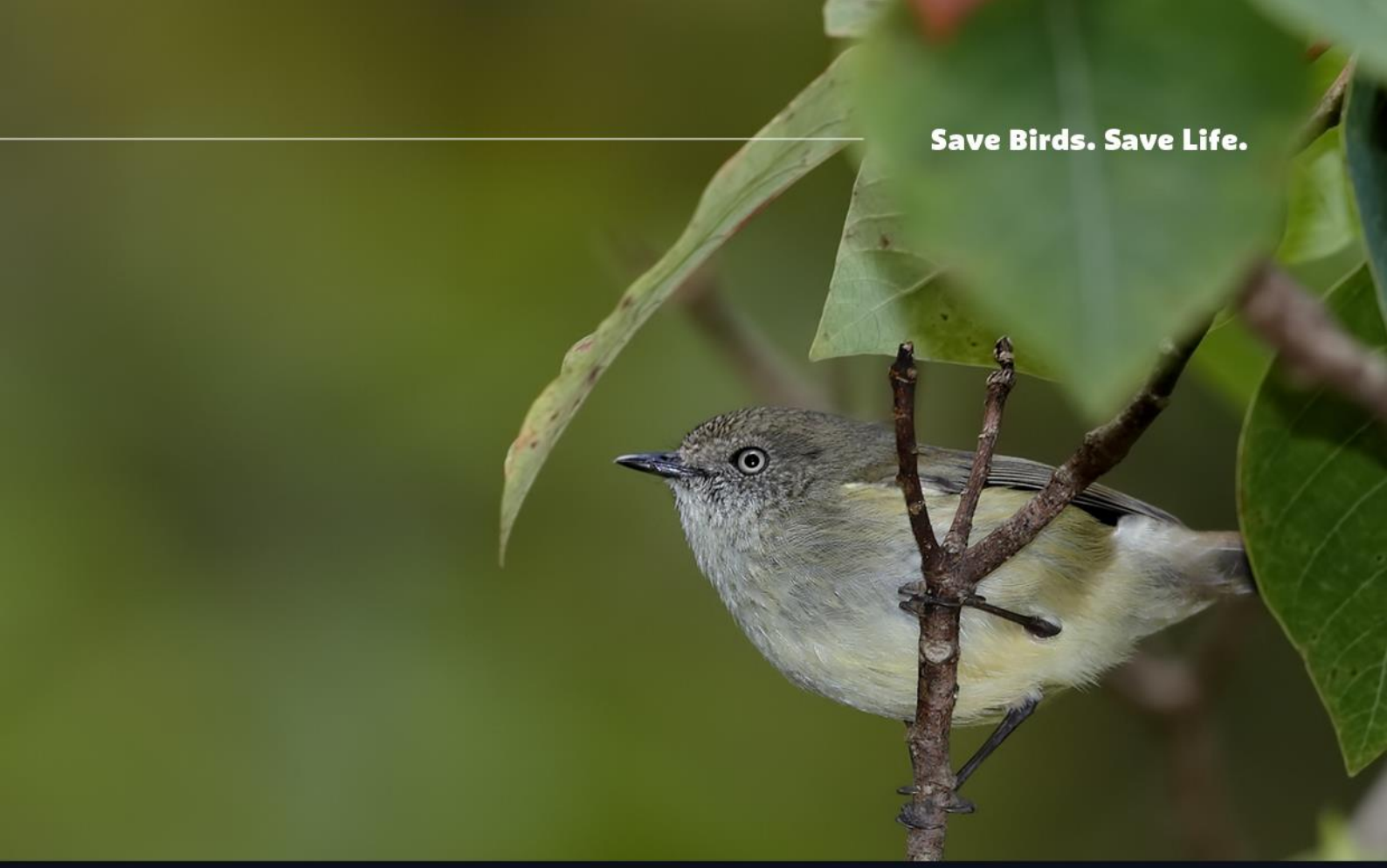

Birds With Altitude project

Progress Report: Birdata surveys in the Wet Tropics Key Biodiversity Areas (KBAs) in 2023.

By Dr Ceri Pearce and Dr Amanda Freeman

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Acknowledgements

BirdLife Northern Queensland acknowledges the Traditional Owners of the land on which this project is undertaken. We pay our respect to their elders past and present. We recognise and are grateful for the immense contribution of Indigenous people to the knowledge and conservation of birds in our region.

The Birds With Altitude Project owes its success to the unwavering support of many incredible individuals and organizations.

We thank the BirdLife Northern Queensland committee for their invaluable project oversight. Communications Coordinator, Renee Cassels provided sensational graphic design and web/media support, and Jenn Muir, Editor of Contact Call, provided publishing support.

To BirdLife Australia, particularly Golo Mauer, Oakley Germech, and Kate Millar, we express our deepest gratitude for your grant oversight, data management expertise, and unwavering support.

We are also profoundly thankful to Chris Roach, Resource Ranger at Queensland National Parks and Wildlife Service (QPWS) for his ongoing guidance and support in facilitating our QPWS partnership in the Wooroonooran National Park Project. Chris has helped us identify bird monitoring sites, provided resources to ensure our safety, facilitated access to the South Johnstone Forestry Hut and campground, and to the higher altitude sites, and joined us on campouts. A big thank you Chris!

Our gratitude extends to Mamu Tropical Skywalk and Skyrail Rainforest Cableway for their generous sponsorship of the Challenge Competition in 2023. Their support has enabled us to expand the project by encouraging participation of citizen scientists across the Wet Tropics in our conservation efforts.

To our project partners, BirdLife Townsville, especially Janet Robino and Walter Threlfall, and to Wren Mclean for including us in the Paluma Citizen Science weekend, we offer our sincere thanks. Your collaboration has helped our project immeasurably.

Last but not least, to all the individuals who have contributed their time, effort, and expertise to the Birds With Altitude project by contributing bird surveys, we are deeply grateful. Your participation and dedication helps to advance our understanding of Wet Tropics birds and their responses to climate change.

Together, we are making a difference. Thank you for being a vital part of the Birds With Altitude Project.

Background

The Birds With Altitude Project is a citizen science project led by Birdlife Northern Queensland.

The Wet Tropics Bioregion, which covers only 0.1% of Australia's land area, has more than 45% of Australia's bird species. Twenty-three of these are either endemic or largely confined to the region (Birds | Wet Tropics Management Authority).

Increasing evidence suggests that Wet Tropics rainforest-dependent bird populations are declining because of climate change (Williams & de la Fuente, 2021; Kowalski et al, 2022). The Action Plan for Australian Birds 2020 (Garnett & Baker, 2021: APAB) identifies 14 threatened, or near threatened Wet Tropics birds (Table 1).

Table 1. Threatened and near threatened birds* in the Wet Tropics (WT).

Endangered	Vulnerable	Near Threatened
• Fernwren • WT King-Parrot • WT Brown Gerygone	• Atherton Scrubwren • Mountain Thornbill • Bower's Shrike-thrush • Victoria's Riflebird • WT Large-billed Scrubwren • WT Eastern Whipbird	• Golden Bowerbird • Tooth-billed Bowerbird • WT Satin Bowerbird • Grey-headed Robin • Little Treecreeper

*According to IUCN criteria, as listed in the Action Plan for Australian Birds 2020.

Additionally, the Australian Commonwealth Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act 1999), and the Queensland Nature Conservation Act 1992, list the Southern Cassowary (*Casuarius casuarius johnsonii*) as Endangered.

Not all bird species in the Wet Tropics are declining. Extensive surveys conducted by Stephen Williams and colleagues between 2000 and 2016 (Williams & de la Fuente 2021: Table 1) revealed that overall, lowland species (<400m elevation) had increased moderately as had many habitat generalists.

Background continued

The changing climate is likely affecting different species in different ways, both directly and indirectly, and the effects of climate change may also be aggravated by habitat loss and fragmentation.

Information is lacking about some bird species' population trends and distribution, and not enough is known about most species' specific requirements to understand how or why climate change may be affecting them.

Compounding factors: Habitat at risk

Besides threatened species, the Wet Tropics bioregion has been deemed of such conservation importance, and under such significant threat, that the Australian Government has identified 'The Eastern Forests of Far North Queensland' as a priority place for conservation in The Threatened Species Action Plan 2022-2032. The bioregion also contains three threatened ecological communities (EPBC Act, 1999):

- Broad leaf tea-tree (*Melaleuca viridiflora*) woodlands in high rainfall coastal north Queensland (Endangered)
- Littoral Rainforest and Coastal Vine Thickets of Eastern Australia (Critically Endangered), and
- Mabi Forest (Complex Notophyll Vine Forest 5b) (Critically Endangered).

Given the recognition of the threats to the ecosystem and the species within it, it is imperative that we substantially increase monitoring of Wet Tropics birds, so that we have a better understanding of how they are being affected and have a sound basis for effective conservation action planning.

Project Purpose and Scope

Purpose

To harness the skills and interests of birdwatchers and other citizen scientists to increase monitoring of Wet Tropics birds and gather information that can be used to improve our understanding of their:

1. population trends;
2. distribution including in relation to altitudinal shift; and where possible,
3. species' specific factors and requirements.

Scope

This project is focused on the following Key Biodiversity Areas (KBAs): Atherton KBA, Coastal Wet Tropics KBA, Daintree KBA, Paluma KBA and Wooroonooran KBA, in the Wet Tropics Bioregion of North Queensland.

Key Biodiversity Areas are internationally recognized biodiversity hot spots, that meet specific criteria for IUCN listed threatened species. BirdLife Australia has made a commitment to monitor and protect these areas through their national Key Biodiversity Area Program.

An additional benefit of focusing on these areas is that the KBAs have easy to search boundary layers in Birdata that facilitate effective data retrieval and management.

