

BirdLife Northern Queensland 2023 Grasswren Survey Report

BirdLife Northern Queensland (BLNQ) conducted surveys for Carpentarian and Kalkadoon Grasswrens on Calton Hills during 1-12 May 2023. Fourteen volunteers completed the surveys, using our standard methodology. A total of 69 sites were completed and grasswrens were found on 51 (including incidental sites), being nearly three-quarters of the sites (74%), the highest rate we have ever recorded. These results continued the trend of increasing numbers of grasswrens over the past five years. There also was an increase in the percentage of sites which had multiple groups of Carpentarians (over 50% this year in comparison to 40% last year), and a similar percentage of groups with more than two birds, again suggesting successful breeding. We even found two active nests, both with eggs. Kalkadoons were far more numerous this year than previously, being found at nearly half of all sites surveyed (46% versus previous high last year of only 18%). A very high percentage of sites (26%) had both grasswren species. The average number of survey points per group for Kalkadoons decreased substantially from 36.3 down to 13.8.

Three areas with recent fire scars (burns from 2020 or 2023) were surveyed. Our results indicate that both grasswren species can utilise recent fire scars of patchy burns, and also find unburnt areas within larger burnt patches. We suggest areas where ongoing long-term monitoring could be implemented.

Introduction

A total of 14 volunteers undertook surveys on Calton Hills from 1-12 May 2023. Due to extensive rains and flooding from December-March throughout the Mount Isa region, we were not able to access Thornton this year. Therefore, we focussed on Calton Hills, with similar objectives to those of last year:

- continue to establish baseline monitoring sites covering a wide range of fire scars on Calton Hills, especially targeting sites near recent fire scars (2020-2023),
- investigate areas not surveyed in the last four years, but predicted to have birds based on Henry's habitat models, and
- provide additional data for the assessment of our methodology in an area with known population of Carpentarian Grasswrens.

Because of the extensive rains and reported breeding (H. Stoetzel) we were expecting high rates of success for our surveys, as we had during 2022.

Methods

The method used to survey grasswrens was the same as used in all recent years. A team of two surveyors drive to the nearest point to the target survey site, walk 2-300m towards the GPS waypoint, and undertake a survey point, as described below. On completion of the procedure this method is repeated another nine times at 200m intervals, turning 90 degrees to the left at points 4 and 7. These survey points thus formed three sides of a square 600m in length. Most sites had 10 survey points. There were several incidental sites where grasswrens were contacted before or after the formal survey.

Our procedure for each survey point is for two people to stand back to back. The call of the Carpentarian Grasswren is played for 20 seconds followed by 30 seconds of silence. If no response is noted the team members switch position and the call is repeated in the opposite direction. This procedure is then repeated with the Kalkadoon Grasswren call. If grasswrens are detected, then the surveyors attempt to determine how many birds are present, and sex and age of each bird. Once the surveyors are satisfied with their count of individuals, they then take simple measurements of the spinifex cover and height intersecting a 20m line laid out in north direction from the spot where the birds were first detected. Notes on landscape type and position are made, as well as habitat photos.

Results and Discussion

A total of 69 sites were completed which included six opportunistic sites (Fig. 1 and Appendix 1). The surveys included sites previously visited last year, as well as sites that have not been recently surveyed. Grasswrens were observed at 51 sites, being an overall percentage of nearly 75% (73.9%). This was the highest rate achieved over the past five survey years (Table 1 and Fig. 2 below).



Fig. 1. Survey sites on Calton Hills, showing both Carpentarian and Kalkadoon Grasswrens found in 2023, along with records from previous years.

