



**Bowerbird
Monitoring
Project Report
2025**

January 2026

Traditional Owner acknowledgement

We'd like to acknowledge that this survey was carried out on the lands of the Ngadjon-ji, Jirrbal, Tableland Yalanji, and Mbarbarum people. We'd like to pay our respects to them as the first custodians of this land.

Report author

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Images

Cover: Golden Bowerbird
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Introduction

Upland rainforest ecosystems of the Wet Tropics are widely recognised as highly vulnerable to climate change. Species associated with cooler, high-elevation environments face increasing risk as warming temperatures drive suitable climatic conditions upslope. Anticipated consequences include range contraction, altered breeding dynamics, population decline, and in some cases, local extinction. Despite these well-established theoretical expectations, detecting real-world ecological change remains challenging. Rainforest bird communities are inherently difficult to survey due to dense vegetation, cryptic species behaviour, fluctuating vocal activity, and variability among observers. These factors can obscure genuine biological trends, particularly over shorter monitoring periods.

Long-term, standardised datasets are therefore essential for distinguishing directional change from background variability. Within this context, bowerbirds provide a valuable monitoring opportunity. The Golden Bowerbird (GBB) and Tooth-billed Bowerbird (TBB) both demonstrate strong site fidelity through persistent bowers or courts that may remain in use for decades. These stable behavioural features offer fixed spatial reference points, improving repeatability and reducing one of the key sources of uncertainty in rainforest bird monitoring.

The GBB, predominantly occurring above approximately 1,000 m elevation, is considered especially susceptible to climate-driven habitat shifts. Continued inspection of known bower sites provides a practical mechanism for detecting changes in occupancy, activity, and site persistence. While surveys conducted by Graham Harrington since 2008 have suggested broad stability at many locations, ongoing monitoring is required to identify subtle, cumulative, or delayed responses to environmental pressures.

The TBB monitoring program was initiated in 2020 by Dominic Chaplin and is based on approximately 30 established 1 km rainforest transects distributed across the Wet Tropics. The objective of this work is to quantify the number of individuals detected, primarily through vocalisations, and to compare counts over successive years to assess potential temporal change.

The TBB is locally abundant and widespread across the region, with courts occurring between approximately 550 m and 1,350 m elevation. Its conspicuous breeding-season calling behaviour, combined with long-term court fidelity, makes it particularly suitable for repeatable acoustic surveys. Previous research published by James Cook University

identified the species as exhibiting one of the most pronounced declines among Wet Tropics birds, highlighting the importance of sustained monitoring. Although detections naturally fluctuate among sites, recent multi-year patterns suggest the possibility of a decline, reinforcing the need for continued longitudinal assessment.

Against this backdrop of climate uncertainty, conservation concern, and survey complexity, this project seeks to strengthen the empirical evidence base for upland rainforest birds. The study is designed to generate robust, longitudinal data by monitoring GBB bowers at historically known sites and quantifying TBB detections along repeatable transects. These targeted efforts also contribute to broader BirdLife Northern Queensland (BLNQ) monitoring programs and Birddata records, while supplementary observations of other bird species provide important ecological context.

Sustained monitoring of behaviourally stable species offers a pragmatic early-warning framework for detecting ecological change. Given that climate impacts are often gradual and non-linear, continuation of these surveys over the coming decade is critical for resolving long-term trends and informing adaptive conservation strategies for Wet Tropics rainforest ecosystems.



Methods

Study Design

This study applied species-specific monitoring approaches designed to align with the behavioural ecology and detectability characteristics of the GBB and the TBB. Survey techniques were selected to maximise repeatability, strengthen comparability with historical BLNQ datasets, and reduce common sources of bias associated with rainforest bird monitoring. Given the structural complexity of Wet Tropics rainforest environments and the known variability in avian detectability, methods emphasised stable spatial reference points and standardised survey effort.

Golden Bowerbird Surveys

Monitoring of the GBB was undertaken through direct visitation of historically known bower sites. This method is particularly well suited to the species due to its pronounced long-term fidelity to bower locations, with many sites remaining active for several decades. Since the commencement of systematic monitoring, more than 100 bowers have been located and documented across the study region. Over time, the survey program has progressively shifted from active discovery toward repeated inspection of established sites, reflecting both the maturity of the dataset and the observed stability of known bower distributions.

Bower inspections were conducted by Dominic Chaplin and scheduled in alignment with the TBB survey period. Although GBB bowers persist year-round, visits undertaken during the breeding season maximise the likelihood of detecting clear indicators of activity, including structural maintenance, refreshed decorations, and evidence of courtship display. Survey timing was therefore influenced by both logistical efficiency and the objective of maintaining comparability with concurrent TBB monitoring.

Tooth-billed Bowerbird Surveys

Surveys for the TBB were undertaken using standardised 1km walking transects distributed across multiple Wet Tropics rainforest locations (Table 1). The monitoring targeted 25 transects, each intended to be surveyed at least once every two years. This framework provides temporal coverage while maintaining spatial consistency, supporting long-term comparison of detections.

Prior to conducting field surveys, observers familiarised themselves with the vocalisations of the TBB. The species produces a distinctive range of raucous squawks, whistles, and characteristic “chop” calls, and is also known for frequent mimicry of

other bird species. Accurate recognition of these vocalisations is essential for reliable detection, particularly given the dense vegetation structure typical of rainforest environments where visual encounters are often limited.

Field methodology involved walking each transect quietly over an approximate duration of 40–60 minutes. Transects were defined as 1 km in direct linear distance, although the physical walking path occasionally followed curved tracks resulting in a slightly greater ground distance. This survey format aligns with Birddata 500 m protocols while allowing effective coverage of calling individuals within the surrounding acoustic detection zone.

Observers recorded all TBB detected during the transect walk, with detections based primarily on vocalisations. Individuals calling at substantial distances from the transect path were included, reflecting the species' high audibility during periods of elevated vocal activity. The principal data metric derived from each survey was the total number of individuals heard along the transect. Where feasible, supplementary information was documented, including the approximate GPS position along the transect, the side of the track from which calls originated, and an estimated distance to the calling bird. These additional observations assist with interpretation of repeat detections and spatial clustering around court sites.

Survey timing was structured to maximise detectability. The TBB exhibits increased calling behaviour during the breeding season, typically from October to December. During this period, individuals may vocalise for extended durations near established courts. Calling activity may decline during the middle of the day: consequently, surveys were preferentially conducted during morning hours, when vocalisation rates are most consistent. Based on long-term field observations, it is estimated that approximately 70% of individuals are calling at any given time during the breeding season, supporting the use of acoustic detections as a repeatable monitoring metric.

In addition to TBB detections, observers optionally recorded other bird species seen or heard during transect walks when identification confidence was high. These incidental observations provide broader avifaunal context and contribute to complementary biodiversity datasets.

Data Management

Survey observations were collected using BirdLife Australia Birddata standardised methodologies and contributed to Birddata where applicable. Supporting datasets are maintained by Birds With Altitude Project Leader Ceri Pearce, Bowerbird Monitoring

Project Leader Dominic Chaplin, and Amanda Freeman. Supplementary field records, photographic documentation, and site notes were archived to preserve continuity with previous monitoring efforts.

Table 1. Tooth-billed Bowerbird transect sites

Site	Description	Location
1. Mt Misery, Cooktown	Approx 50 km south of Cooktown: Shiptons Flat Road. Difficult to find. 4WD access. Two or three successive 1 km walks. One winter record of GBB. Look out for them in summer. Watch out for TBBs that sound like catbirds. Divide this into three sections to count.	Start: 15.87145/145.20406 (540 m) End: 15.88042/145.20397 (558 m) Start: 15.88042/145.20397 (558 m) End: 15.88846/145.20711 (564 m) Start: 15.88846/145.20711 (564 m) End: 15.88881/145.21714 (680 m)
2. Mt Spurgeon	Private property. Difficult to access. Arrange via Dominic Chaplin. Start at Junction of Sclerophyll/Rainforest.	Start: 16.43944/145.19167 (1,145 m) End: 16.43581/145.19889 (1,196 m)
3. Mt Lewis	a) Clearing to Dam: Flat walk approx 1 km from Mt Lewis Parrot-finch clearing along the track to the dam. Include any birds you can hear from the car parking area (just past the clearing). b) Mt Lewis Hut: Start approx 700 m along the track that leads north from the hut at the end of the road. Finish at the lookout on the track back past the hut.	Start: 16.59289/145.27532 (990 m) End: 16.60133/145.27256 (1,021 m) Start: 16.50696/145.27061 (1,208 m) End: 16.51316/145.26871 (1,205 m)
4. Mt Lewis Access Road	a) 1 km section on the lower part of the entrance road starts 4.7 km from the Bushey Creek bridge. Fairly flat walk 1 km further along the road. b) 1 km section on the lower part of the entrance road starts 6.3 km from the Bushey Creek bridge. Fairly flat walk 1 km further along the road.	Start: 16.58791/145.30719 (745 m) End: 16.58613/145.29798 (853 m) Start: 16.58613/145.29798 (853 m) End: 16.58606/145.28855 (883 m)
5. Kahlpahlim Track	Tough uphill walk with large numbers of Bowerbirds. Start from the car park right at the end of the Davies Creek Road. This car park is around 15 km from the Kennedy Highway. Check on the website in case they are doing burning https://parks.des.qld.gov.au/parks/davies-dinden-bare-hill . It is a long uphill walk to Kahlpahlim Rock. But the TBB courts start lower down around 1 km along the track. There is a 1.5 km long uphill ridge with at least 25 courts. Walk up this ridge until you reach the grass/schlerophyll area. Divide this into three sections: 1 - A curve along the 1st km from the carpark to 2nd Creek Crossing (no bridge). 2 - Long 1km uphill ridge with lots of TBB. 3 - 500m to schlerophyll with lots of TBB.	Start: 17.03675/145.61358 (720 m) End: 17.03352/145.62008 (830 m) Start: 17.03352/145.62008 (830m) End: 17.02493/145.62311 (1,003 m) Start: 17.02493/145.62311 (1,003 m) End: 17.0202/145.62334 (1,035 m)