While all Wet Tropics birds are monitored as part of this project, species specific analysis will generally be focused on the threatened, or near threatened Wet Tropics birds identified in the APAB (Garnett & Baker, 2021). Broader analysis may be incorporated as needs are identified and resource availability permit.

Survey methods

Selection of survey method has been based on the following criteria:

- must be fit for purpose (to gather information to identify bird population trends and distributional change, and species-specific intel);
- be easy to understand, and practicable and safe for citizen scientists to implement.

BirdLife Australia/Birdata has developed a suite of survey techniques (https://birdata.birdlife.org.au/help/survey-techniques) that are used by citizen scientists to gather valuable data to monitor threatened species and undertake conservation management, including to inform the analyses in the APAB (Garnett & Baker, 2021).

Two standard survey methods best meet the Birds With Altitude Project rainforest bird survey requirements:

1. 2 ha, 20-minute area search, and
2. 500 m area search survey methods.

Each method has advantages that make them complementary and, where possible, project participants are encouraged to complete surveys using both methods.

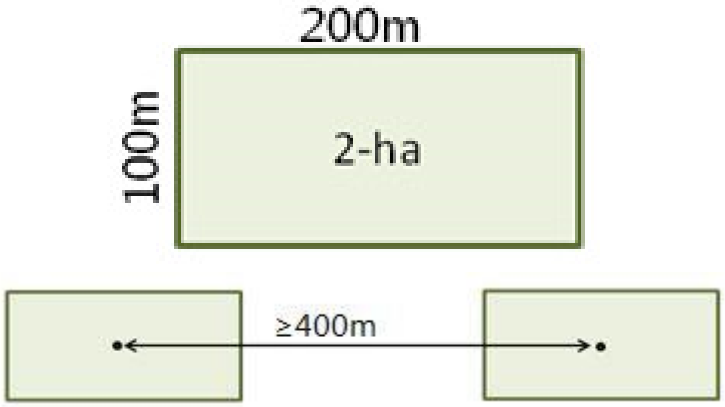
2 ha, 20-minute area search

The 2 ha, 20 min area search method is restricted both by survey area and duration so is our first choice for monitoring Wet Tropics birds. A key focus of this project is monitoring species affected by climate change and whether species are changing their elevational distribution in response to climate. To detect that change, accurate assessment of birds at a particular elevation is important. The 2 ha, 20 min area search method is constrained by the size of the area so ensures altitude remains fairly consistent for the duration of the survey.

In theory, a 2 ha area can be configured in many ways. In practice though, where there is a road or walking track, a 200m x 100m search area is the most practical. A 200 m walk along the road or track can be treated as a transect through the 2 ha area. This is appropriate because line transects are less prone to error than point counts in these settings (Anderson et al. 2015).

Survey methods continued

Figure 1. Illustration of a 2ha survey area, and the minimum distance required between survey sites.



Judging distances from bird calls, and whether they're 'in' or 'out' of the survey area is important. A study on bird detectability in the Wet Tropics (Anderson et al. 2015) found that the effective sampling distance for most species is within 30-60 m. A 200 m x 100 m search area is compatible with this because that's the approximate distance to survey either side of a 200 m section of path, track, or road. Noting that large, loud species like the Pied Currawong, Victoria's Riflebird, and King-Parrot can easily be heard beyond a 2 ha area, survey participants are encouraged to judge the distance and use a consistent approach to decision making.

When conducting multiple 2 ha, 20 min area searches along a track, participants are encouraged to leave a minimum of 400 m between surveys to avoid overlap (see Figure 1).

500 m radius area search

The 500 m radius area search method is flexible, allowing any sized area to be searched, so long as it is within 500 m of a central point. That means the area searched could be as much as 80 ha, and cover as much as 1 km. A survey over such a large area can have a high chance of covering more than one habitat or elevation, therefore survey participants are encouraged to survey a maximum of 500 m of walking track or road so that changes in habitat or elevation are not excessive.

Survey methods continued

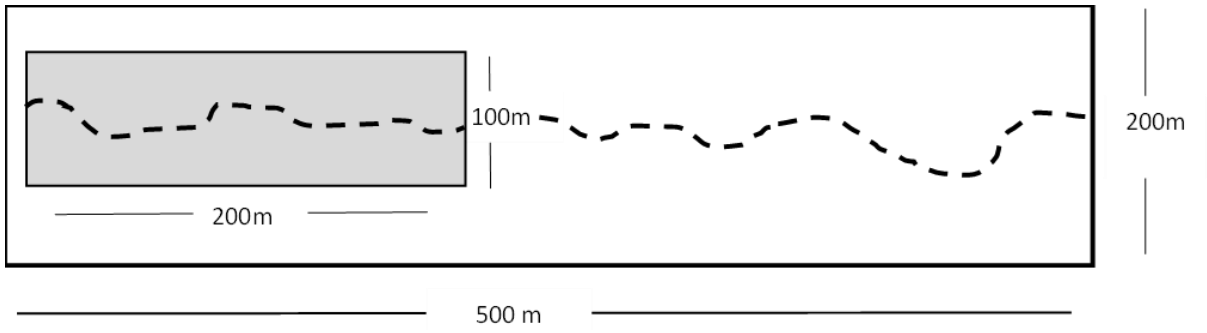
The duration of surveys is also flexible with this method. Surveys can last anywhere from 20 minutes to one week, though less than 24 hrs is preferred by Birdlife. We suggest 30 minutes to one hour for Birds With Altitude monitoring.

Because it's not strictly time or area limited, this method is less rigorous than the 2 ha, 20 min area search and is less sensitive for detecting changes in species' populations. However, this method does allow surveyors more time, and does allow a larger area to be sampled at one location. This can be very useful in rainforest where poor visibility, high species diversity, and rare species mean it can take longer than 20 minutes to survey accurately and thoroughly (Anderson et al. 2015). With a longer survey period, and larger area, there's a greater chance of finding the less common species – and many of the species we're most interested in are getting rarer, and harder, to detect.

2 ha, 20 min and 500 m area searches in the same location

Many bird monitoring sites can accommodate both 2 ha, 20 min and 500 m area search surveys. Where time allows, participants are encouraged to do both. These can be done sequentially using the Birdata app by first doing one survey and then the other. The 2 ha search area is included in the wider area search but there is no overlap in records because the two surveys are separate in time. Areas effectively surveyed in sequential 2 ha, 20 min and 500 m area searches along a walking track would look like the diagram below (see Figure 2).

Figure 2. Illustration of 2 ha, 20 min and 500 m area searches in the same location.



Survey methods continued

Additionally, survey participants are encouraged to record the number of birds seen or heard, and any potentially useful information including observations of feeding/drinking and other habitat use, breeding behaviour and signs of feral animals and invasive plants.

As part of the Birds With Altitude training, survey participants are taught a number of strategies including how to use Birdata, how to estimate survey site area and distance, how to estimate if a bird call is within or out of the survey area, how to minimise recording the same bird more than once, and how to complete a survey so that they feel confident participating in the project. A training manual which incorporates a risk assessment for OHS risk management, and video recording, and additional resources can be found here: https://www.birdlifenq.org/birds-with-altitude.

Data capture

Data is recorded in Birdata. Birdata is Australia's largest and longest-running wildlife database and is compiled almost entirely by citizen scientists. Birdata has a proven track record of providing valuable information to inform conservation management.

The free Birdata app is a simple to use data entry tool, that is well supported with written and video instructions on use (Home | Birdata (birdlife.org.au).

Data analysis

In the absence of dedicated biometric support, the simple analysis undertaken and reported on in this report is based on information gleaned from Birdata excel spreadsheets.

Project Progress

As a result of the mid 2022, $10,747 *Queensland Government Community Sustainability Action Grant– Round 6 for Conservation – Community Engagement on Queensland's National Parks and State Forests: CSAP059* to establish Wet Tropics bird monitoring in Wooroonooran National Park, Dr Amanda Freeman was employed to develop the monitoring strategy and identify the tools required. In order to engage citizen scientists in project participation, she then developed a training package which was delivered to citizen scientists at three training events in 2022.

Following the success of the pilot project, in May 2023 it was possible to expand the Birds With Altitude Project from Wooroonooran National Park, to include five Wet Tropics KBAs (Atherton KBA, Coastal Wet Tropics KBA, Daintree KBA, Paluma KBA and Wooroonooran KBA). Figure 3 summarizes project progress to date and Appendix 1 provides an infographic on 2023 project results.

Figure 3. Timeline summarizing Birds With Altitude Project progress up to 31 December 2023.

Project Progress continued

Partnership building - Paluma Citizen Science Weekend

As a result of participation in the North Queensland Threatened Species Symposium in Cairns, 9 & 10 March 2023, an opportunity was identified to partner with Wren Mclean who was organising a Paluma Citizen Science Weekend (Friday 25 – Sunday 27 August 2023). The aim of the event was to engage stakeholders (traditional owners, local community members, bushwalkers, birdwatchers, etc.) in Southern Cassowary monitoring to determine/confirm the species' southern range extent. In partnership with Wren and BirdLife Townsville, Birds With Altitude was incorporated into the event program, with Amanda Freeman presenting. The citizen science weekend was highly successful, thanks to Wren's expert organization and community engagement, and BirdLife Townsville assisting and leading surveys. The event significantly extended Birds With Altitude project reach, allowing promotion of the importance of monitoring Wet Tropics endemic birds to a broad range of community stakeholders, including Traditional Owners, Paluma residents, local bushwalkers, and members of BirdLife. Training was provided on how to complete surveys. Eleven people participated in BWA surveys, and a total of 34 surveys were conducted in the Paluma KBA, including 30 2 ha/20 min area searches and four 500 m area searches. All surveys were recorded in Birdata. Sixteen unique locations were surveyed with sites varying in elevation from 510 – 940 m (most over 850 m). An article outlining the success of the weekend was published by Walter Threlfall in BirdLife Townsville Newsletter (Threlfall, 2023).