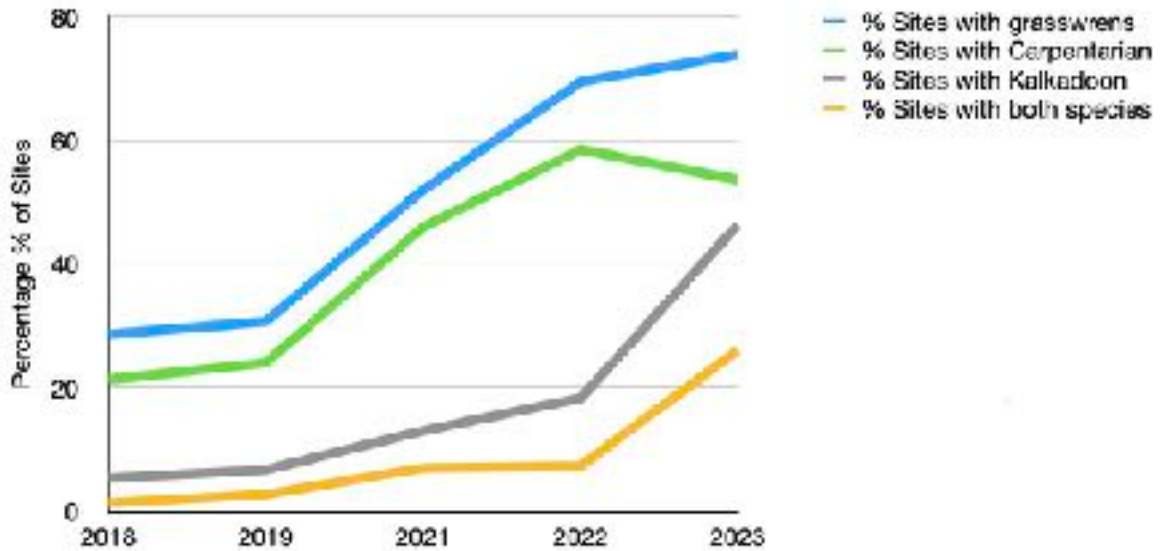


Fig. 2. Changes in percentage of sites where grasswrens have been found, over the last five survey periods.

The percentage of sites with Carpentarian Grasswrens was similar to last year's results (54 and 59%), which were both substantially greater than in previous years. Sites with Kalkadoon Grasswrens and with both species present were both substantially higher than even last year's high numbers.

Table 1. Comparison Across Years of Survey Results

	2018 CH	2019 CH&T	2021 CH,T,MD	2022 CH&T	2023 CH
Total sites	75	75	84	82	69
Total Points	691	690	780	689	674
No. Sites with grasswrens	22	23	44	57	51
% Sites with grasswrens	28.6	30.7	52.0	69.5	73.9
No. Sites with Carpenterian	16	18	39	48	37
% Sites with Carpenterian	21.3	24.0	46.0	58.5	53.6
No. Sites with Kalkadoons	4	5	11	15	32
% Sites with Kalkadoon	5.3	6.7	13.0	18.3	46.4
No. Sites with both species	1	2	6	6	18
% Sites with both species	1.3	2.7	7.0	7.3	26.1
No. Sites with multiple groups of same species	6	5	13	22	25
% sites with multiple groups out of total sites	8.0	6.7	15.5	26.8	36.2
No. of Carpenterian groups	20	24	53	80	65
No. points per group	34.6	28.8	14.7	8.6	10.4
No. of Kalkadoon groups	5	5	14	19	49
No. points per group	138.2	138.0	55.7	36.3	13.8
No. Sites with multiple groups Carpenterian	4	4	10	19	19
% of Carpenterian sites with multiple groups	-	-	25.6	39.6	51.3
No. Sites with multiple groups Kalkadoon	1	-	3	3	10
% of Kalkadoon sites with multiple groups	-	-	27.3	20.0	31.3
No. Groups with >2 Carpenterian	-	7	8	11	10
% Groups with >2 Carpentarians over total groups	-	35	14.3	13.8	15.4
No. Groups with >2 Kalkadoons	-	0	3	2	4
% Groups with >2 Kalkadoons over total groups	-	0	18.8	10.5	8.2

CH- Calton Hills, T- Thornton, MD- May Downs

Over the last three years, we have also found a steady increase in sites with multiple groups of Carpentarian Grasswrens (Fig. 3). The number of average survey points needed to find a Carpentarian Grasswren group was similar to last year, and both were lower than in previous years. This pattern of the number of sites with multiple groups and consequent decrease in survey points needed to find birds was also seen with Kalkadoons, continuing the pattern from last year.