Site	Description	Location
6. Kauri Creek Road	Lovely flat higher altitude track. 4WD access only. From the Kennedy Highway near Mareeba head south down Tinaroo Creek Road. The road turns to dirt up into the national park. About 21 km from the highway there is a 3-way junction. Turn right up Kauri Creek Road. After 5 km stop and pull over to a small parking space on the right. Then walk 1 km back along the road you have just come down. End at a small 'peak'.	Start: 17.09871/145.57531 (1,189 m) End: 17.10633/145.56974 (1,229 m)
7. Gilles Lookout Road	This 4WD only road to the lookout starts from just south of the Cathedral Fig Tree along Boar Pocket Road. It is signposted and you have to open two gates to reach the start. Some uphill sections. Undulating steepish. Start 0.5 km from the National Park sign. Park in the dip. Walk 1 km towards the lookout. Stop at a peak 1.7 km from National Park sign.	Start: 17.17745/145.67811 (794 m) End: 17.17225/145.68610 (789 m)
8. School For Field Studies Access Road	a) Access road – Walk 1 km each way. Fairly flat. The unmarked turning is at 2710 Gillies Highway. Approx 27.1 km from the Bruce Highway in Gordonvale or 3 km from the wooden Gillies Highway sign at the top. With care, turn north off the Gillies Highway at this point. Park in the middle of triangle close to the road. Walk 1 km from the nearby National Park metal gate down to the SFS metal gate. This road is State Forest so public access is permitted. b) Site walk – Loop track from main building. Contact Amanda Freeman for access.	Start: 17.21451/145.68521 (775 m) End: 17.20604/145.68025 (772 m)
9. Lake Barrine Top Circuit	A short, approx 700 m circuit runs from the Lake Barrine access road round and down past the twin Kauri Pines and back to the Tea House. This is only 600 m so also walk past the tea house and 400 m along the track anti clockwise round the lake until you reach the long boardwalk over the water.	Start: 17.24475/145.63966 (760 m) End: 17.24559/145.63319 (740 m)
10. Lake Eacham Full Circuit	Approx 3 km circular walk all around Lake Eacham. Altitude 780 m. Walk the whole circuit in a clockwise direction starting from the car park. Turn left at the first junction which takes in some of the interpretive walk, then right at the second junction to continue round the lake. Divide into two halves. Half way point at a giant fig tree (17.28536/145.62141).	Start: 17.28631/145.62922 (780 m) End: 17.28536/145.62141 (780 m)
11. Curtain Fig Tree Road	1 km flat walk along the whole road through the Curtain Fig Tree National Park. Start at the edge of forest to south and end in agricultural fields to north.	Start: 17.28831/145.57001 (707 m) End: 17.27853/145.57626 (715 m)
12. Wongabel Circuit	Circular flat 2 km walk around Wongabel Mabi Forest Heritage Walk. Divide into two surveys (North and South part of loop). Try not to count birds you can hear from both surveys. Start and finish from the carpark.	Start/End at Carpark: 17.33220/145.50045 (780 m) Start/End Half way round: 17.33111/145.51011 (760 m)
13. Mt Baldy	4WD only access is via Rifle Creek Road, Atherton. Drive 5.9 km from the highway along Rifle Range and up the hill. Park at the large parking area where a smaller road on the left heads South into rainforest with a '40 Area' sign. The sclerophyll turns to rainforest just here. Walk 1 km into the rainforest to the South. Flat at first then a small climb towards the end. Take care listening out for the Toothbills. In places you can hear at least three at the same time.	Start: 17.2723/145.42881 (1,080 m) End: 17.28095/145.42469 (1,130 m)
14. Fig Tree Close, Malanda	Walk the road along the length of rainforest along Fig Tree Close, plus Whiting Close. Flat 1 km.	Start: 17.34181/145.62319 (730 m) End: 17.34185/145.63153 (730 m)
15. Seamark Road, Malanda	Drive along Seamark Road then onto the dirt section, pass 'Barnes Pickle Reserve' sign. 2WD: Park by the gate Rural No. 852. 4WD: Park by the fence post 17.43987/145.53176. The start is shortly after the fence post. 1 km walk. Lots of courts. 915-995 m altitude. Slight uphill walk section.	Start: 17.43978/145.53061 (915 m) End: 17.44214/145.52127 (995 m)
16. Gourka Road		Start: 17.37431/145.72584 (767 m) End: 17.37845/145.73421 (726 m)

Site	Description	Location
17. Stockwelia Track	Off Gourka Road. Also include birds you can hear behind you at the start.	Start: 17.37859/145.74019 (761 m) End: 17.38793/145.74586 (682 m)
18. Bartle Frere	First 1 km of trail. Walk 1 km along flat access track from carpark. Western Side.	Start: 17.37926/145.76273 (700 m) End: 17.37826/145.77209 (700 m)
19. Mt Fisher	Private property. Top clearing to peak. Arrange access via Dominic Chaplin.	Start: 17.55187/145.53870 (1,270 m) End: 17.55639/145.54641 (1,370 m)
20. Tully Falls Road, Charmillan	Walk 1 km from Charmillan Creek Trailhead on Tully Falls Road. Flat easy walk.	Start: 17.68471/145.52275 (1,030 m) End: 17.69373/145.52262 (1,015 m)
21. Sutties Gap Road	Sutties Gap Road is part of the Misty Mountains Trails off Malaan Road which is off the Old Palmerstone Highway linking Ravenshoe and Millaa Millaa. This is a good low altitude site. 2WD is ok along the first 3 km. After this survey you could also do a walk survey from Hinson Creek Trailhead 1 km towards the Hinson Creek Campground. Start 0.5 km along from National Park Gate and end 1 km further along road	Start: 17.63758/145.63373 (760 m) End: 17.64560/145.63797 (720m)
22. Hinson Creek Trail	Good low altitude site. Walk 1 km down the walking trail from the Hinson Creek Trailhead sign and end 1 km later.	Start: 17.65642/145.64108 (684 m) End: 17.66429/145.63615 (640 m)
23. Kirrama Range Road	Walk 1 km along the gate away from Cardwell at the highest area. A few distant Toothbills perhaps in this cyclone ravaged area. Hopefully numbers might build up.	Start: 18.21476/145.78665 (750 m) End: 18.21109/145.77844 (700 m)
24. Clapham Junction Trail, Paluma	a) 1 km walk each way. Flat. Nice easy track. Within site of Friths studies 1978-1997. Drive 3.3 km north on the Paluma Dam Road from the junction with the Paluma-Hidden Valley Road. Park in the area on the left. End at steel Pipe under track. b) If keen you can also walk a 2nd km. Just continue for another 1 km past the steel pipe bridge.	Start: 18.99292/146.16599 (900 m) End: 18.99691/146.15746 (900 m)
25. Speewah	Low altitude 450 m control site near Speewah with no bowerbirds. Contact Ray Pierce 0409 806560 raypierce@bigpond.com for access.	

Results

Bowerbirds

In 2025, surveys of GBB bowers recorded 24 sites as intact and active. Five previously undocumented bowers were located during the survey period, including three at Bartle Frere, one at Mt Fisher, and one at Sluice Creek Road. Two bowers were classified as abandoned, with encroaching vegetation identified as the primary contributing factor.

Monitoring of the TBB between 2021 and 2025 comprised 181 standardised 1km transect surveys, with 42 surveys completed in 2025. The 2025 total includes some repeat and return walks of the same transects, consistent with established monitoring protocols.

Other Wet Tropics Threatened Birds

Thirteen other Wet Tropics bird species were reclassified to Threatened in 2020. An attempt was made to count these along the 1km transects. Refer to Appendix 1 for graphs of the 13 bird species over five years. It was very difficult to make an accurate count of some species. No real trends over the five years were identified, with just scatter in the results (except for White-throated Treecreeper, Victoria's Riflebird and Grey-headed Robin where numbers seem to be increasing). There is not really enough data so mostly no reliable conclusions beyond presence/absence and (the author's) opinion. Below are some general observations after five years and 181 km of survey, including potential detectability errors which could skew results with different observers.

***Brown Gerygone (Acanthiza pusilla dawsonensis)* – Endangered**

Recorded at most sites (25/30). 550–1,230 m. Not recorded at four of the eight sites above 1,000 m. Abundant 700–800 m. The most common bird at some sites. Mostly a mid-altitude species. But unobtrusive and easily overlooked. Impossible to accurately count the number present with groups of these small birds flitting about and twittering in the mid-canopy. Likely under recorded. Surprised this species would be Endangered.

***Large-billed Scrubwren (Sericornis magnirostra viridior)* – Vulnerable**

Recorded at (20/30) site. Below about 900 m. A lowland to mid-altitude species. A common bird at sites below 800 m. Not always seen well. Usually in family groups four to eight birds. Very difficult to separate from Atherton Scrubwren where the two species may co-occur, e.g. Barrine, Eacham and Wongabel. Birds at these locations all assigned as the more common Large-billed. Difficult to accurately count the number present within groups. Likely under-recorded.

Atherton Scrubwren (Sericornis kerri) – Vulnerable

Recorded at 12/30 sites. Above about 800 m. A mid-altitude to higher altitude species. Usually seen in pairs. But unobtrusive and easily overlooked. Not always seen well. Very difficult to separate from Large-billed Scrubwren where the two species may co-occur, e.g. Barrine, Eacham, Wongabel. Birds at these locations assigned as Large-billed. Likely under recorded. A priority species for monitoring but difficult to count.

Fernwren (Oreoscopus gutturalis) – Endangered

Recorded at 20/30 sites. 650–1300 m. Not really a high altitude species. The highest count of seven was at School for Field Studies 770 m. Seemingly rare/absent in smaller forest fragments e.g. Lake Barrine, Seamark Road, and Wongabel. But present in the large forest blocks. Difficult to detect unless familiar with its several different calls. Tends to call first thing in the morning then go silent until late evening. Likely under recorded. I am surprised this species would be Endangered.

Mountain Thornbill (Acanthiza katherina) – Vulnerable

Recorded at 13/30 sites. Mostly above 900 m (11/13 sites). A high altitude specialist. Unobtrusive, quiet and easily overlooked. Difficult to accurately count the number present. Likely under-recorded. A priority species for monitoring but difficult to count.

White-throated Treecreeper (Cormobates leucophaea minor) – Near Threatened

Recorded on nearly every survey 167/181 at every site 29/30 except Kirrama Range where inexplicably rare. A generalist species in terms of altitude preference. Very common but usually heard only not seen along a walk. Easy to miss if not accustomed to the call. Once tuned in to the call they are easy to detect. This is one of the few species where we have a lot of data after five years. Numbers appearing to rise over the five years. Surprised this species would be Near Threatened.

Grey-headed Robin (Heteromyias cinereifrons) – Near Threatened

Recorded on nearly every survey 158/181 at every site 29/30 except the lowest Mt Misery, Cooktown 560 m. Very common. Seen perching next to the track and mournful call frequently heard, time dependent, in general seems to call more later in the morning on the return walk than the walk out. This is another species where we have a lot of data after five years. Numbers appearing to rise over the five years. Surprised this species would be Near Threatened.

Bower's Shrike-thrush (Colluricincla boweri) – Vulnerable

Recorded at 22/30 sites. 650–1,370 m. Not really a high altitude species. Another tricky one with confusion with Rufous Shrike-thrush and of course this is one of the favourite mimic species of TBB. I don't quite understand the behaviour of this species, sometimes silent and sometimes calling all the time. A priority species for monitoring but difficult to count reliably.

Eastern Whipbird (Psophodes olivaceus lateralis) – Vulnerable

Recorded at most sites 27/30 in most surveys 168/181. Most common 700–850 m. Not really a high altitude species. Common. Easily detectable by its loud whip call but often goes quiet and easy to under estimate if the return call from the female is not noticed or the other quieter calls are overlooked. Surprised this species would be Vulnerable.

Australian King Parrot (Alisterus scapularis minor) – Endangered

Recorded at about half the sites 16/30. Only recorded on 29/181 surveys. Very sporadic. 560–1,300 m. Not really a high altitude species. While the distinctive call is easily recognised it is impossible to know how many birds are present. They are always in groups of two or more but often only one or two will call. A good location for this bird was at the near isolated forest block at Fig Tree Close, Malanda. Anecdote from local resident Martin Willis that up to 18 were visiting his feeders round 10 years ago but now only two. Difficult to make much from the graphs. A priority species for monitoring. This subspecies could well be declining.