Bird monitoring blitzes

Bird monitoring blitz events have proven to be an effective way to engage participants in learning about and undertaking Wet Tropics bird monitoring in a supportive environment. The events also facilitate a healthy number of surveys to be completed in a short period of time.

On arrival, participants are welcomed, and provided with a project overview and safety briefing, as well as a refresh session on bird survey methodology. Longer events include more intensive survey training and support. Participants are then generally allocated to small groups, with a more experienced person as group leader, who can also provide training support to others in the group. Site survey goals are then provided to each group.

Blitz events delivered in 2023

1. Birds with Altitude Surveys, Wooroonooran National Park (Windin Falls and Bartle Frere walking track), 23 July 2023.

Eleven participants attended the event. Surveys were conducted along Gourka Rd, Windin Falls trailhead walking track and Mount Bartle Frere western trail head walking track.

Seventeen 2 ha 20-minute area surveys were completed, with a total of 45 bird species (237 individual birds) seen and/or heard. Ten of the 14 Wet Tropics birds identified as threatened, or near threatened in the APAB (Garnett & Baker, 2021) were seen or heard. The four species not observed were Bower's Shrike-thrush, Golden Bowerbird, Satin Bowerbird (Wet Tropics subspecies), and Mountain Thornbill. While no Cassowary were seen, evidence of their presence (droppings) was identified.

Figure 4 illustrates the spread of surveys completed by the volunteer citizen scientists pictured in Figure 5 having a well-earned cuppa. An article about the event was published in Contact Call, the online newsletter of BirdLife Northern Queensland (Pearce and Freeman, 2023).

Figure 4. Map illustrating the 17 surveys (blue dots) completed in the Windin Falls trailhead area and Mount Bartle Frere western trailhead area of Wooroonooran National Park, 23 July 2023.

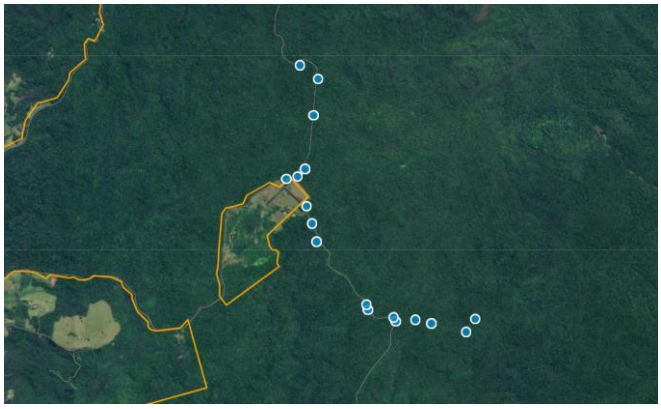


Figure 5. The volunteer team enjoying morning tea at the Mount Bartle Frere western trailhead after initial surveys were completed.

Blitz events delivered in 2023

2. Birds With Altitude Surveys in Wooroonooran National Park (Misty Mountains/South Johnstone Campground Campout) 30 September – 2 October 2023.

Ten participants attended the South Johnstone River Campground and participated in the Birds With Altitude weekend event. Surveys were conducted in small groups, along Maalan Track (including the higher altitude research reserve in the closed section, thanks to QPWS permission), Bora Ground Road, K-Tree Track and Maple Creek Road. Thirteen 2 ha 20-minute area searches and seven 500 m area search surveys were completed, with a total of 53 bird species (640 individual birds) seen and/or heard. Twelve of the 14 Wet Tropics birds identified as threatened, or near threatened in the APAB (Garnett & Baker, 2021) were seen or heard. The two species not observed during the surveys were Golden Bowerbird and Atherton Scrubwren. While no Cassowary were seen, evidence of their presence (droppings) was identified.

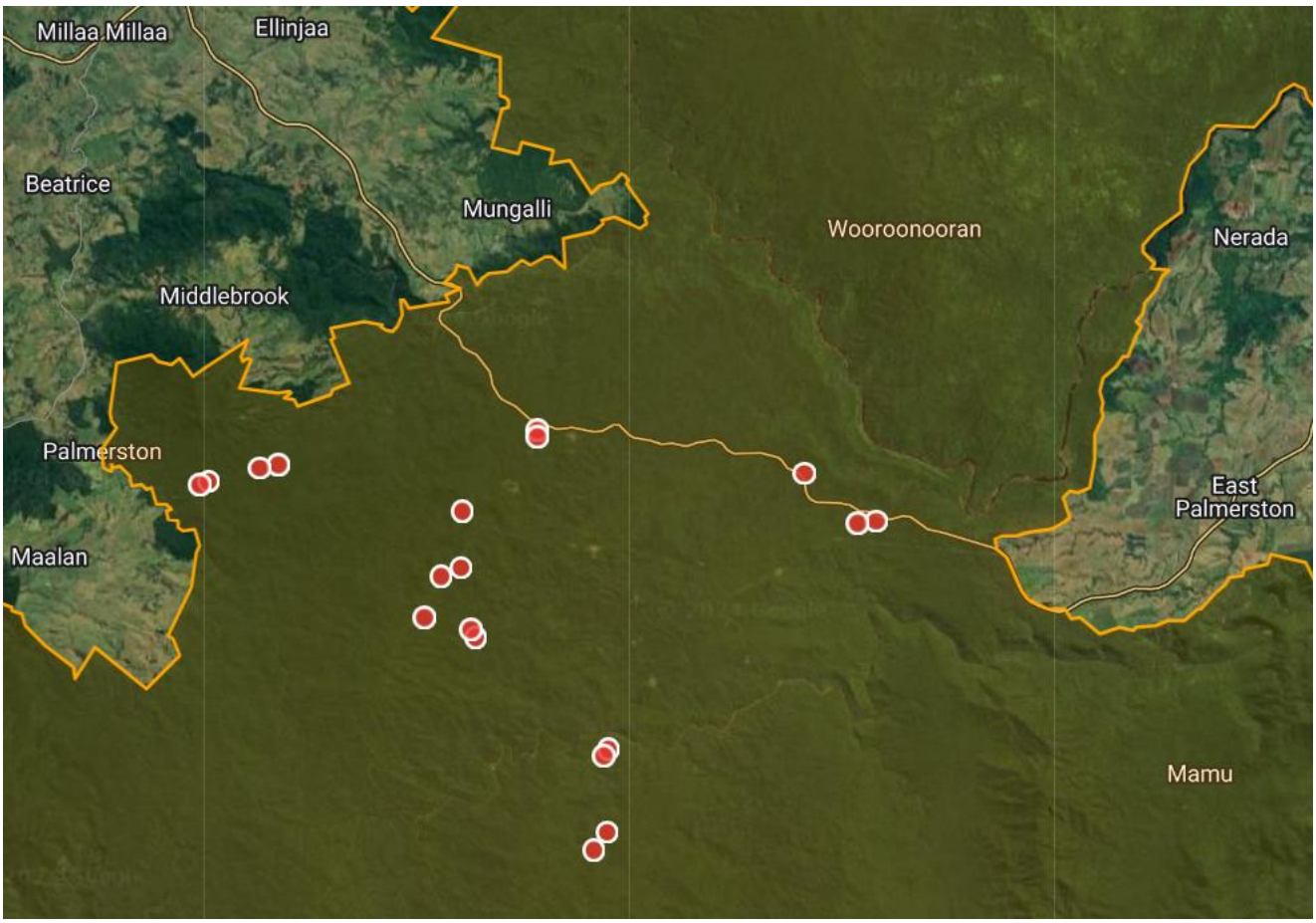
Figures 6 and 7 are of the volunteer citizen scientists who completed the spread of surveys mapped in Figure 8. Participants observed evidence of successful breeding of Brown Gerygone and Victoria's Riflebird during the surveys (juveniles out of nest). An article outlining the success of the weekend was published by Dennis Walls in the Cairns Birders newsletter (Walls, 2023).

Figure 6. Misty Mountain Campout participants observing a juvenile Brown Gerygone - evidence of successful breeding (inset).

Figure 7. Misty Mountain Campout participants at South Johnstone River base camp (the fly swat was for March flies!).

Blitz events delivered in 2023

Figure 8 Map illustrating the 20 surveys (red dots) completed in the Misty Mountains area of Wooroonooran National Park, 30 September – 2 October 2023.



The Challenge Competition 2023

A Birds With Altitude Challenge Competition was held to encourage citizen scientist participation in the project and contribution to bird surveys. The competition, held between 1 June and 31 December 2023, was possible thanks to the sponsorship of Mamu Tropical Skywalk and Skyrail Rainforest Cableway, with a total of four prizes provided.

During the competition period, 185 surveys (of the total 239 surveys in 2023) were completed in the Wet Tropics KBAs and entered into Birdata. Of great benefit to the project was that two participants completed surveys above 800m in the northern Wet Tropics (Daintree KBA), and the southern Wet Tropics (Paluma KBA), extending our coverage across the region.

The competition winners were:

- Darlene Kneen for completing the most BirdLife Australia 2 ha, 20 min area search surveys and/or 500 m area search surveys in Wooroonooran National Park. Darlene was awarded a family pass to Mamu Tropical Skywalk.
- Simon Kennedy for completing the most BirdLife Australia compatible 2 ha, 20 min area search surveys and/or 500 m area search surveys in Key Biodiversity Areas across the Wet Tropics region. Simon was awarded a family pass to Mamu Tropical Skywalk.
- Sue Gould and Walter Trelfall for completing the most BirdLife Australia compatible surveys at sites 800 m or more above sea level. Sue and Walter each received a pass for two adults to Skyrail Rainforest Cableway.

Figures 9, 10 & 11. Competition winners Darlene Kneen, Walter Threlfall and Sue Gould.