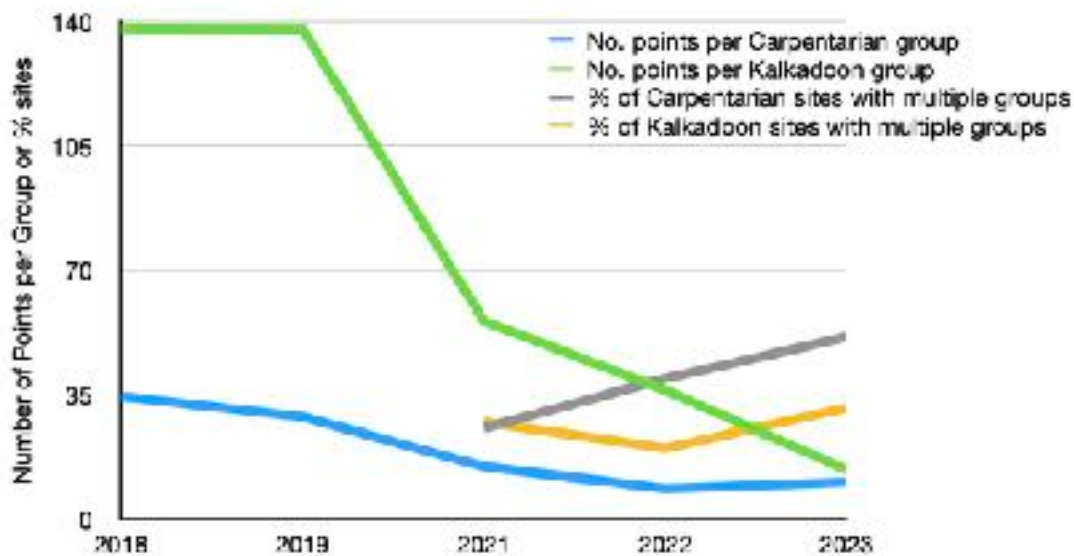


Fig. 3. Change in number of grasswren groups over survey sites and number of points.

We were able to survey two areas with improved track access, which were north and southeast of the track to Pato's Bore (Areas 1&2 in Fig. 1). We had previous records along the Pato Bore track, but none in these new areas. Fig. 4 shows detailed results of surveys here. Numerous groups of both species were found, indicating some of the highest population densities we have found so far on Calton Hills. In addition, we also found two active nests of Carpentarians, both with eggs, which is a first discovery for our surveys (Fig. 5). As these areas are relatively accessible, they could form an important part of our long-term monitoring program.



Fig. 4. Map of new locations along Pato Bore track, showing all survey results and previous records for Carpentarian and Kalkadoon Grasswrens.

We also found Carpentarian Grasswrens in new locations along Gunpowder Creek in the mid-eastern part of the station (Area 3 in Fig. 1). In past years, we had several records of Kalkadoon in this area, but only one near-by Carpentarian record. Our surveys found four new sites for Carpentarians, as well as confirming numerous groups of Kalkadoons.

The above results indicate another successful breeding season earlier in the year. The percentage of Carpentarian groups with more than two individuals was similar to previous years (Table 1). In addition, two active nests were found in Area 2 (Fig. 5), both with eggs, so breeding was ongoing at the time of our surveys.



Fig. 5. Habitat where an active nest of Carpentarian Grasswrens was found.

Kalkadoon Grasswrens were more numerous this year than in previous surveys, recorded on the highest percentage of sites, found on more sites along with Carpentarians (Fig. 2), with the highest percentage of multiple groups and the lowest average number of points per group (Fig. 3). The Kalkadoons were found to be clustered in areas where there were exposed quartzite ridges (see Fig. 6 for an example). As we found in 2021, groups of Kalkadoons were spaced around 200 m apart along the quartzite ridge (Fig. 7). These geographic features are clearly important components of the Kalkadoon's preferred habitats.



Fig. 6. Example of exposed quartzite ridge where Kalkadoons were found at regular intervals. (Photo by D. Houghton)



Fig. 7. Kalkadoon Grasswren groups found at regular intervals (approx. 200 m) along an exposed quartzite ridge.

Fire Scar Surveys

We were able to survey three areas of recent fire scars from 2020 and 2023.

1 - Near Henry's base camp: 2023 fire scar of limited patchy extent amongst extensive unburnt area (Fig. 8). Carpentarians were found within the burnt patch, and Kalkadoons nearby.