Victoria's Riflebird (Ptiloris victoriae) – Vulnerable

Recorded at most sites 25/30. 540–1,300 m. Absent from 4/8 sites above 1,000 m. More of a mid-altitude species with numbers appearing to rise over the five years. For a change this bird is easily detectable by everyone with its loud distinctive call. So we can have good confidence in results. Slight confusion at Seamark Road where it is imitated by the TBB.

Satin Bowerbird (Ptilonorhynchus violaceus minor) – Near Threatened

Only recorded at 6/8 of the sites above 1,000 m and 1/5 sites above 850 m. Still an odd species as there are also bowers in Atherton 800 m and was at Myola 350 m. Yet another species than can be difficult to identify and count as it makes a lot of strange noises. A priority species for monitoring. This subspecies could be declining.

Golden Bowerbird (Prionodura newtoniana) – Near Threatened

Walking surveys are not a good method for counting GBB. It is often heard at transects where there is a bower, and not heard where bowers are absent. GBB are better monitored by checking bowers.

Also three other species were not reclassified as Threatened perhaps due to limited data:

Crimson Rosella (Platycercus elegans nigrescens) – Least concern

Recorded only at 5/8 sites above 1,000 m. A high altitude specialist. Quiet and unobtrusive and difficult to detect along the transects although more readily seen in adjacent gardens and farmland. Abundant on Mt Fisher with supplementary feeding. A priority species for monitoring. This subspecies could well be declining.

Bassian Thrush (Zoothera lunulata cuneata) – Least concern

Mostly silent, unobtrusive and flies off the track often before you get close. Not recorded on any survey. Although I have seen them previously along the transects at Kahlphalim 700 m, Mt Baldy 1,100 m, Mt Lewis 850 m and 1,000 m, Kauri Creek Road 1,200 m. Hard to make any judgement on this species.

Eastern Spinebill (Acanthorhynchus tenuirostris cairnsensis) – Least concern

Unobtrusive and tends to be seen feeding in clearings rather than along the denser forest transects in this study. Recorded on four surveys Gourka Road 750 m, Charmillan 1,015 m, Kauri Creek Road 1,200 m, Mt Fisher 1,300 m. Hard to make any judgement on this species.



Discussion

The 2025 surveys reinforce both the strengths and limitations of long-term rainforest bird monitoring using behaviourally anchored methods. GBB monitoring continues to show strong site persistence, with most historically known bowers remaining intact and active. The five newly recorded bowers are most plausibly explained by cumulative search effort and improved observer familiarity rather than sudden population growth. The small number of abandoned bowers reflects expected microhabitat dynamics, including vegetation encroachment and localised disturbance. The simultaneous occurrence of discovery and abandonment is consistent with a population that appears broadly stable yet spatially fluid.

In relation to the study's objective of detecting climate-change impacts, the GBB results are informative but not yet conclusive. Although a cool-adapted upland species might be expected to show elevational redistribution or declining site persistence, no clear directional signal is evident. This apparent stability should be interpreted cautiously. Climate-driven responses are often gradual, spatially variable, and lagged, particularly in rainforest systems where microclimatic buffering may delay detectable change.

Transect surveys for TBB continue to exhibit substantial interannual and site-level variability, as illustrated in the results graphs. This pattern is typical of acoustic-based monitoring where detectability is strongly influenced by breeding activity, calling intensity, weather, and survey timing. While previous studies have suggested potential declines, the current five-year subset does not yet show a consistent trajectory. Instead, detections fluctuate around site-specific baselines, highlighting the difficulty of resolving subtle trends over shorter timeframes without longer datasets and explicit treatment of detectability.

Observations of other threatened Wet Tropics birds further emphasise these interpretive constraints. Several species were recorded regularly despite Threatened status, while abundance estimation remained unreliable for quiet, canopy-dwelling, or easily confused taxa. Under-recording is likely for such species, whereas birds with loud, distinctive calls yielded more consistent detection patterns. These differences underscore that detectability strongly governs trend inference in rainforest monitoring.

Collectively, the study demonstrates the complementary value of the two focal approaches. Bower inspections provide a stable indicator of GBB occupancy and persistence, while transect surveys offer broader spatial and community context. Continued integration with Birddata strengthens the long-term analytical value of the dataset. At this stage, the program functions primarily as an early-warning framework, with climate signals likely to emerge only through sustained longitudinal monitoring.

Conclusion

The 2025 monitoring results indicate continued stability in GBB bower occupancy with expected local turnover, and ongoing variability in TBB detections without a clear short-term directional trend. These findings align with the understanding that climate-driven ecological responses in upland rainforest systems are typically gradual and difficult to resolve over limited time frames.

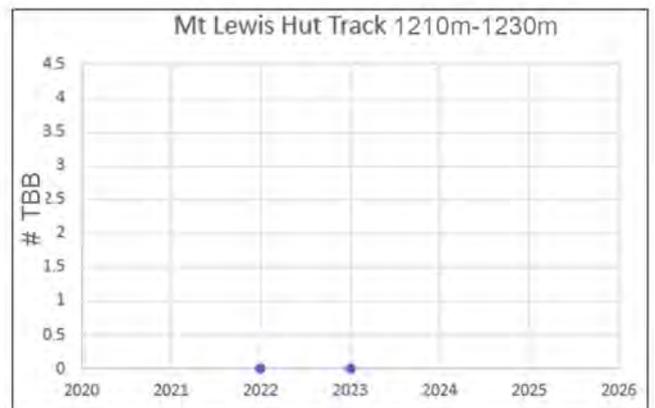
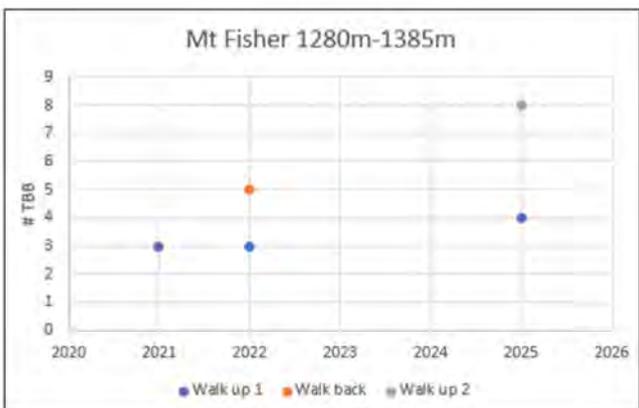
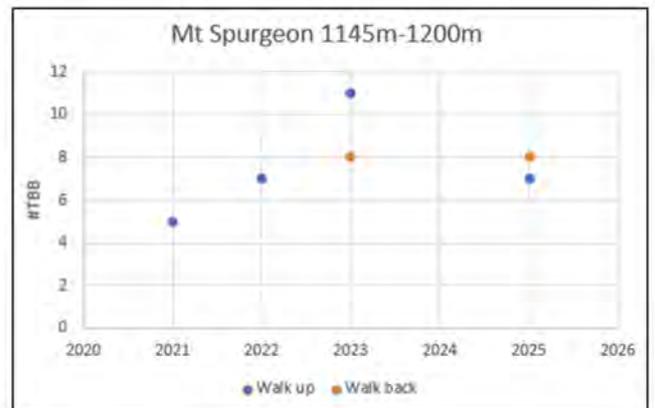
Although no definitive climate change signal is yet detectable, the value of the dataset lies in its continuity. Sustained, standardised monitoring remains essential for distinguishing long-term change from natural variability and for identifying emerging trends over the coming decade.



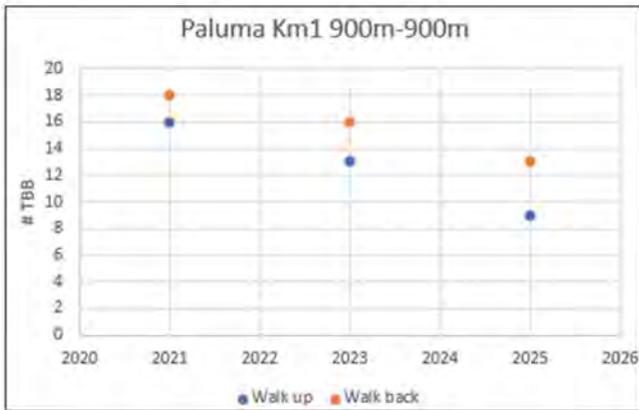
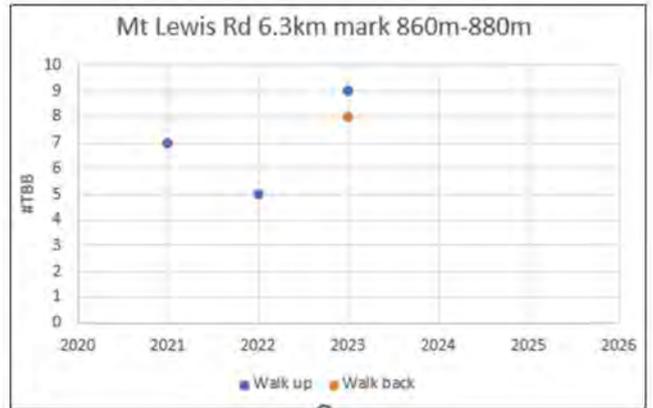
Appendix 1



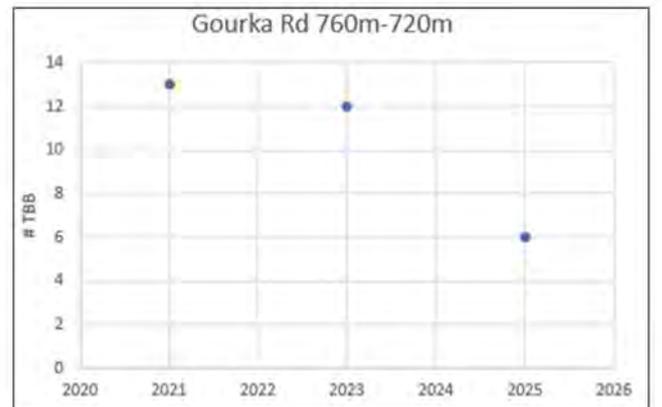
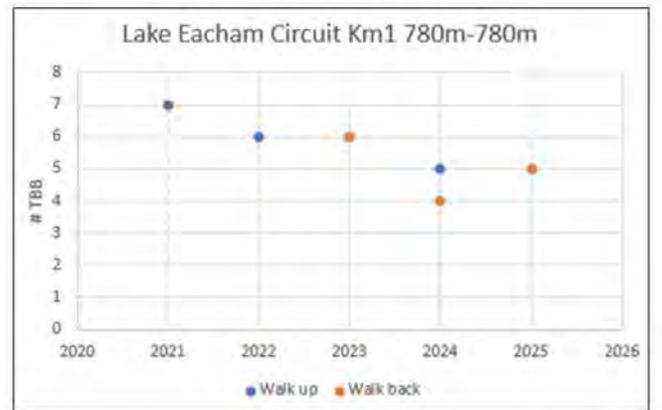
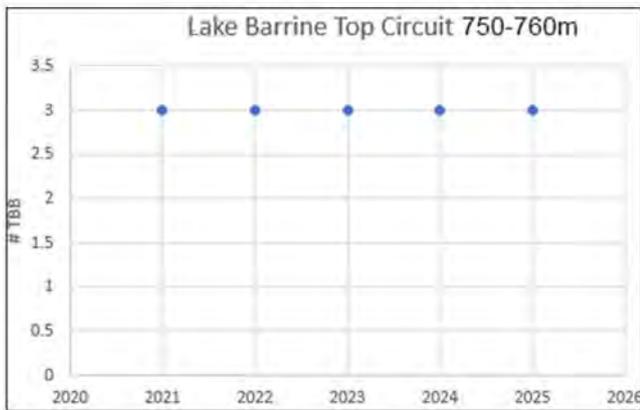
Tooth-billed Bowerbirds along 1km track - Sites above 1000m