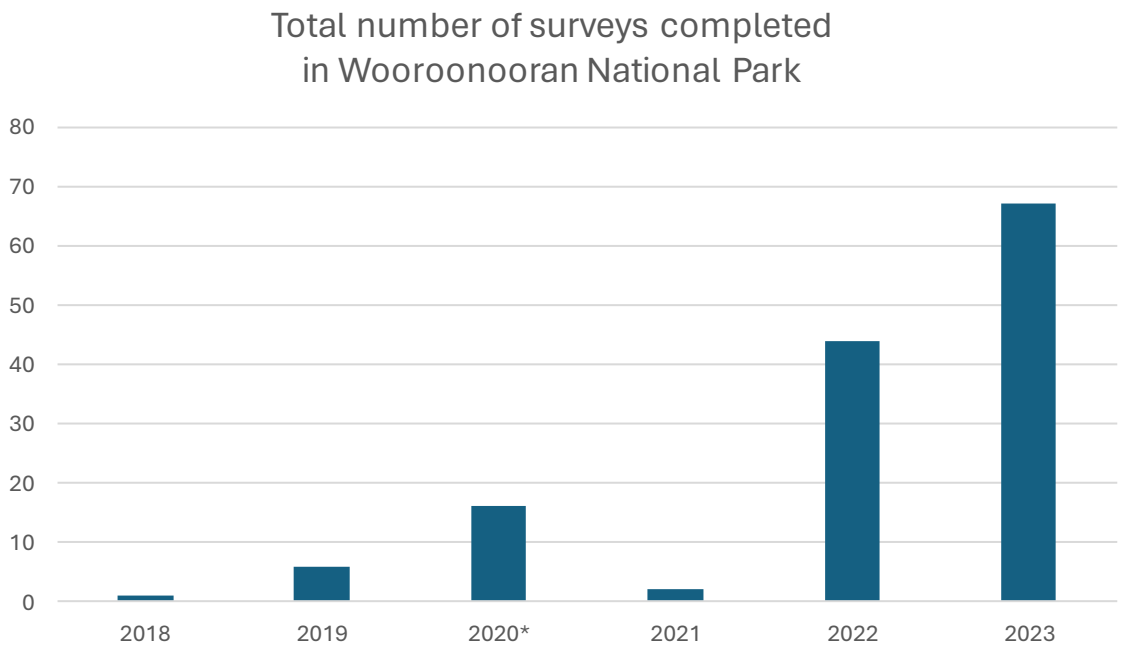
Project Results
Wooroonooran National Park

The following results are for the pilot project to establish Wet Tropics bird monitoring in Wooroonooran National Park (*funded by a Queensland Government Community Sustainability Action Grant– Round 6 for Conservation – Community Engagement on Queensland's National Parks and State Forests: CSAP059*).

It should be noted that Wooroonooran National Park covers an area of around 76,000 hectares, whereas Wooroonooran KBA, comprises multiple national parks: Danbulla National Park, Davies Creek National Park, Dinden National Park, Gadgarra National Park, Girringun National Park, Kirrama National Park, Koombaloomba National Park, Kuranda National Park, Japoon National Park, Mowbray National Park, Tully Falls National Park, Tully Gorge National Park, AND Wooroonooran National Park, so the KBA is significantly larger.

Since the pilot project commenced in June 2022, the number of bird surveys within Wooroonooran National Park has markedly increased compared to the previous four years, as demonstrated in Figure 12.

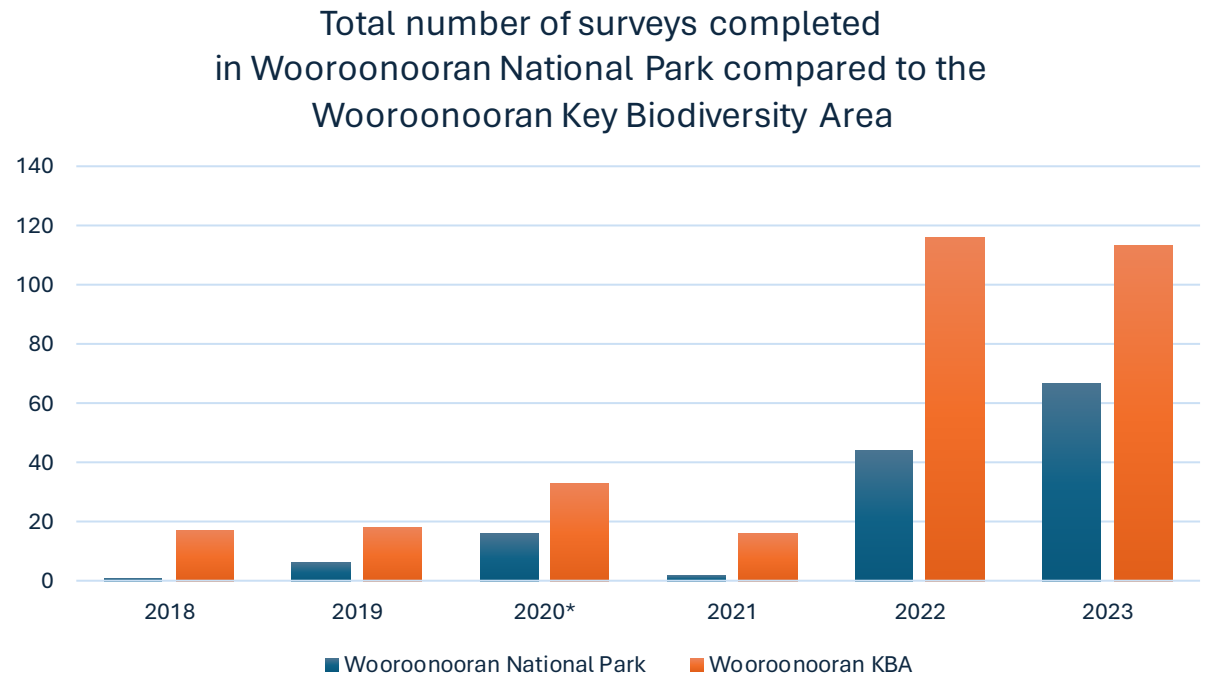
Figure 12. Total number of surveys completed (2 ha 20 min area searches and 500m area searches) in Wooroonooran National Park



Project Results
Wooroonooran National Park

Sixty-seven surveys were completed in Wooroonooran National Park in 2023, compared to 113 in the entire Wooroonooran KBA (see Figure 13).

Figure 13. Total number of surveys (2 ha 20 min area searches and 500m area searches) completed in Wooroonooran National Park compared to the Wooroonooran Key Biodiversity Area.



Fifty-four 2 ha 20-minute area searches and thirteen 500 m area search surveys were completed in Wooroonooran National Park, with a total of 78 bird species (1730 individual birds) seen and/or heard.

All of the 14 Wet Tropics birds identified as threatened, or near threatened in the APAB (Garnett & Baker, 2021) were seen or heard in at least one survey, as was Southern Cassowary.

The following birds were only identified in one of the 67 surveys completed in Wooroonooran National Park in 2023, Atherton Scrubwren, Mountain Thornbill and Golden Bowerbird.

Project Results - General

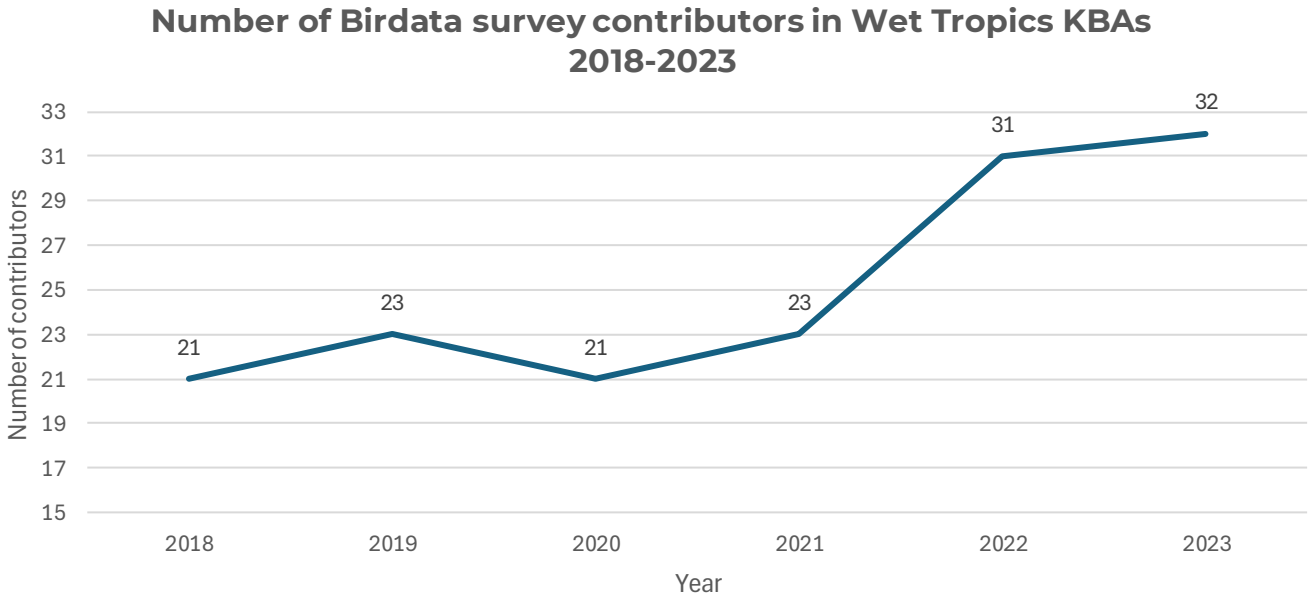
Participation

During 2023, 32 contributors (citizen scientists) completed surveys in Wet Tropics Key Biodiversity Areas and entered the information into Birdata. Since the Birds With Altitude Project commenced in 2022, the number of survey contributors has increased to 31 and 32 contributors in 2022 and 2023 respectively. This is a solid increase in Birdata contributors when compared to the previous four years when only 21-23 people contributed surveys (see Figure 14). While it is not possible to attribute the increase solely to Birds With Altitude survey promotion since the project commenced, circumstantial evidence suggests that the project has been effective in increasing Birdata survey contribution.