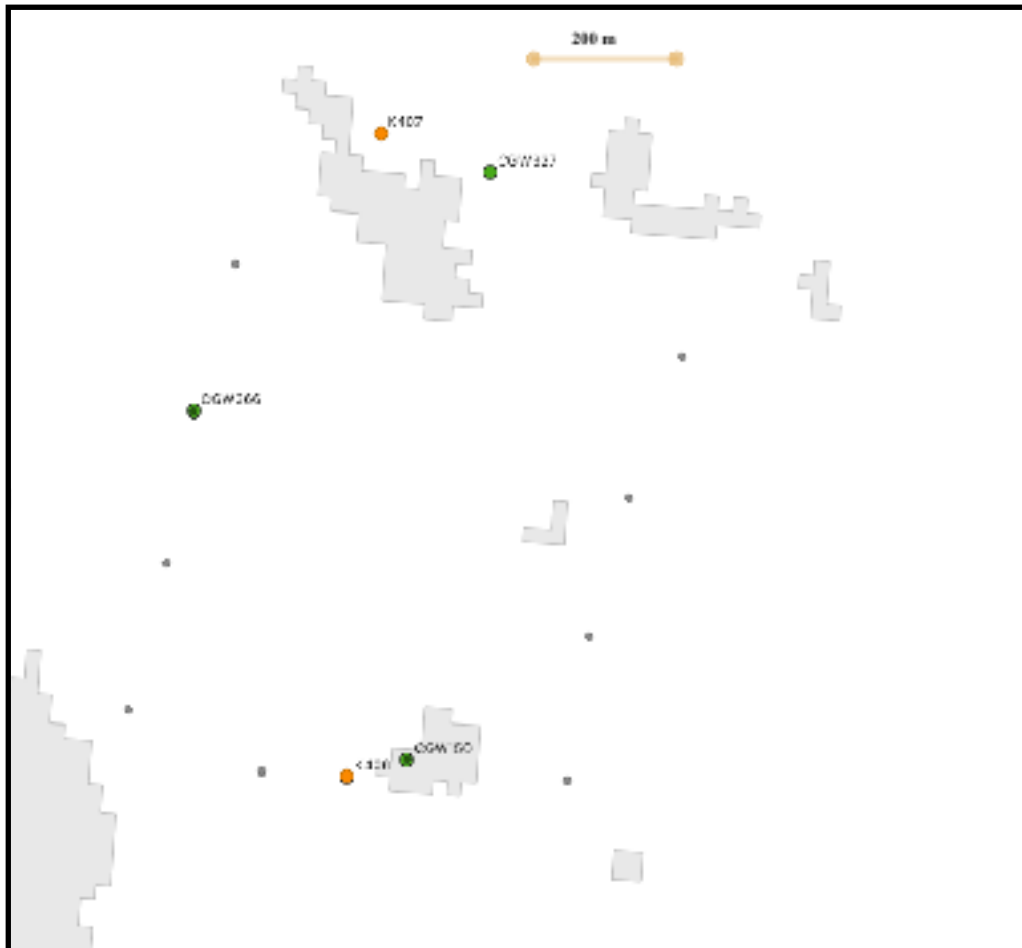


Fig. 8. Map showing location of 2023 fire scars (grey pixels) with Kalkadoon Grasswrens (orange dot) and Carpentarians (green dots). Survey points with no grasswrens observed are black dots.

2 - Pato track, southeast: extensive 2023 fire scar where Carpentarians were found within the fire scar and nearby, also with Kalkadoon nearby (Fig. 9 and Fig. 10).