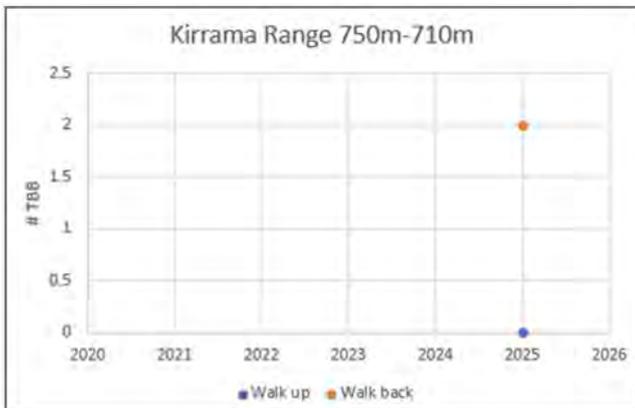
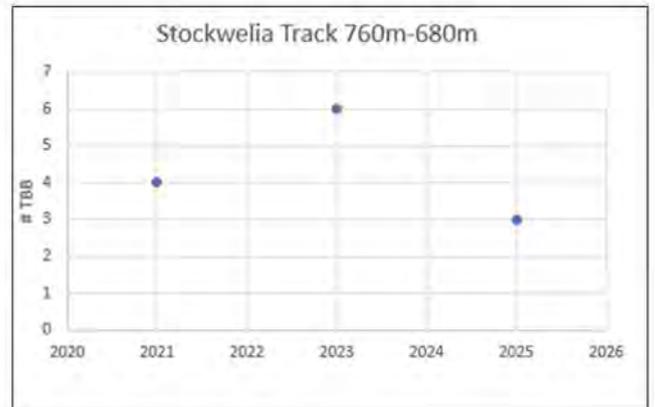
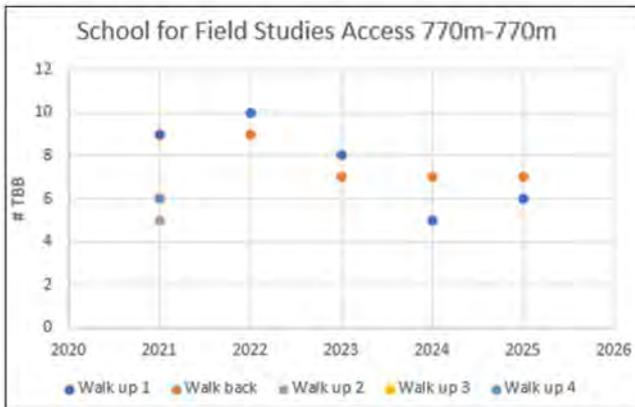
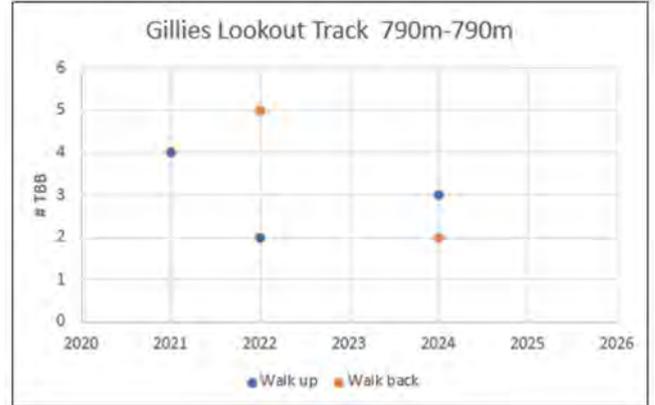
850m - 1000m Sites



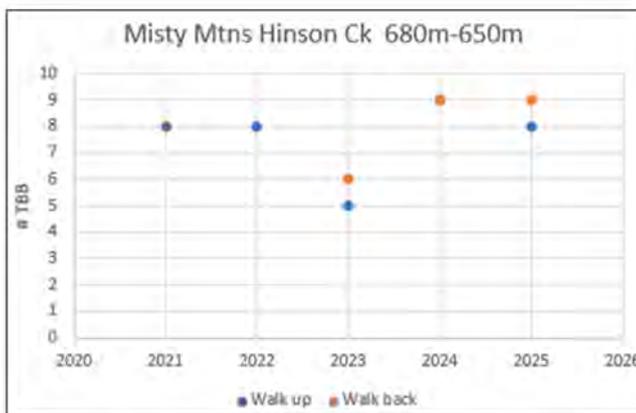
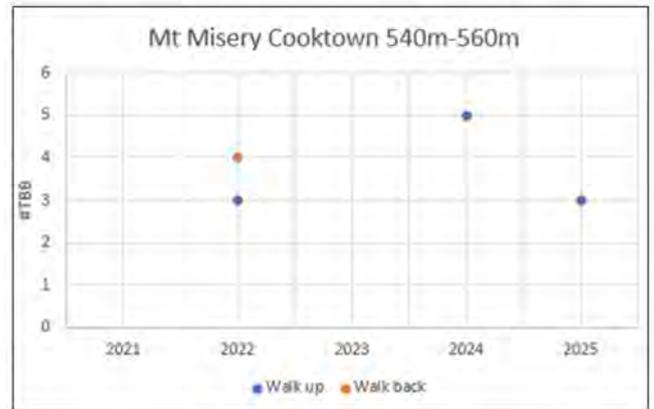
700m - 850m Sites Page 1



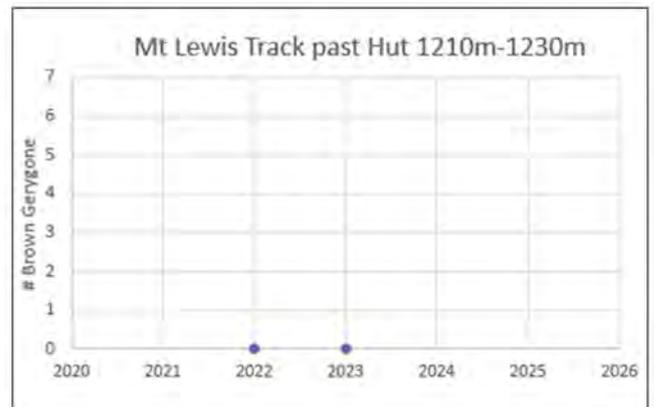
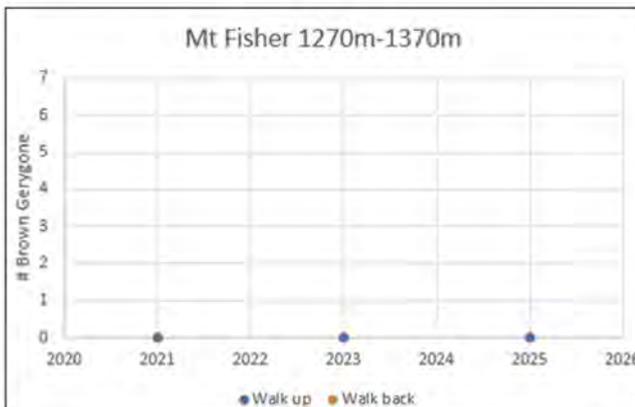
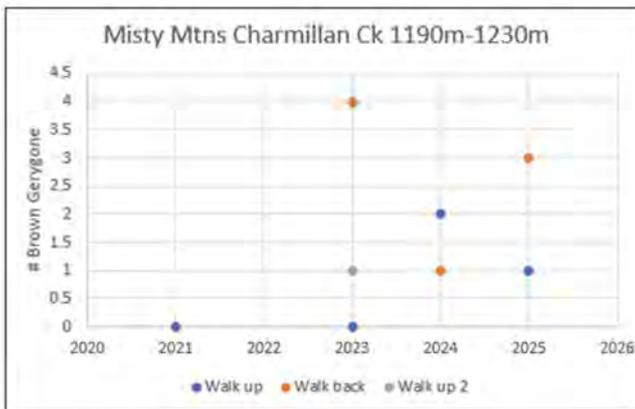
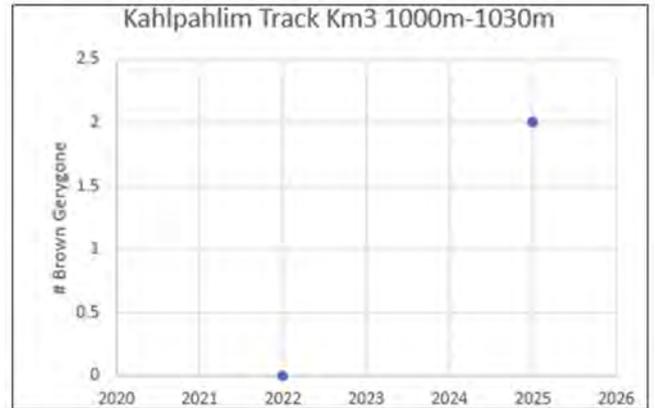
700m - 850m Sites Page 2