In 2023, of the total 239 surveys completed, 51% were completed by the Birdata contributor alone, while the rest of the surveys were completed by teams of variable size.

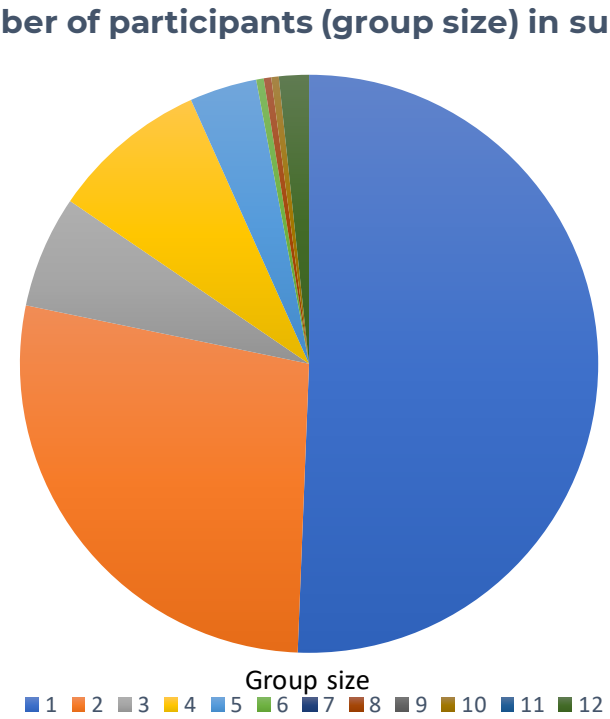
Groups of two participants completed 28% of the surveys, groups of three completed 6% of the surveys, groups of four completed 9% of the surveys, and groups of five completed 4% of the surveys. Five surveys were completed by 10-12 people. Figure 15 illustrates the size of groups completing the surveys. From the figure it is clear that while 32 citizen scientists completed surveys, just under half were supported in doing so by other survey participants. It is not possible to identify how many people overall were involved as the names of those assisting are not recorded.

Figure 14. Chart illustrating the increase in Birdata survey contributors since the Birds With Altitude Project began.



Project Results continued

Figure 15. Pie chart illustrating citizen scientist project participation in the 239 surveys completed in 2023, based on group size.



Birdata survey results

Comparative results

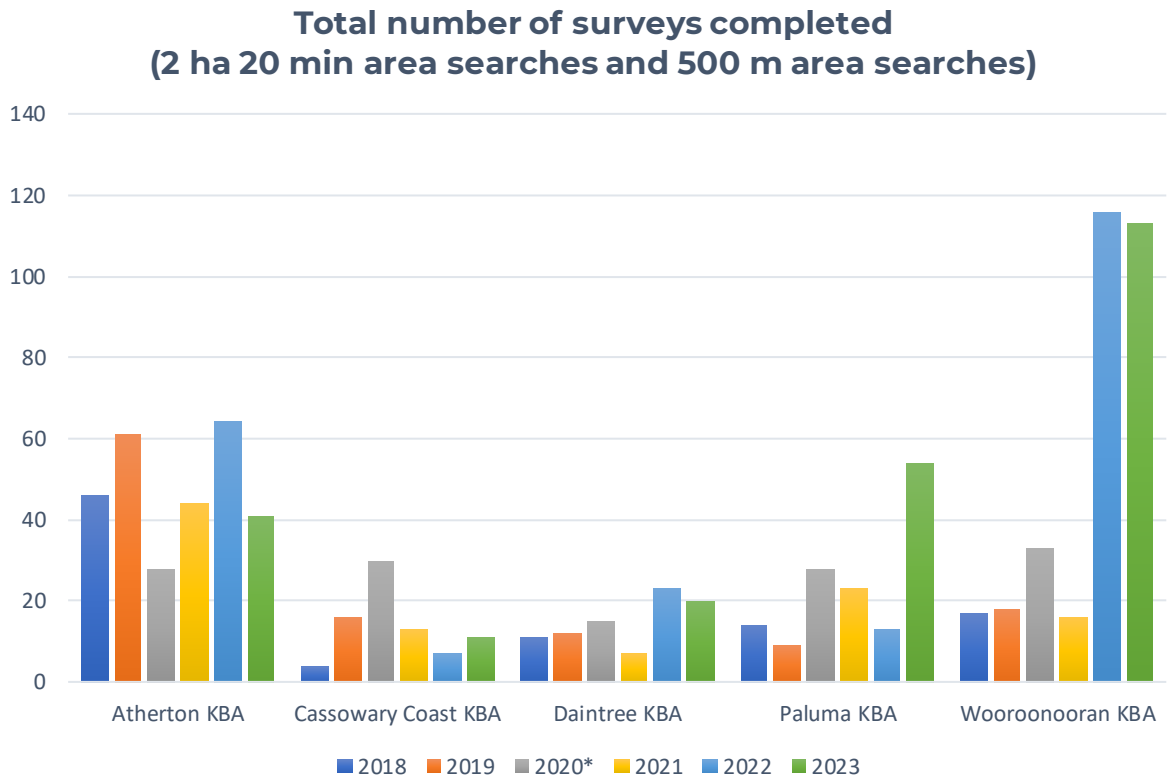
During 2023, 239 surveys were completed in the five Wet Tropics Key Biodiversity Areas in North Queensland.

Prior to COVID (pre 2020) only 92 & 116 surveys were completed and entered into Birdata in 2018 & 2019 respectively. While the number of surveys completed in 2020-2021 (134 & 103 respectively) was likely depressed as a result of COVID impacts, the number of surveys completed since 2022 has more than doubled. This coincides with the launch of the Birds With Altitude Project in mid-2022.

As can be seen in Figure 16, the increase in the number of surveys completed is significant in the KBAs where 2023 blitz events were held, that is Paluma and Wooroonooran.

Project Results continued

Figure 16. Graph comparing the number of surveys completed (2 ha 20 min area searches and 500 m area searches) in five Wet Tropics Key Biodiversity Areas based on data entered in Birdata between 2018-2022.



Survey distribution and altitudinal representation across the Wet Tropics

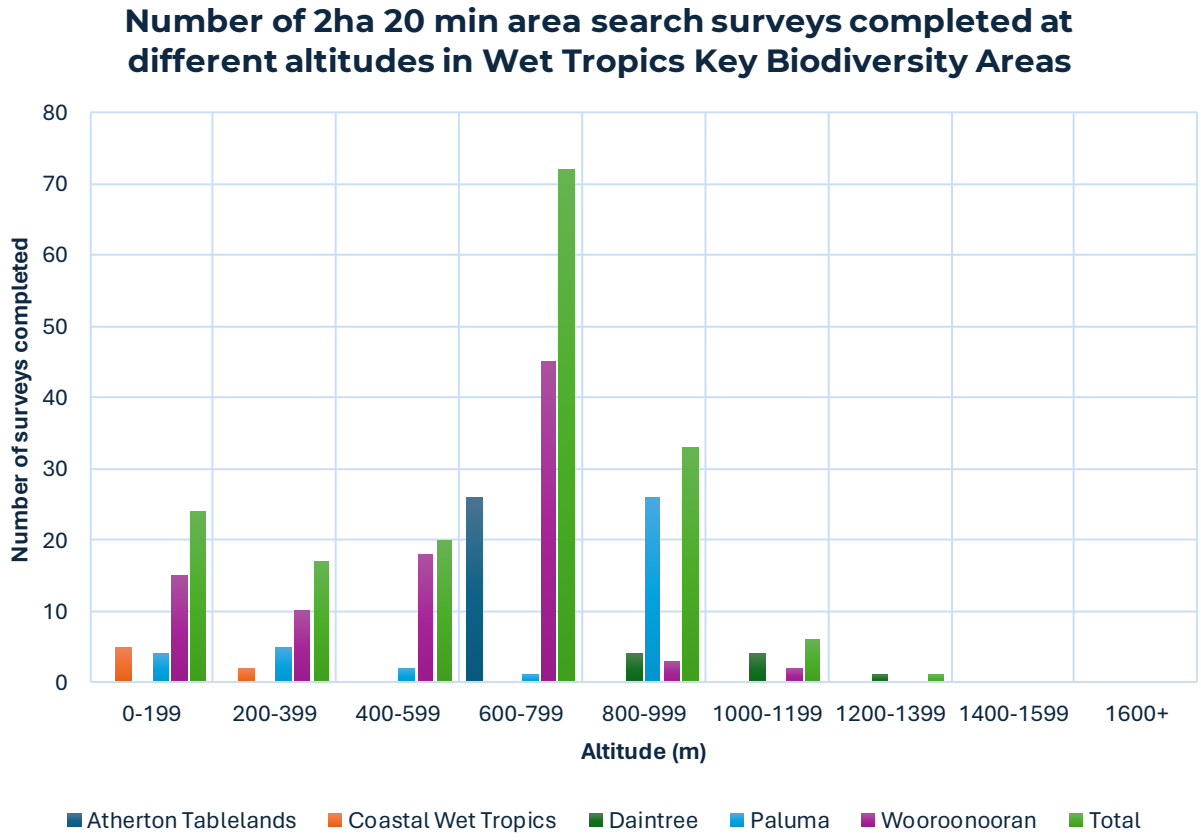
The Wooroonooran National Park component of the Birds With Altitude Project includes a commitment to complete bird surveys at six sites annually, with a preference for the former "Steve Williams" monitoring sites. These sites have been identified in partnership with Queensland National Parks and Wildlife Service and include the following: two sites over 800m, two sites above 700m, one site above 600m and one site above 400m in the Misty Mountains area. These sites are surveyed when access is possible, and with a preference for the bird breeding season (September – November).