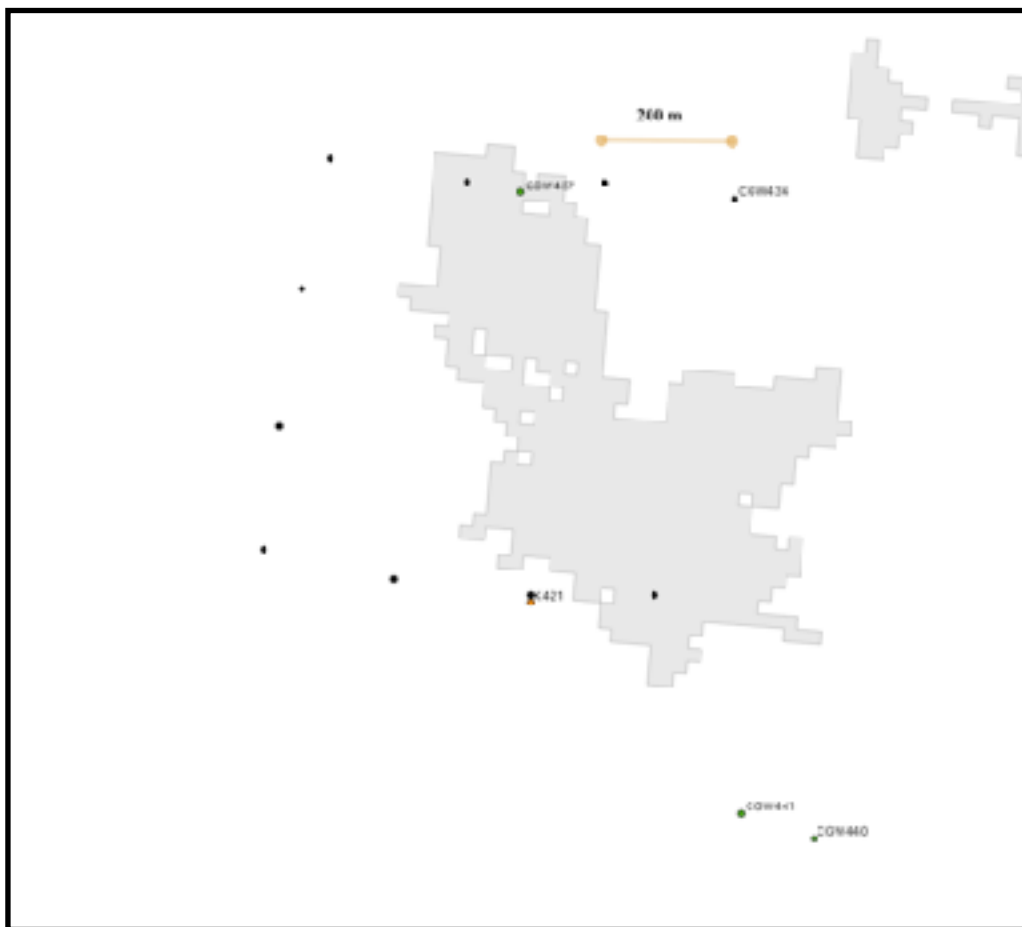


Fig. 9. Map showing location of 2023 fire scars (grey pixels) with Kalkadoon Grasswrens (orange dot) and Carpentarians (green dots). Survey points with no grasswrens observed are black dots.



Fig. 10. Habitat at CGW437, showing recent fire scar on edge of unburnt. (Photo by C. Scott).

3 - Gunpowder Creek - We completed several surveys where there were fire scars from 2020 and 2023. We found Kalkadoons within a small unburnt patch (K320, Fig. 11 and Fig.12) and on the edges of two large burnt areas (K439 and K325).