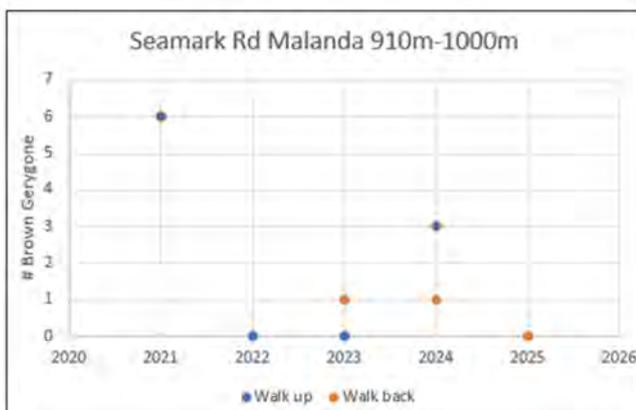
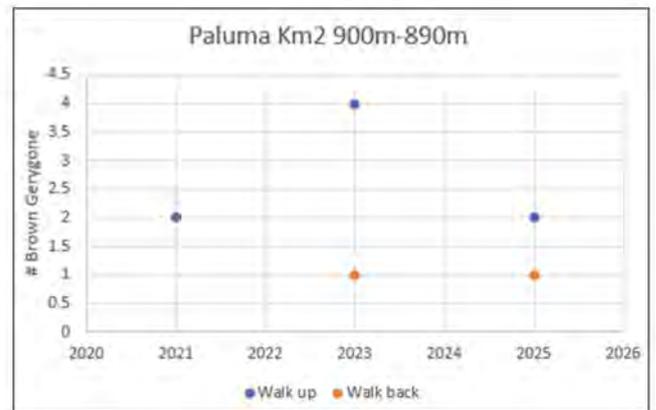
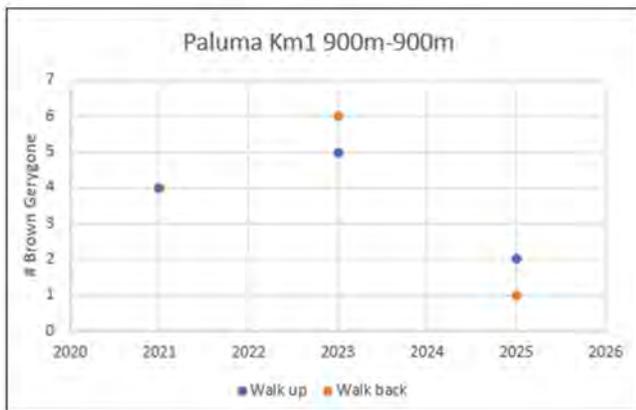
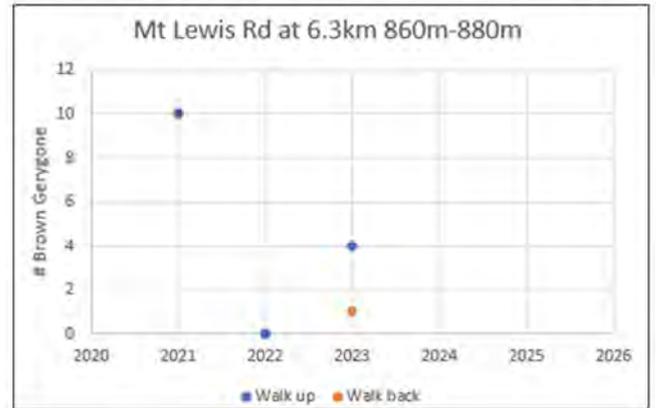
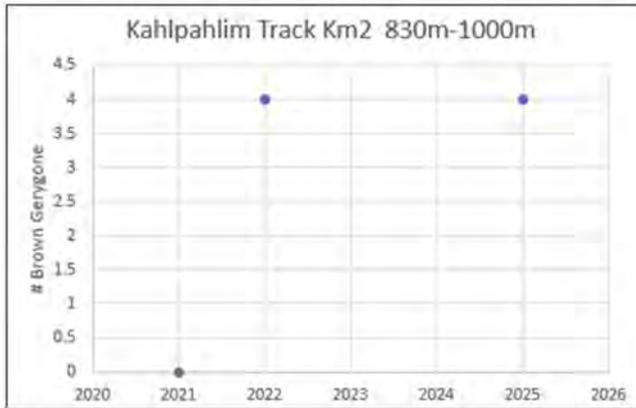
Tooth-billed Bowerbirds along 1km track - Sites below 700m



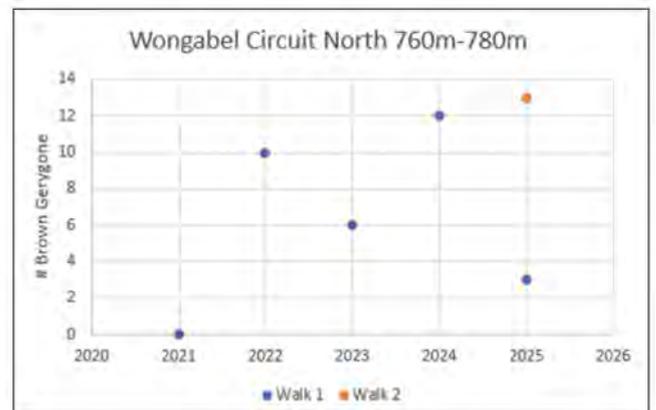
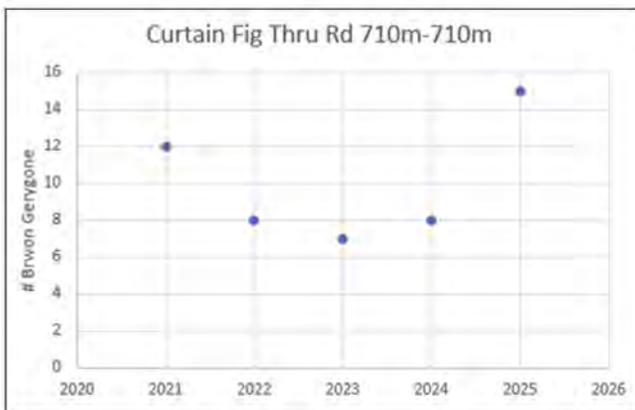
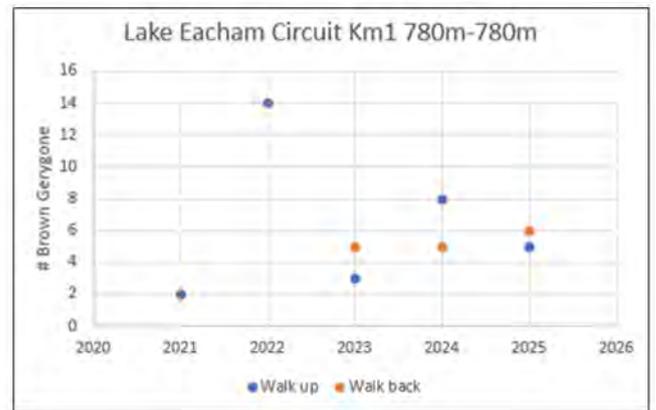
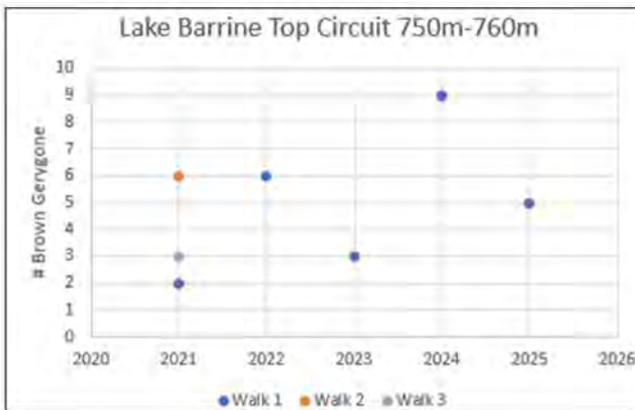
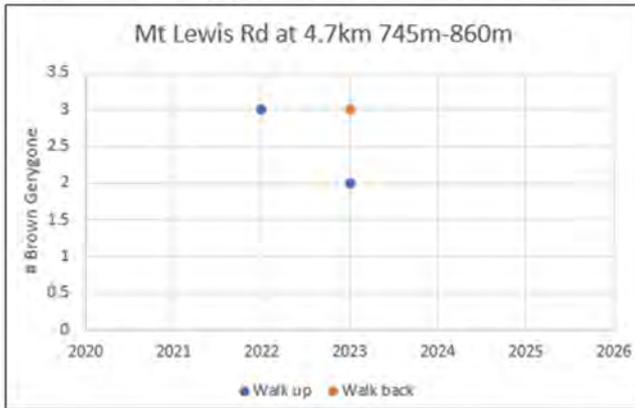
Brown Gerygone count along 1km track - Sites above 1000m



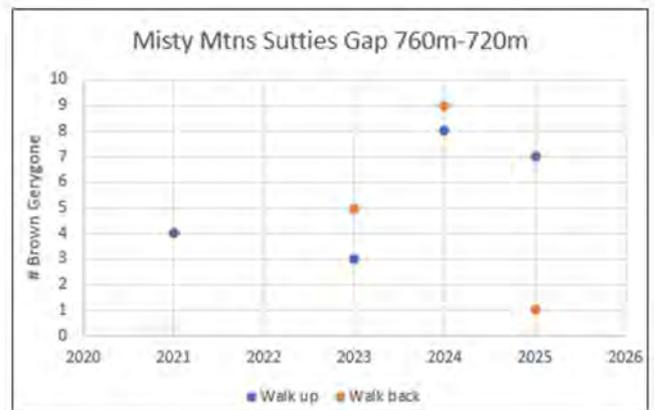
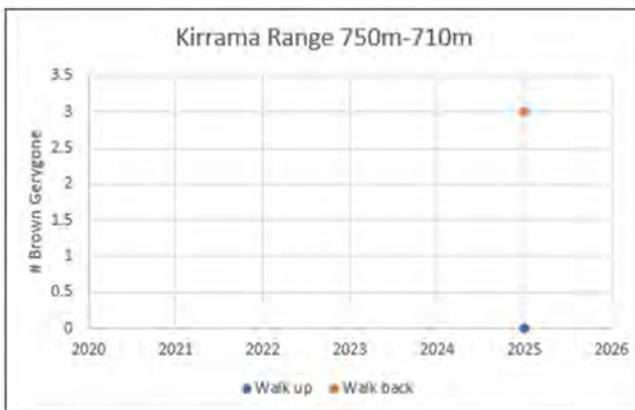
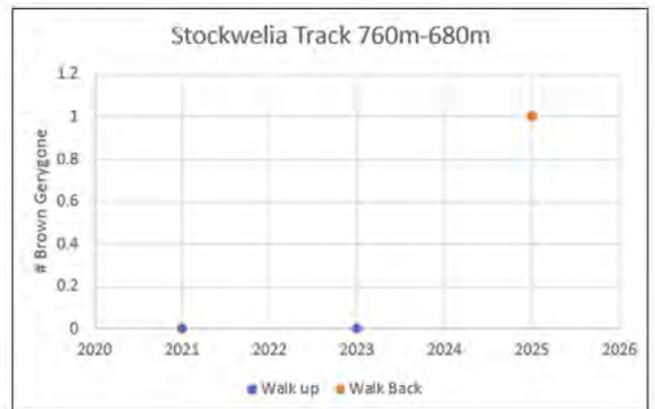
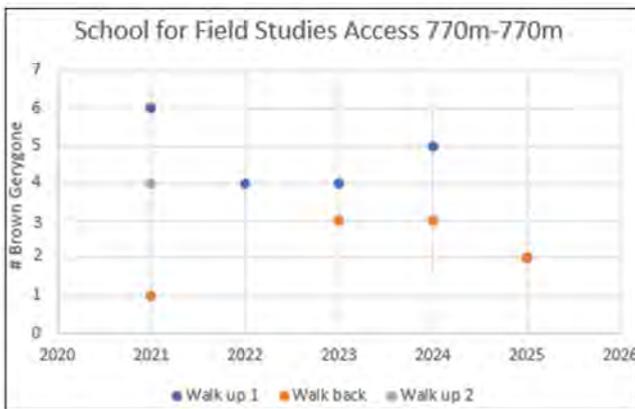
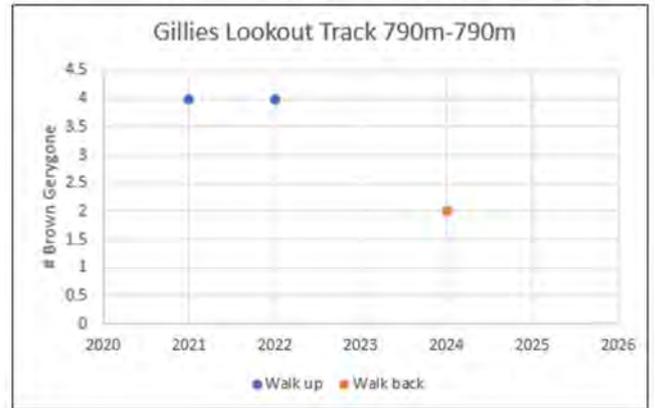
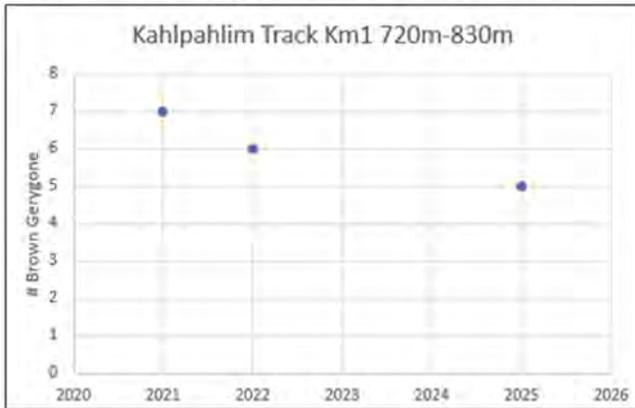
Brown Gerygone count along 1km track 850m - 1000m Sites