Project Results continued

As part of the Wooroonooran National Park pilot project, additional sites were identified in the initial Birds With Altitude Manual and these cover a variety of altitudes from the lowlands near the coast, to mountain ranges. Site safety and access were key criteria in site identification.

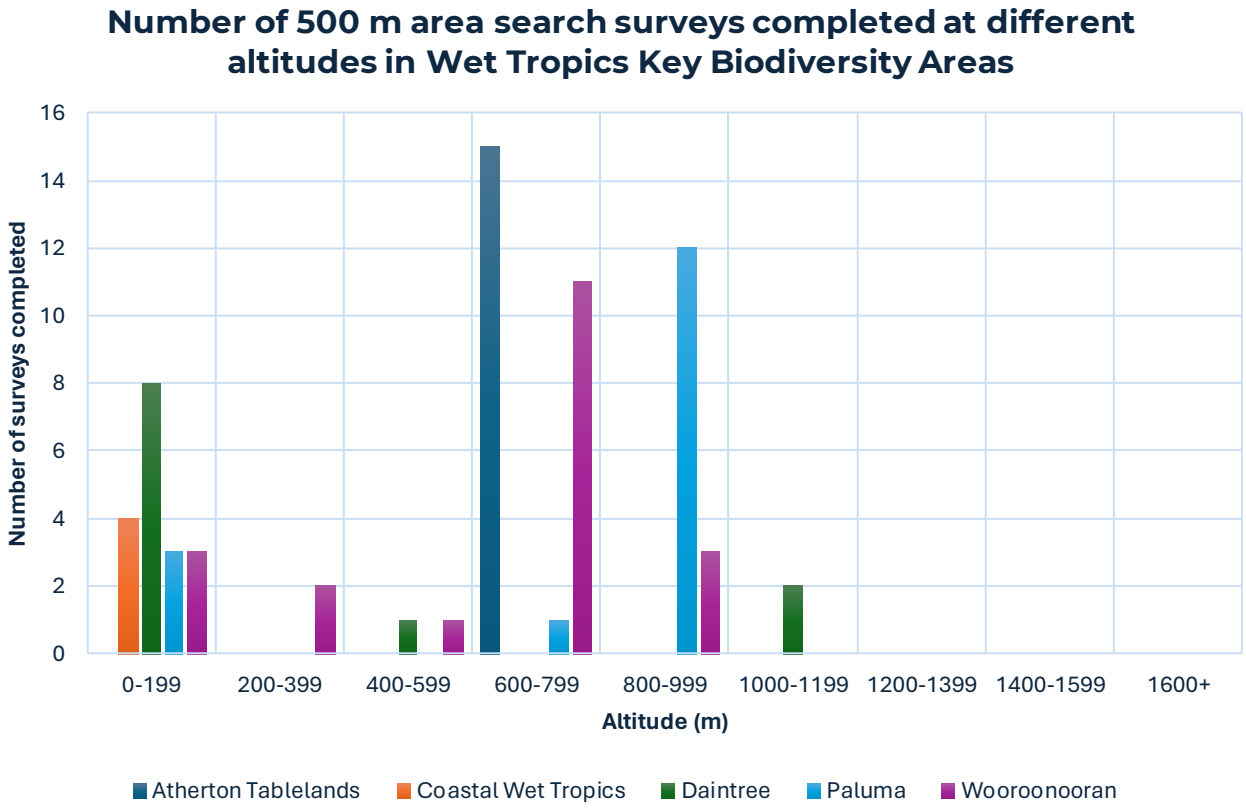
During the expansion of the project to include the Paluma KBA, a number of factors were considered in site selection, including the location of former "Steve Williams" monitoring sites, identification of sites with a variety of different habitat/vegetation and altitudes, and site access and safety for citizen scientists to undertake surveys. Sites identified and recommended included Little Crystal Creek on Mount Spec Road (340 m asl), Birthday Creek Falls (855 m asl), Andree Griffin Walking Trail to Cloudy Creek, Paluma (886 m asl), Paluma Rainforest track (873 m asl), Paluma H track (880 m asl), McClelland's Lookout (905 m asl), Witt Lookout track (900 m asl), Cloudy Creek track from Witt Lookout track junction (920 m asl), Star Valley Lookout (901 m asl), Lake Paluma picnic and camping area (911 m asl), walking trails the other side of Paluma Dam wall (900 m+ asl), and 'The Grandis' (900+ m asl).

Figure 17. Graph illustrating the number of 2ha 20 min area search surveys completed at different altitudes in Wet Tropics Key Biodiversity Areas



Project Results continued

Figure 18. Graph illustrating the number of 500m area search surveys completed at different altitudes in Wet Tropics Key Biodiversity Areas.



The expansion of the project across the other Wet Tropics KBAs has been a more organic process of encouraging bird monitoring at accessible safe locations as identified by the participants. Nevertheless,, it has been possible to achieve a spread of altitudinal surveys as demonstrated by Figures 17 & 18 which illustrate the number of 2ha 20 min area search, and 500m area search surveys at 200m elevation intervals (altitudinal gradient) across the five KBAs.

Project Results continued

Several factors limit the number of surveys completed at certain altitudes including:

- Altitudinal limits within a KBA.
    - For example, the Atherton Tableland KBA is all above 650m and has few high mountains as the KBA's prime purpose is to support overwintering Sarus Crane. Similarly, the Coastal Wet Tropics KBA extends to and along the coast, where the mountain ranges are not as high as the ranges inland.
- Accessibility.
    - A number of KBAs have limited road or track access.
    - Recent flooding has damaged roads and some places accessible in 2023 are currently not accessible (e.g. Mount Lewis, and in the Misty Mountains).
    - Some areas of the national reserve or indigenous land have limited access to minimize biosecurity and other risks to the environment and cultural values. Access is sometimes possible, with permission/permits.
- Fitness of participants
    - While some walking tracks to higher altitudes (for example Mount Bartle Frere and Misty Mountains trails) are accessible, there are likely to be a limited number of project participants fit enough to safely survey the higher trails.
- Safety
    - Surveys in more remote locations require additional OHS risk identification and management to ensure participant safety.

Some altitudinal gaps can be addressed by using a more targeted approach to promoting bird monitoring, for example, in the Coastal Wet Tropics and Daintree KBAs. Consideration is also being given to trying to access the summit of Mount Bellenden Ker via the limited access 'Telstra' cableway subject to permission.

Species specific results

Tables 2 -16. Wet Tropics near threatened and threated birds, and the KBA in which they were found. Includes survey type, altitude detected, number of surveys detected in versus total number of surveys in that KBA, and total birds seen. Based on data recorded in Birdata, 1 January – 31 December 2023. 'Surveys' pertains to 2ha 20 min area searches and 500m area searches only.

Note: A few contributors did not record the number of birds observed (seen or heard) in a survey. This is allowable in BirdLife Australia standardised surveys. For the purposes of estimating total birds observed, it is assumed that a single bird was present.

Wet Tropics Australian King-Parrot (*Alisterus scapularis minor*)					
KBA detected	**2ha, 20 min survey**	**500 m area survey**	**Altitude detected (m)**	**No surveys detected/ Total No surveys in KBA**	**Total birds seen**
Atherton Tablelands	1	1	680-720	2/41	7
Paluma	2	0	870-895	2/54	3
Wooroonooran	6	1	(105^) 450-730	7/113	13

Notes:

Atherton Tablelands: No breeding activity recorded. Largest number observed in a survey – 5 birds.

Paluma: No breeding activity recorded. Largest number observed in a survey – 2 birds.

Wooroonooran: No breeding activity recorded. Largest number observed in a survey – 3 birds.

^Outliers in brackets

Species specific results

Tooth-billed Bowerbird (*Scenopoeetes dentirostris*)					
KBA detected	**2ha, 20 min survey**	**500 m area survey**	**Altitude detected (m)**	**No surveys detected/ Total No surveys in KBA**	**Total birds seen**
Daintree	0	1	1080	1/20	1
Paluma	1	1	930	2/54	1
Wooroonooran	13	6	690-885	19/113	31

Notes

Daintree: No breeding activity recorded. Single bird observed only.

Paluma: No breeding activity recorded. Largest number observed in a survey – 2 birds.

Wooroonooran: No breeding activity recorded. Largest number observed in a survey – 4 birds. One sighting, bird observed feeding on figs (July 2023).

Golden Bowerbird (*Prionodura newtoniana*)					
KBA detected	**2ha, 20 min survey**	**500 m area survey**	**Altitude detected (m)**	**No surveys detected/ Total No surveys in KBA**	**Total birds seen+**
Paluma	1	1	795-880	2/54	2
Wooroonooran	1	1	865-1155	2/113	2

Notes

Paluma: No breeding activity recorded. Single birds observed only. One sighting, female or immature feeding on fruiting *Polyscias* (August 2023).

Wooroonooran: No breeding activity recorded. Single birds observed only.

Species specific results

Wet Tropics Satin Bowerbird (*Ptilonorhynchus violaceus minor*)					
KBA detected	**2ha, 20 min survey**	**500 m area survey**	**Altitude detected (m)**	**No surveys detected/ Total No surveys in KBA**	**Total birds seen**
Atherton Tablelands	1	0	795	1/41	1
Daintree	1	1	1090	2/20	2
Paluma	1	0	870	1/54	1
Wooroonooran	2	3	700-850	5/113	15

Notes

Atherton Tablelands: No breeding activity recorded. Single bird observed only.