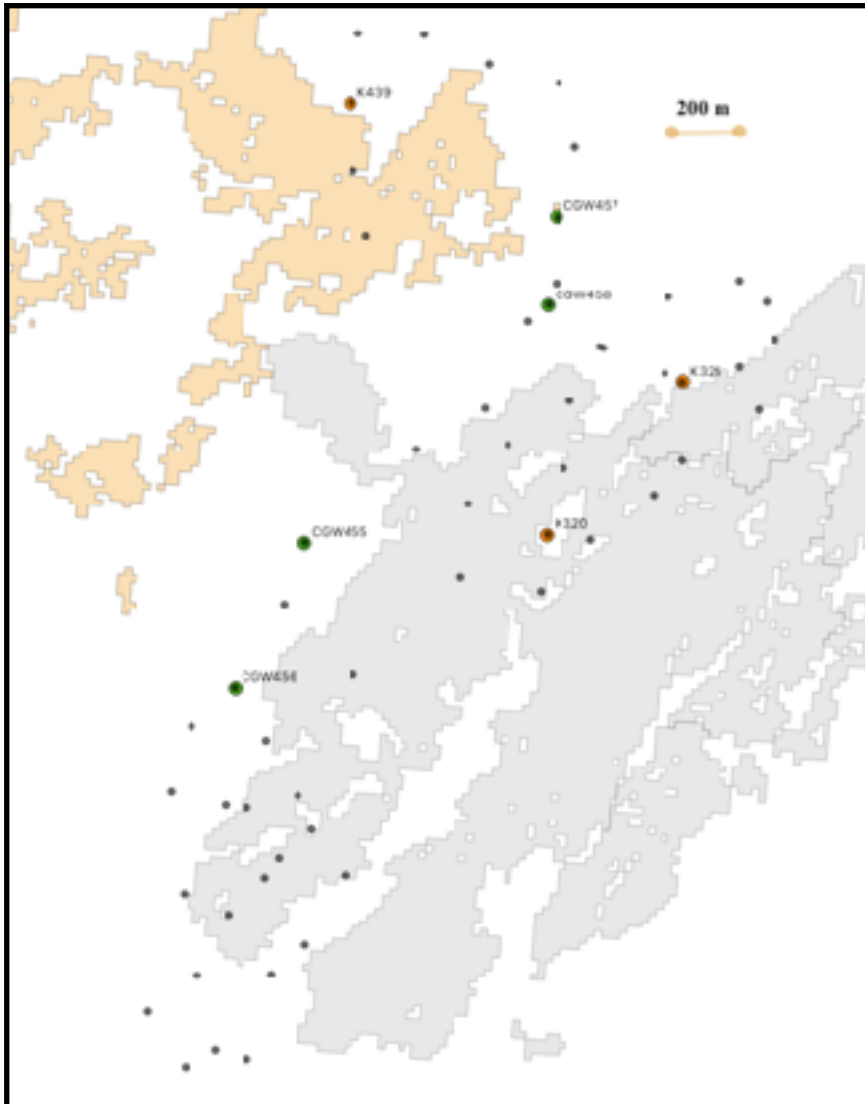


Fig. 11. Map showing location of 2023 (grey pixels) and 2020 fire scars (buff pixels) with Kalkadoon Grasswrens (orange dots) and Carpentarians (green dots). Survey points with no grasswrens observed are black dots. Note presence of K320 within an unburnt patch.



Fig. 12. Habitat of where Kalkadoons K320 were observed, with recent 2023 fire scar in western background. (Photo by J. Mulham).

These observations indicate that grasswrens can use recent fire scars in patchy burns, and also find unburnt areas within larger burnt patches.

Assessment of Standard Methodology

By using our standard methods at Henry's study area, where he has a known number of Carpentarian Grasswrens, we are able to get an estimate of how accurate our methods are in detecting the presence of grasswrens. Based on the results from last year and again this year, it appears that our method is able to detect grasswrens with known territories at around 70% of the time. This year, we detected grasswrens in this study area at 73% of sites (8 of 11 surveys), last year this figure was 71%. These results suggest that we should repeat our surveys at least once, to be confident that grasswrens are not present at any given location (H. Stoetzel, pers. com.).

Conclusions

Our survey results have indicated a steady increase in grasswren numbers of both species, based on the percentage of sites where we have been able to find them. This increase is partly due to our use of Henry's habitat models which we have used to prioritise our target survey locations. We started using his model predictions in 2021. Over those three years we have seen increases, which are probably due to successful breeding with good wet seasons.

Finding grasswrens in small unburnt patches or at the edges of recent fire scars, indicate that they can survive in locations with a mosaic of burnt and unburnt patches, especially if the unburnt areas are relatively extensive compared to the burnt. It therefore will be important to keep controlled burns small and patchy, especially in areas where there are high concentrations of grasswrens. However, the patches still need to be large enough to stop uncontrolled wildfires. This will be a critical balancing act to achieve in the fire management plan. Ongoing monitoring will determine when grasswrens are able to thrive within recently burnt areas, and recolonise from adjacent areas.

There are six core areas where Carpentarian Grasswrens are in high concentrations, based on the number of groups found over adjacent surveys (Fig. 13). All but one (Area 5) are readily accessible. Area 5 is along McNamara's Road and is subject to mining activity, making it difficult to access. The southern areas (3, 4 and 6) also have high concentrations of Kalkadoon Grasswrens, which should also be monitored.

In addition, Areas 7 (White Hills section of Gleeson station) and 8 (Chidna station) are at the northern extent of both species' distributions and should form part of ongoing monitoring. The numerous gaps in occurrence of Carpentarians are probably due to access and limited coverage by our surveys. However, if future access can be improved (e.g. with helicopter access) then those locations with high probability of occurrence according to Henry's models should be surveyed.