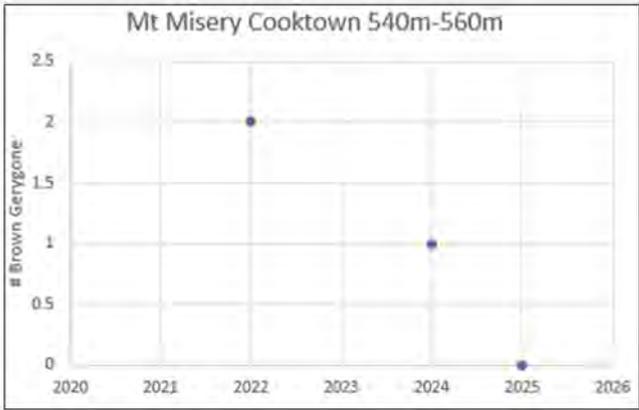
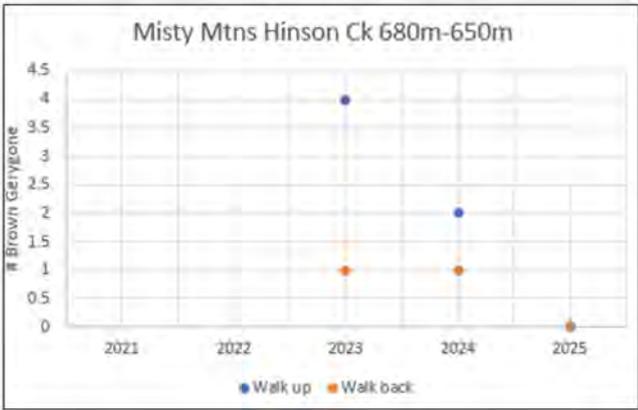
Brown Gerygone count along 1km track - 700m - 850m Sites Page 1



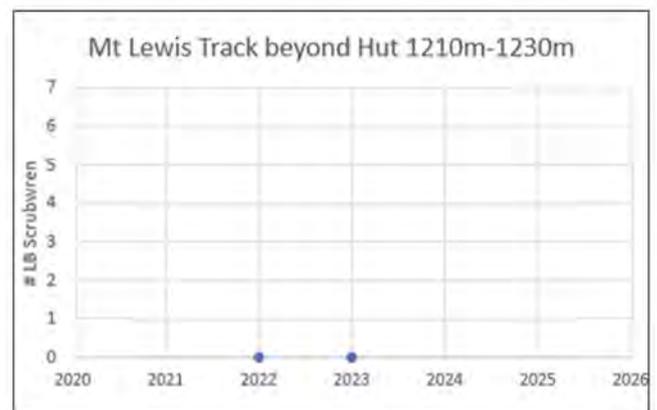
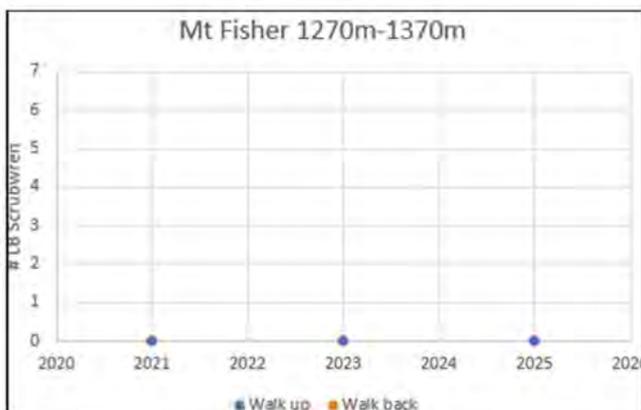
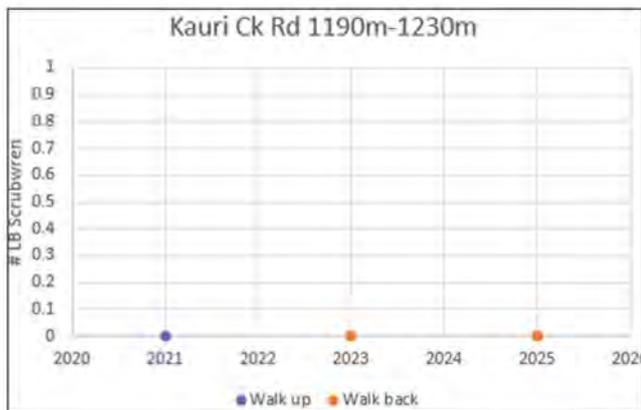
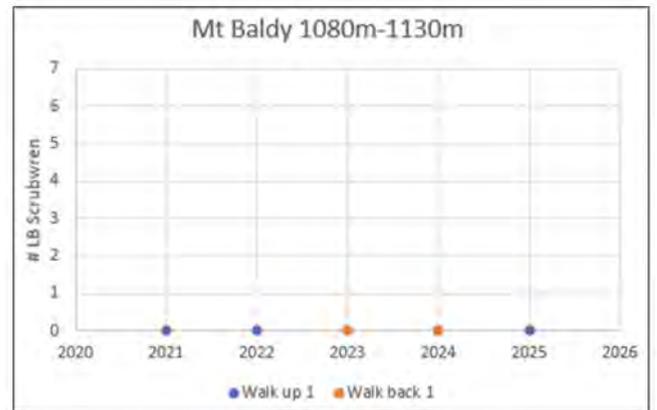
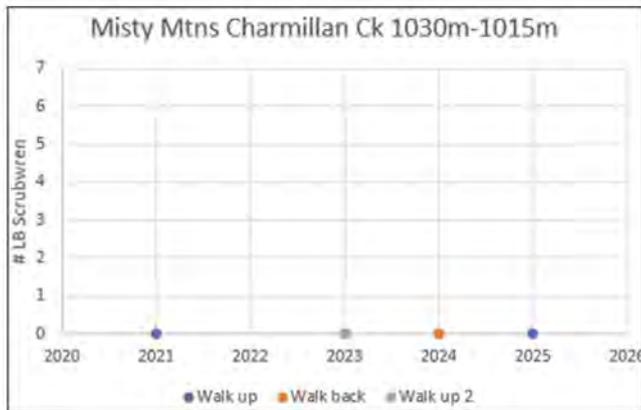
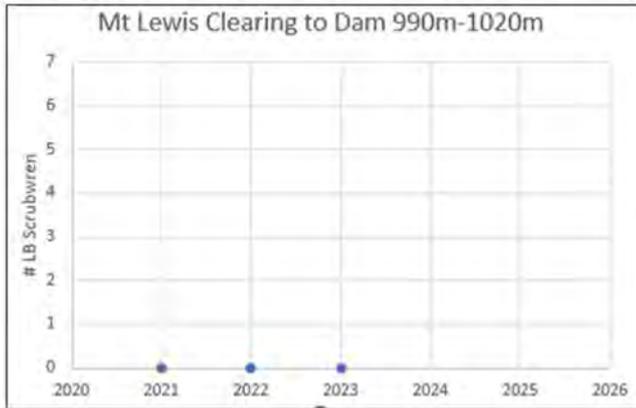
Brown Gerygone count along 1km track - 700m - 850m Sites Page 2



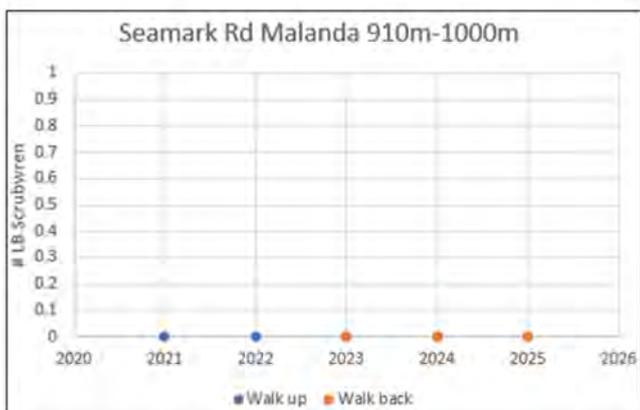
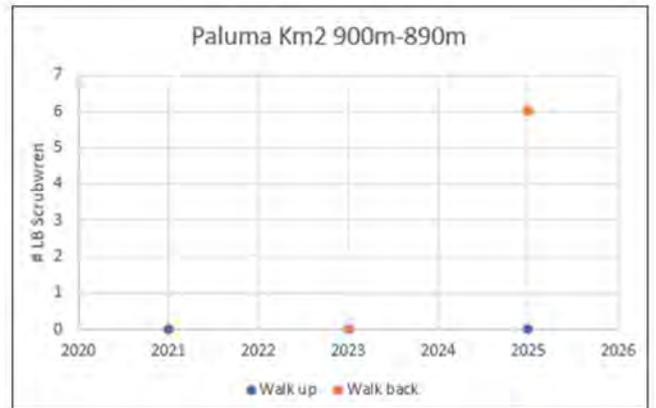
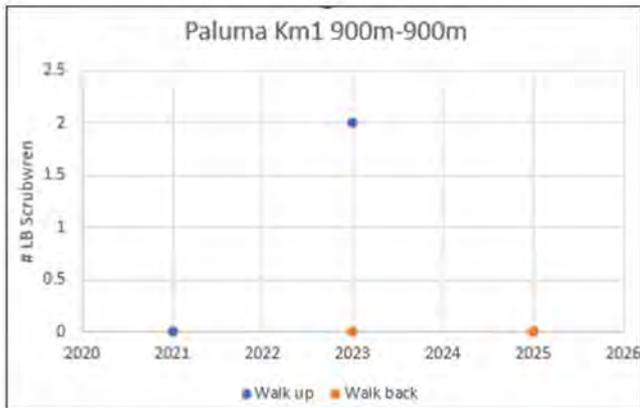
Brown Gerygone count along 1km track - Sites below 700m