Daintree: No breeding activity recorded. Single birds observed only.

Paluma: No breeding activity recorded. Single bird observed only.

Wooroonooran: No breeding activity recorded. Largest number observed together – 6 birds: feeding and interacting with each other, two male, four either female or juvenile (June 2023).

Fernwren (*Orescopus guttularis*)					
KBA detected	**2ha, 20 min survey**	**500 m area survey**	**Altitude detected (m)**	**No surveys detected/ Total No surveys in KBA**	**Total birds seen+**
Paluma	2	0	875-880	2/54	4
Wooroonooran	7	5	675-865	12/113	15

Notes

Paluma: No breeding activity recorded. Two birds observed in each survey. Foraging in leaf litter.

Wooroonooran: No breeding activity recorded. Largest number observed in a survey – 3 birds. One sighting: One bird observed foraging in leaf litter.

Species specific results

Little Treecreeper (*Cormobates leucophaea minor*)					
KBA detected	**2ha, 20 min survey**	**500 m area survey**	**Altitude detected (m)**	**No surveys detected/ Total No surveys in KBA**	**Total birds seen**
Atherton Tablelands	7	1	700-795	8/41	8
Daintree	3	2	985-1090	5/20	10
Paluma	8	2	(55^) 510-910	10/54	12
Wooroonooran	15	6	675-865	21/113	26

Notes

Atherton Tablelands: No breeding activity recorded. Single birds observed only.

Daintree: No breeding activity recorded. Largest number observed in a survey – 4 birds.

Paluma: No breeding activity recorded. Largest number observed in a survey – 2 birds.

Wooroonooran: No breeding activity recorded. Largest number observed in a survey – 2 birds.

^Outliers in brackets

Atherton Scrubwren (*Sericornis keri*)					
KBA detected	**2ha, 20 min survey**	**500 m area survey**	**Altitude detected (m)**	**No surveys detected/ Total No surveys in KBA**	**Total birds seen**
Daintree	2	1	985 -1090	3/20	4
Wooroonooran	1	0	725	1/113	1

Notes

Daintree: No breeding activity recorded. Largest number observed in a survey – 2 birds.

Wooroonooran: No breeding activity recorded. Single bird observed only.

Species specific results

Large-billed Scrubwren (*Sericornis magnirostra viridior*)					
KBA detected	**2ha, 20 min survey**	**500 m area survey**	**Altitude detected (m)**	**No surveys detected/ Total No surveys in KBA**	**Total birds seen+**
Atherton Tablelands	12	1	710-795	13/41	19
Coastal Wet Tropics	2	0	80	2/11	5
Daintree	3	1	920-1090	4/20	4
Paluma	3	3	870-890	6/54	9
Wooroonooran	25	10	75-850	35/113	87

Notes

Atherton Tablelands: No breeding activity recorded. Largest number observed in a survey – 4 birds.

Coastal Wet Tropics: No breeding activity recorded. Largest number observed in a survey – 3 birds.

Daintree: No breeding activity recorded. Single birds observed only.

Paluma: No breeding activity recorded. Largest number observed in a survey – 3 birds.

Wooroonooran: No breeding activity recorded. Largest number observed in a survey – 7 birds.

Mountain Thornbill (*Acanthiza katherina*)					
KBA detected	**2ha, 20 min survey**	**500 m area survey**	**Altitude detected (m)**	**No surveys detected/ Total No surveys in KBA**	**Total birds seen**
Daintree	5	1	965-1225	6/20	10
Wooroonooran	0	2	805-865	2/113	4

Notes

Daintree: No breeding activity recorded. Largest number observed in a survey – 4 birds.

Wooroonooran: No breeding activity recorded. Largest number observed in a survey – 3 birds.

Species specific results

Brown Gerygone (*Gerygone mouki mouki*)					
KBA detected	**2ha, 20 min survey**	**500 m area survey**	**Altitude detected (m)**	**No surveys detected/ Total No surveys in KBA**	**Total birds seen+**
Atherton Tablelands	18	6	710-795	24/41	42
Daintree	4	4	(3-16^) 1075-1090	8/20	11
Paluma	16	7	(50-55^) 795-910	23/54	47
Wooroonooran	42	14	350-1155	56/113	149

Notes

Atherton Tablelands: Adults observed on nest at Thomas Road, Yungaburra (25/8/23). Largest number observed in a survey – 9 birds.

Daintree: No breeding activity recorded. Largest number observed in a survey – 2 birds.

Paluma: No breeding activity recorded. Largest number observed in a survey – 5 birds

Wooroonooran: Largest number observed in a survey – 6 birds. Adult observed feeding one young out of nest (1/10/23).

^Outliers in brackets

Figure 19. Wet Tropics Brown Gerygone © Image courtesy of Alan Sweet 2023 birdlifephotography.org.au

Species specific results

Bower's Shrike-thrush (*Colluricincla boweri*)					
KBA detected	**2ha, 20 min survey**	**500 m area survey**	**Altitude detected (m)**	**No surveys detected/ Total No surveys in KBA**	**Total birds seen+**
Atherton Tablelands	1	0	755	1/41	1
Daintree	1	1	1075-1080	2/20	2
Paluma	4	0	900-910	4/54	4
Wooroonooran	5	3	(350^) 670-865	8/113	13

Notes

Atherton Tablelands: No breeding activity recorded. Single bird observed only.

Daintree: No breeding activity recorded. Single birds observed only. One Daintree KBA sighting listed as uncertain (July 2023).

Paluma: No breeding activity recorded. Single birds observed only.

Wooroonooran: No breeding activity recorded. Largest number observed in a survey – 3 birds.

Figure 20. Bower's Shrike-thrush. Image courtesy of Peter Valentine

Species specific results

Wet Tropics Eastern Whipbird (*Psophodes olivaceus lateralis*)					
KBA detected	**2ha, 20 min survey**	**500 m area survey**	**Altitude detected (m)**	**No surveys detected/ Total No surveys in KBA**	**Total birds seen**
Atherton Tablelands	7	4	700-795	11/41	13
Daintree	5	2	985-1090	7/20	8
Paluma	11	3	880-920	14/54	27
Wooroonooran	38	14	440-1155	52/113	90

Notes

Atherton Tablelands: No breeding activity recorded. Largest number observed in a survey – 2 birds.

Daintree: No breeding activity recorded. Largest number observed in a survey – 2 birds.

Paluma: No breeding activity recorded. Largest number observed in a survey – 4 birds.

Wooroonooran: No breeding activity recorded. Largest number observed in a survey – 5 birds.

Figure 21. Wet Tropics Eastern Whipbird©. Image courtesy of Peter Owen 2022 birdlifephotography.org.au

Species specific results

Victoria's Riflebird (*Lophorina victoriae*)					
KBA detected	**2ha, 20 min survey**	**500 m area survey**	**Altitude detected (m)**	**No surveys detected/ Total No surveys in KBA**	**Total birds seen+**
Atherton Tablelands	1	3	700-760	4/41	4
Coastal Wet Tropics	1	0	80	1/11	1
Daintree	2	1	960-1080	3/20	3
Paluma	7	4	870-910	11/54	16
Wooroonooran	54	17	(75-80^) 350-880	71/113	135

Notes

Atherton Tablelands: No breeding activity recorded. Single birds observed only.

Coastal Wet Tropics: No breeding activity recorded. Single bird observed only.

Daintree: No breeding activity recorded. Single birds observed only.

Paluma: No breeding activity recorded. Largest number observed in a survey – 2 birds.

Wooroonooran: Evidence of successful breeding was observed in one survey in the Misty Mountains, Wooroonooran National Park with 1 newly fledged bird identified out of nest (1/10/2023). Largest number observed in a survey – 4 birds.

Figure 22. Victorian Riflebird ©. Image courtesy of Peter Scholer, 2023 birdlifephotography.org.au

Species specific results

Grey-headed Robin (*Heteromyias cinereifrons*)					
KBA detected	**2ha, 20 min survey**	**500 m area survey**	**Altitude detected (m)**	**No surveys detected/ Total No surveys in KBA**	**Total birds seen+**
Atherton Tablelands	5	2	700-755	7/41	12
Daintree	5	0	890-1225	5/20	11
Paluma	12	6	785-950	18/54	26
Wooroonooran	29	13	(450) 670-1030	32/113	60

Notes

Atherton Tablelands: No breeding activity recorded. Largest number observed in a survey – 4 birds.

Daintree: No breeding activity recorded. Largest number observed in a survey – 4 birds.

Paluma: Evidence of successful breeding was observed in one survey of the Witt Lookout Track with out of nest young observed being fed by adult (6/11/2023). Largest number observed in a survey – 4 birds.

Wooroonooran: No breeding activity recorded. Largest number observed in a survey – 4 birds.

Southern cassowary (*Casuarius casuarius johnsonii*)					
KBA detected	**2ha, 20 min survey**	**500 m area survey**	**Altitude detected (m)**	**No surveys detected/ Total No surveys in KBA**	**Total birds seen+**
Coastal Wet Tropics	1	1	5-80	2/11	2
Wooroonooran	3	2	700-865	5/113	5

Notes

Coastal Wet Tropics: No breeding activity recorded. Single bird observed at Etty Bay. All other records based on presence of scat.

Wooroonooran: No breeding activity recorded. All records based on presence of scat.

Discussion

Uncertainties

The specific bird data presented represents a snapshot of information gathered by citizen scientists during 239 surveys in 2023. Interpretation of the data needs to be tempered with an understanding that large areas of the Wet Tropics KBAs were not surveyed at all. The altitude at which birds were observed does not exclude them occurring at other locations and altitudes that were not surveyed, e.g. high altitudes, more remote locations.