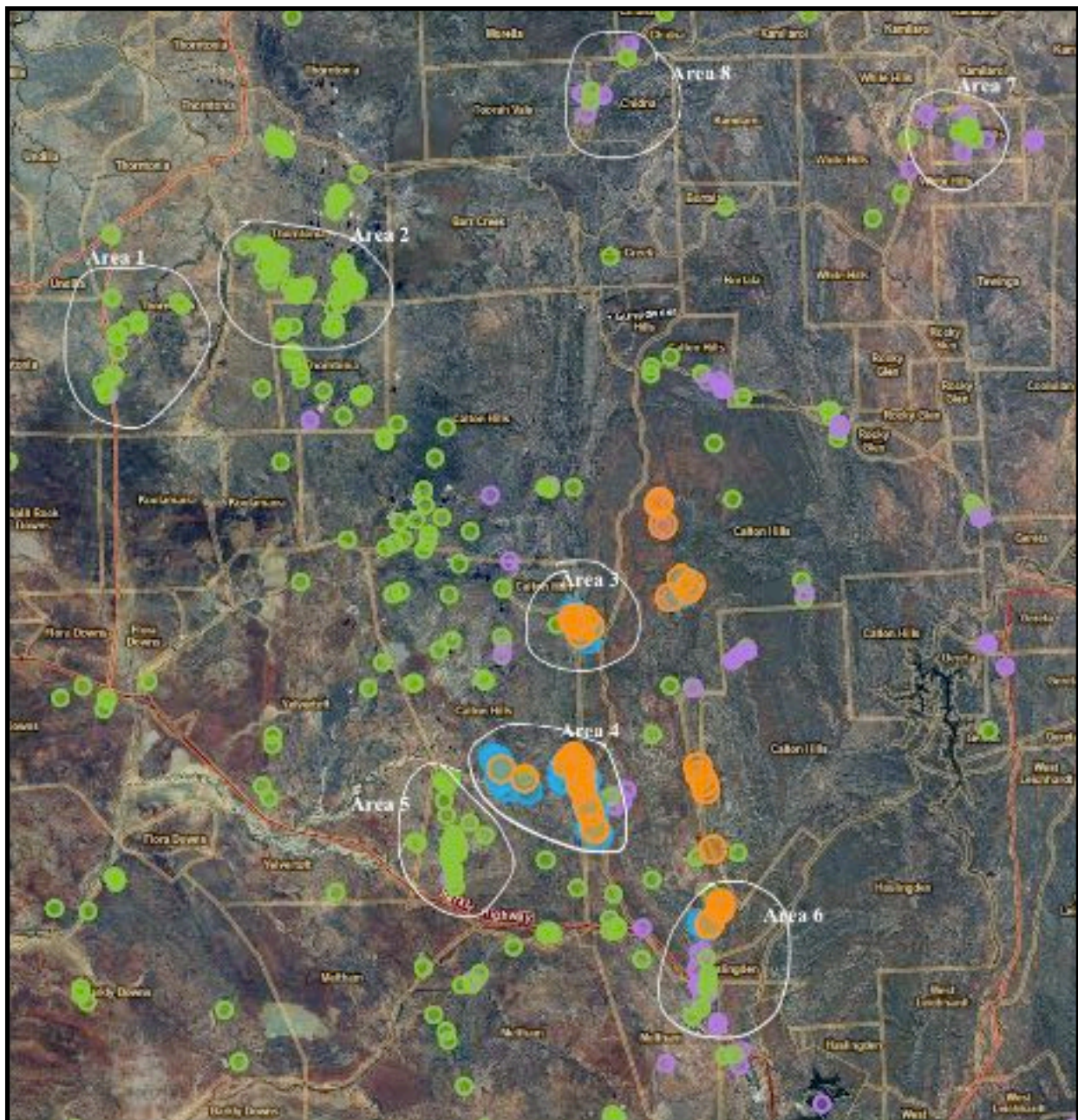


Fig. 13. Areas where occurrence of grasswrens are concentrated, according to all BirdLife Northern Queensland surveys. Green dots, blue dots - Carpentarian Grasswrens; Purple, orange dots - Kalkadoon Grasswrens.

Acknowledgements

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None of these surveys are possible without our volunteers who dedicate their time, expertise and vehicles. This year's volunteers were Antony Brown, Julia Brown, Martin Cachard, Pippy Cannon, Ceinwen Edwards, David Houghton, Mike Johnston, Jules Kramer, John Mulham, Cheryl Ponter, Graham Ponter, Carolyn Scott, Kath Shurcliff, Henry Stoetzel, and Kelvin Wykes (Fig. 14).

Thank you to all.



Fig. 14. Our Volunteers - C. Scott (foreground), G. Ponter, J. Mulham, M. Cachard, J. Brown, J. Kramer, P. Cannon, D. Houghton, K. Shurcliff, M. Johnston, C. Edwards, K. Wykes, C. Ponter, A. Brown (photo by C. Scott).