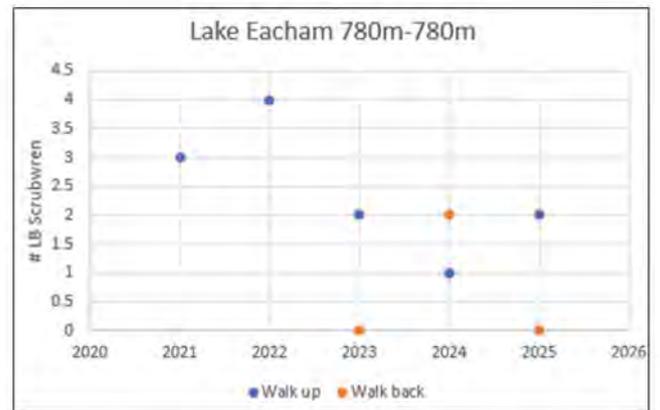
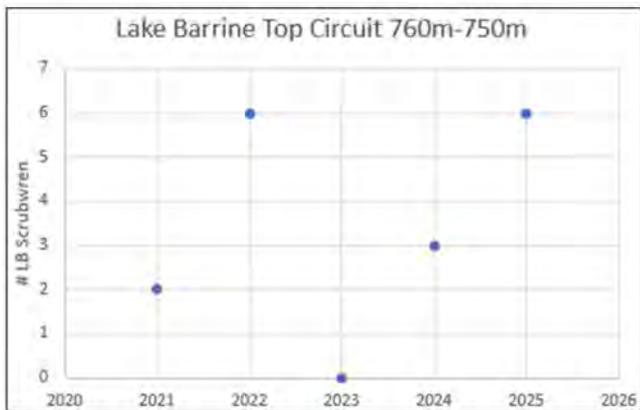
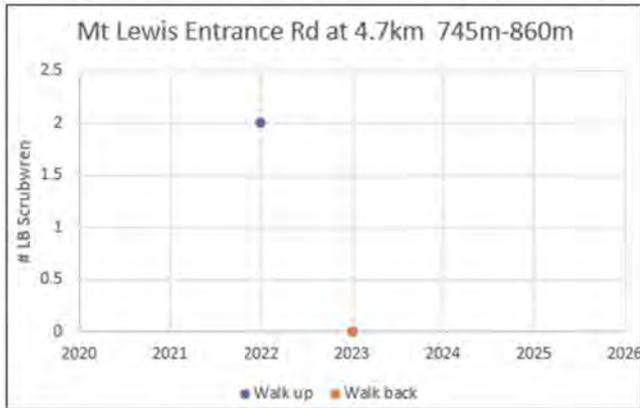
Large-billed Scrubwren count along 1km track - Sites above 1000m



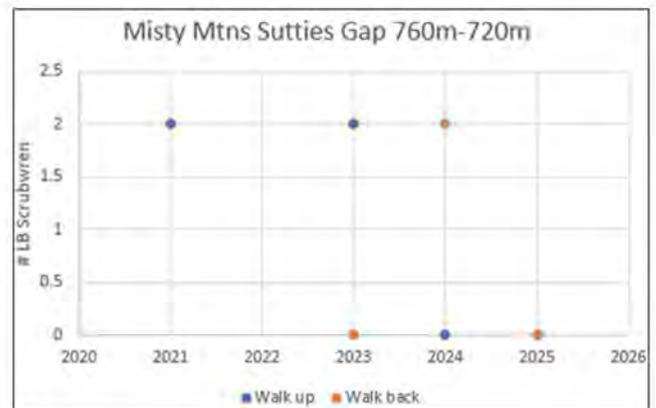
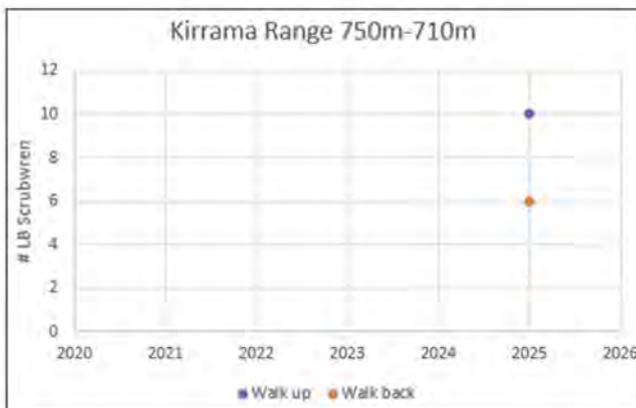
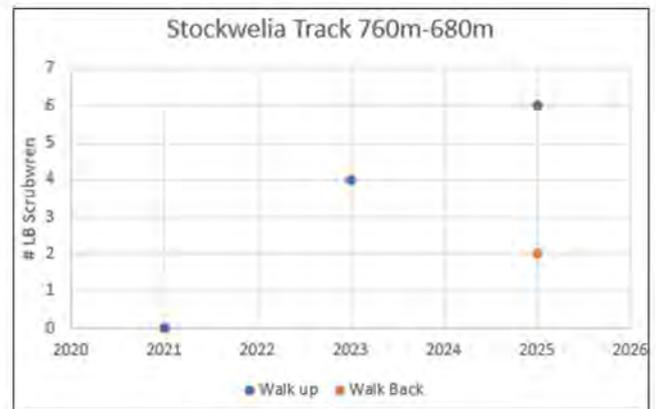
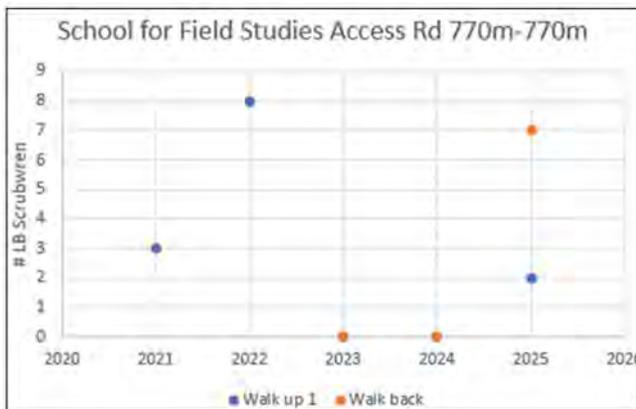
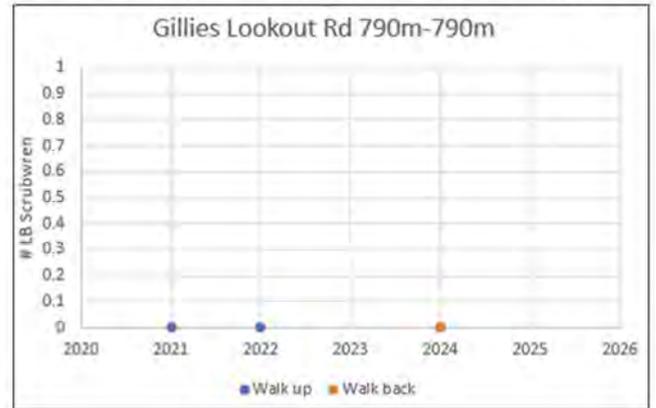
Large-billed Scrubwren count along 1km track 850m - 1000m Sites



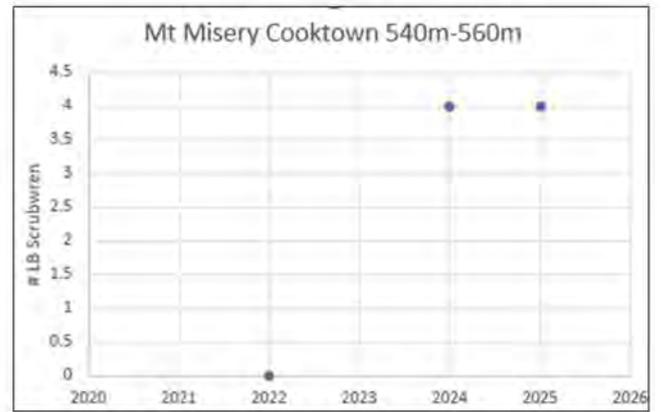
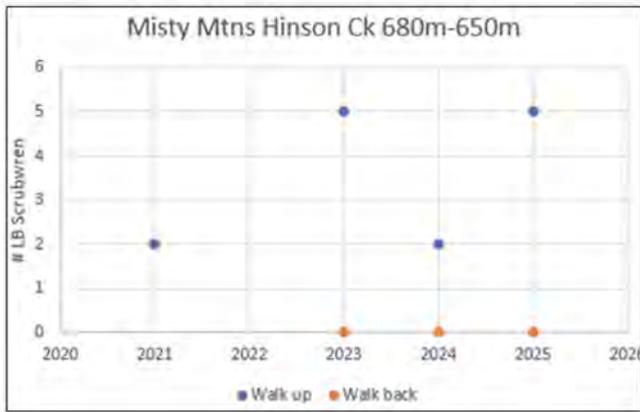
Large-billed Scrubwren count along 1km track - 700m - 850m Sites Page 1