Altitude

Altitude was established using the latitude and longitude at the survey's commencement location. While not ideal, there is currently no automatic recording of altitude in Birdata. Altitudinal data is likely to be +/- 5-15m (estimated error margin) of the stated altitude.

Under recording, over recording or erroneous recording of bird species

Citizen scientists will have a broad range of bird identification, observational and auditory skills, and this will result in some erroneous recordings, particularly by new starters.

Similar species, for example Large-billed Scrubwren and Atherton Scrubwren, may be misidentified by citizen scientists resulting in erroneous records.

Birds high in the canopy but not calling may be missed, as might secretive skulking birds.

Bird calls may be misidentified or not identified if unknown to the participant, resulting in erroneous recording or under recording.

Communications and engagement

Events attended: North Queensland Threatened Species Symposium

BirdLife Northern Queensland participated in the North Queensland Threatened Species Symposium, 9-10 March 2023, and our new Golden Bowerbird 'Birds with Altitude' Banner was launched.

Symposium participation resulted in an opportunity to partner with Wren Mclean in the Paluma Citizen Scientist Weekend, thanks to Terry Carmichael at the Wet Tropics Management Authority.

Following conversations with Terrain NRM staff, a valuable conversation was had with Sarah Hoyal, Biodiversity and Climate Leader, Terrain Natural Resource Management following the symposium, to investigate opportunities for collaboration. Terrain has vast experience facilitating consultation, including with Traditional Owners, and assisting with threatened species action planning. They also have projects that help deliver positive conservation actions for birds. They are very well connected with farmers and property owners. Terrain registered interest in participating in conservation action planning. Links were provided to Birds with Altitude, and Crane monitoring.

Figure 23. From left, Amanda Freeman, Paul Fisk, Ceri Pearce, Sanne Boland and Edward Bell with BirdLife Northern Queensland's two new project banners advertising the Birds with Altitude Project and Crane Monitoring Project.

Communications and engagement

Promotional media published

- Ceri Pearce (2023). Wooroonooran Challenge winner (2022). Contact Call article (13 April 2023). https://www.birdlifenq.org/post/wooroonooran-challenge-winner
- Ceri Pearce and Amanda Freeman (2023). Birds With Altitude 2023 Challenge. Contact Call article (11 July 2023). https://www.birdlifenq.org/post/birds-with-altitude-2023-challenge
- Ceri Pearce and Amanda Freeman (2023). Trip report: Birds with Altitude Surveys in Wooroonooran National Park, 23 July 2023. Contact Call article (1 Aug 2023). https://www.birdlifenq.org/post/trip-report-birds-with-altitude-surveys-in-wooroonooran-national-park
- Walter Trelfall (2023). Paluma Citizen Science Weekend. The Drongo (Newsletter of BirdLife Townsville), Nov 2023, pages 6-8. https://birdlifetownsville.org.au/wp-content/uploads/2023/12/Drongo-November-2023-Backup-1.pdf
- Dennis Walls (2023). Birds with Altitude Campout at Wooroonooran National Park (Misty Mountains) – 30 Sept-2 Oct - Denis Walls. The New Frogmouth (Cairns Birders newsletter), 2023 Issue 40, 6 Oct 2023, pages 10-11.
- Simon Kennedy (2023). KBA Wooroonooran 500m Radius 22 and me. Contact Call article (25 Sept 2023). https://www.birdlifenq.org/post/kba-wooroonooran-500m-radius-22-and-me

Social media

- BirdLife Northern Queensland Facebook page, 23 February 2023
    - Wooroonooran Challenge Winner announcement
- BirdLife Northern Queensland Facebook page, 29 May 2023 and 12 July 2023
    - Announcement of Birds with Altitude 2023 Challenge Competition
- BirdLife Northern Queensland Facebook page, 11 July 2023
    - Updated Birds with Altitude 2023 Challenge Competition promotion
- BirdLife Northern Queensland Facebook page, 8 April 2023
    - Promotion of Birds with Altitude surveys on 23 July
- BirdLife Northern Queensland Facebook page, 25 September 2023
    - Promotion of Simon Kennedys Birds with Altitude article KBA Wooroonooran 500m Radius 22 and me

Future work/opportunities (resource permitting)

Challenge Competition 2024

- Thanks to the generosity of professional nature guide Murray Hunt, owner and operator of Daintree Boatman Wildlife Cruises, and his donation of a cruise for two individuals, there will be a Challenge Competition in 2024.
- The Competition Winner: will be the person who completes the most BirdLife Australia compatible 2 hectare, 20 minute search surveys and/or 500 metre area search surveys in any of the following Wet Tropics Key Biodiversity Areas (KBA): Atherton Tablelands KBA, Coastal Wet Tropics KBA, Daintree KBA, Paluma KBA and/or Wooroonooran KBA.
- The competition has been launched and will be promoted throughout 2024 to increase participation and contribution of Birdata surveys in the Wet Tropics KBAs.

Conservation Action Planning

- Investigation of holding a SMART/conservation action planning workshop began in 2023, and BirdLife National Office and Terrain offered to assist. Achieving this will require a significant amount of work, to develop and implement a stakeholder consultation plan as well as the actual Conservation Action Planning required. Further progress requires additional resources (project funding, dedicated organizer, plan) to progress.

Access Mount Bellenden Kerr summit (circa 1,593 m)

- Project leaders have considered seeking permission for a small group of bird surveyors to access the cableway to the Mount Bellenden Kerr summit.
- Months between June/July and early October would be best given likelihood of inclement weather before and after those months due to wet/storm season.

References

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Anderson, A.; Marques, T.A.; Shoo, L.P.; Williams, S.E. (2015) Detectability in audio-visual surveys of tropical rainforest birds: The influence of species, weather and habitat characteristics. PLOS One 10(6):e0128464

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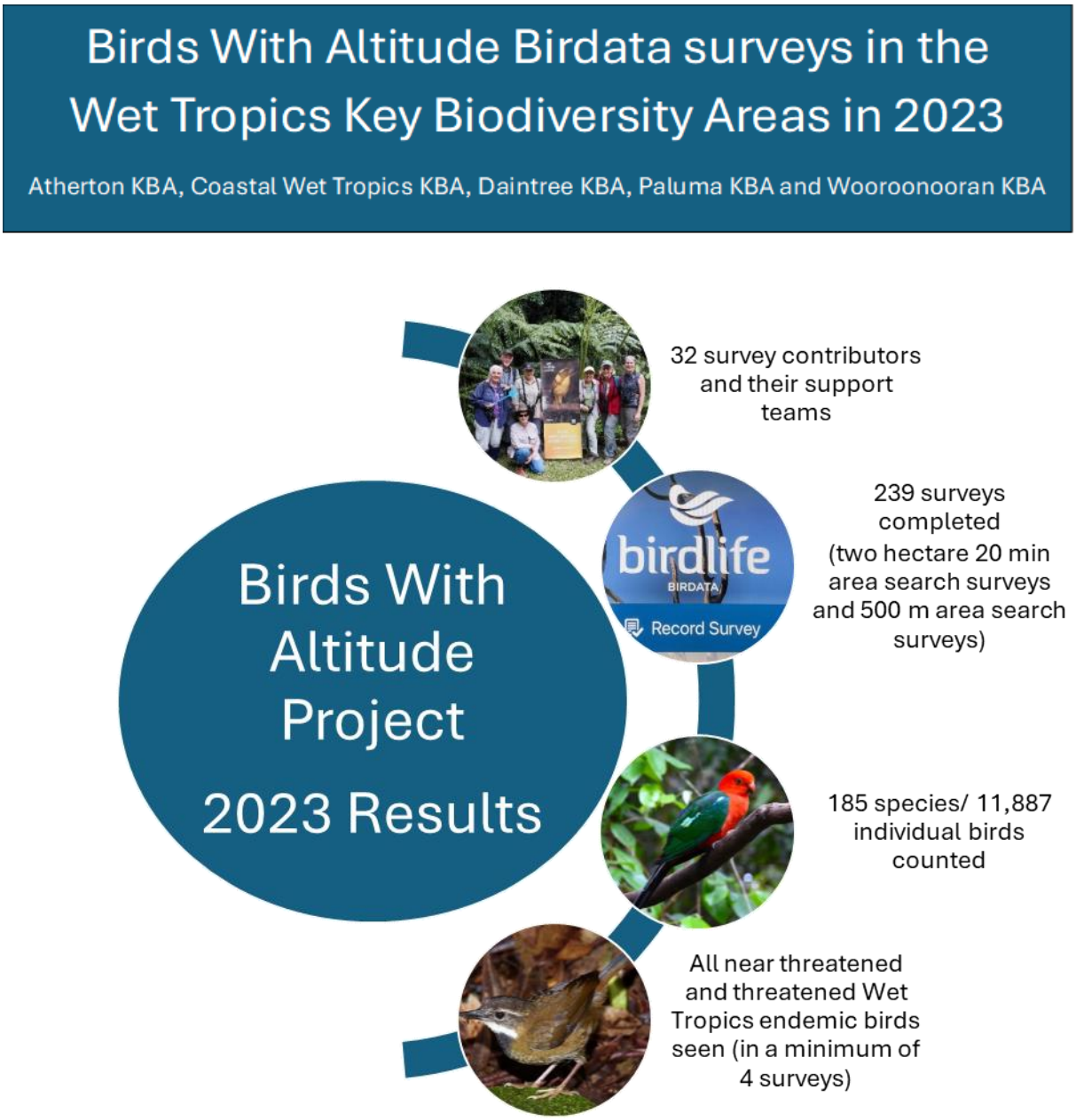
Appendices

- Appendix 1. Infographic: Birds With Altitude Birdata results, 2023.

Appendix 1. Infographic: Birds With Altitude Birdata results, 2023.



Birds With Altitude project

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