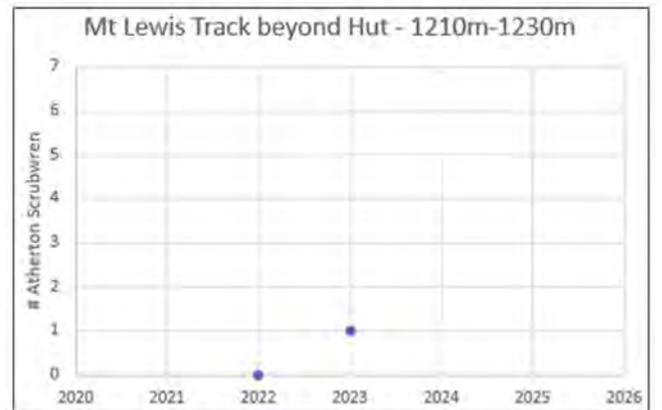
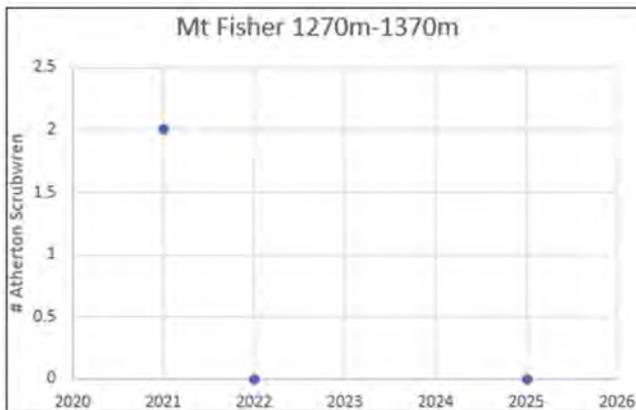
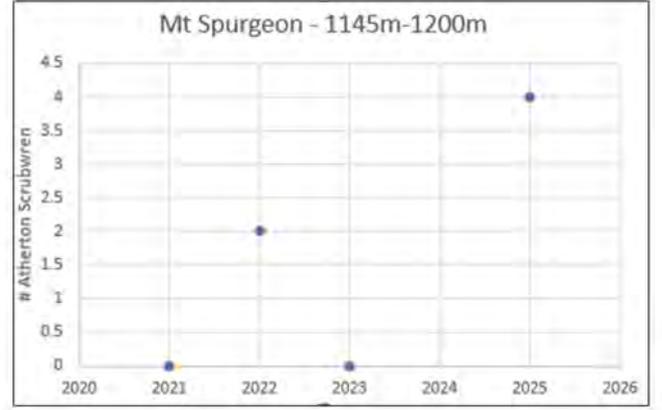
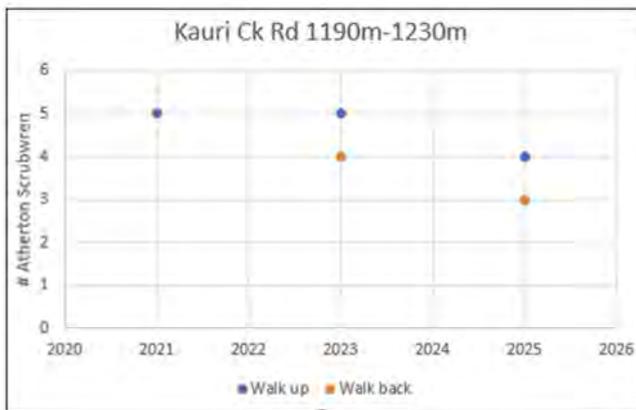
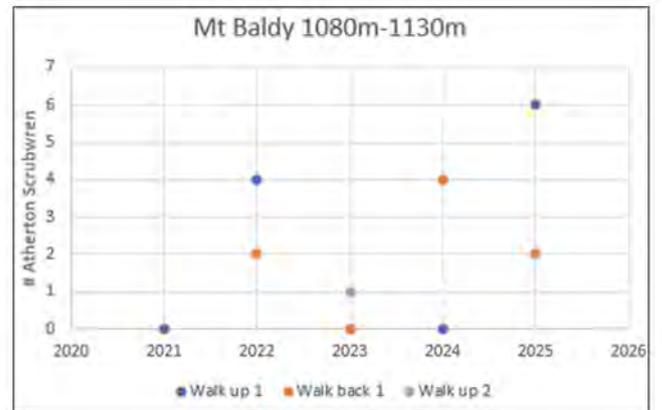
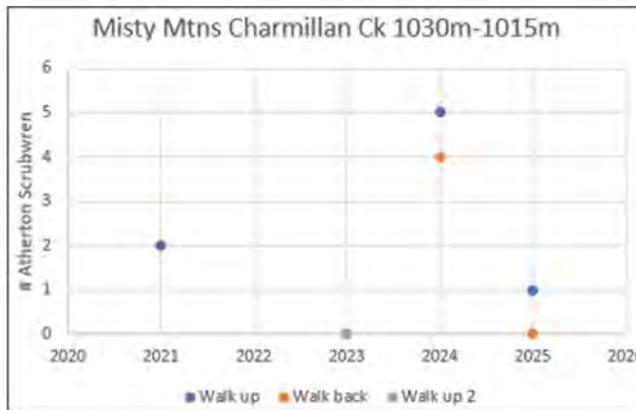
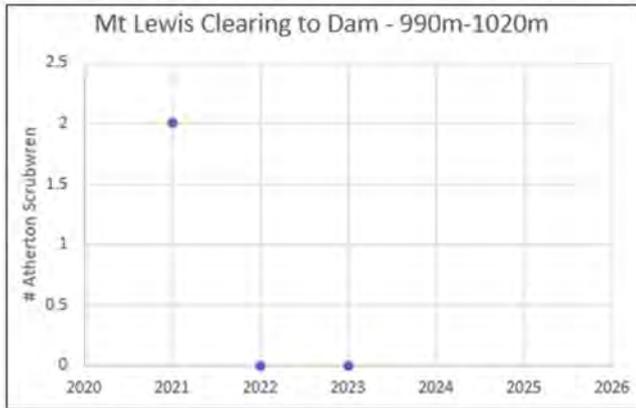
Large-billed Scrubwren count along 1km track - 700m - 850m Sites Page 2



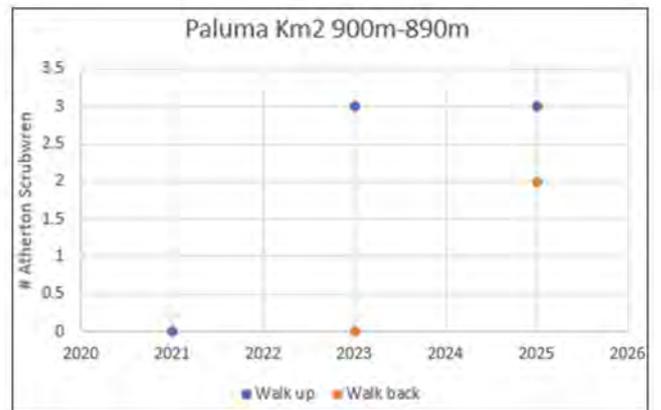
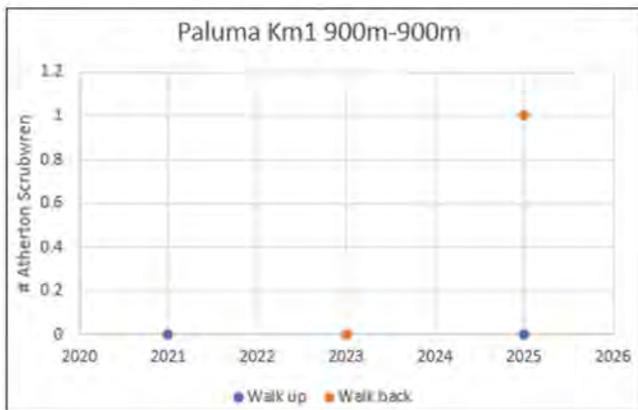
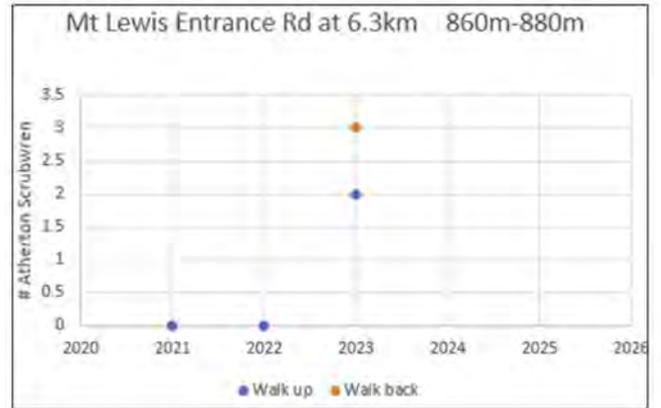
Large-billed Scrubwren count along 1km track - Sites below 700m



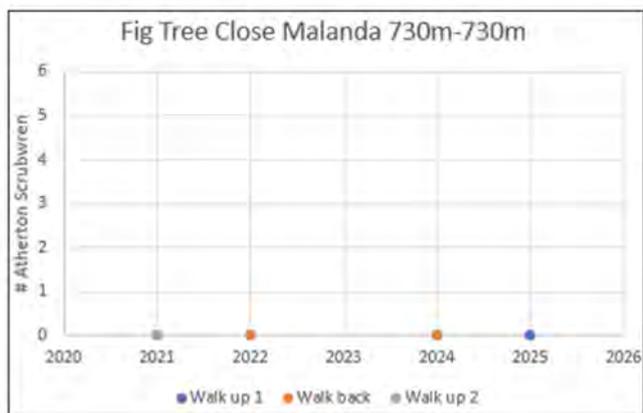
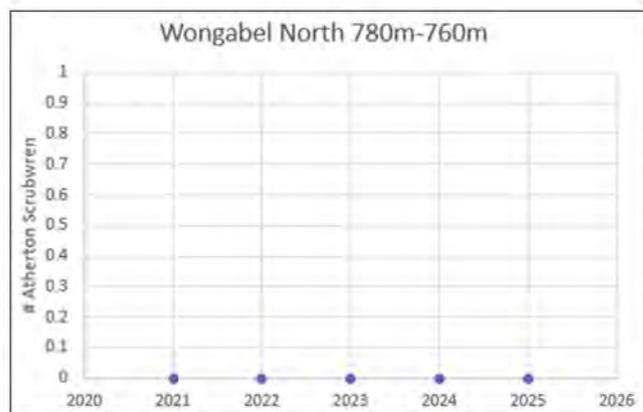
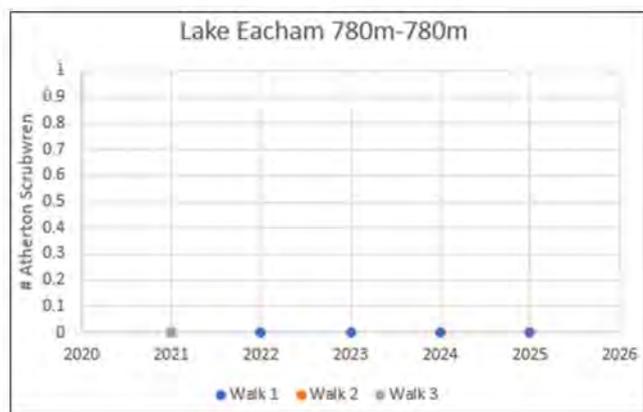
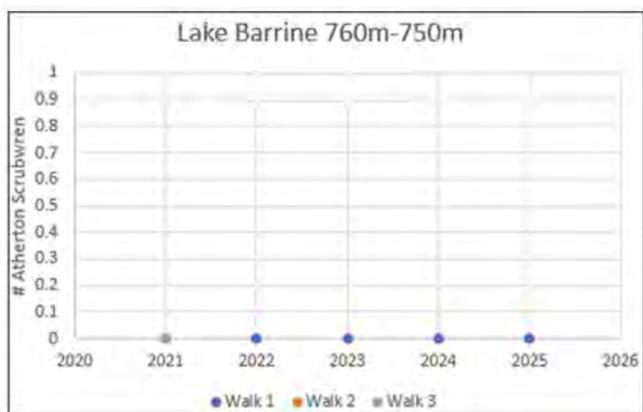
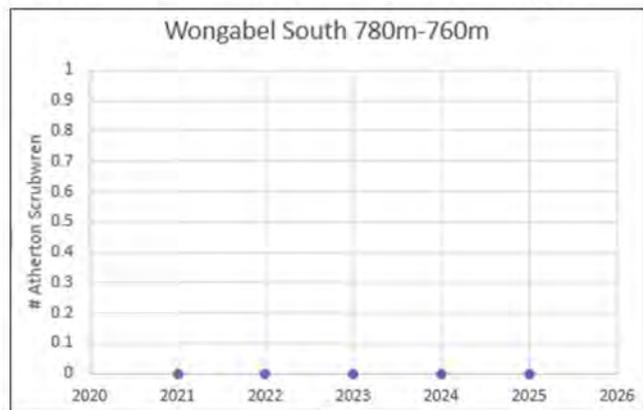
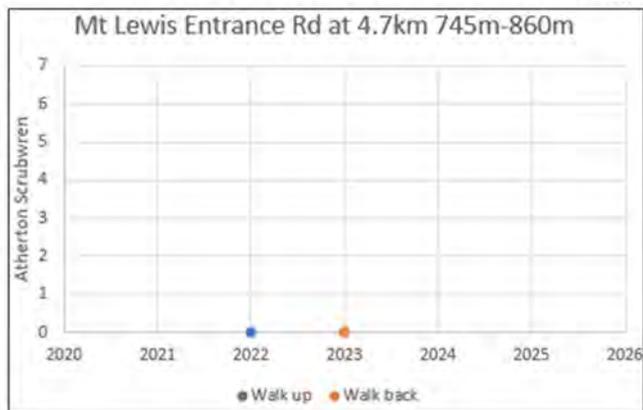
Atherton Scrubwren count along 1km track - Sites above 1000m



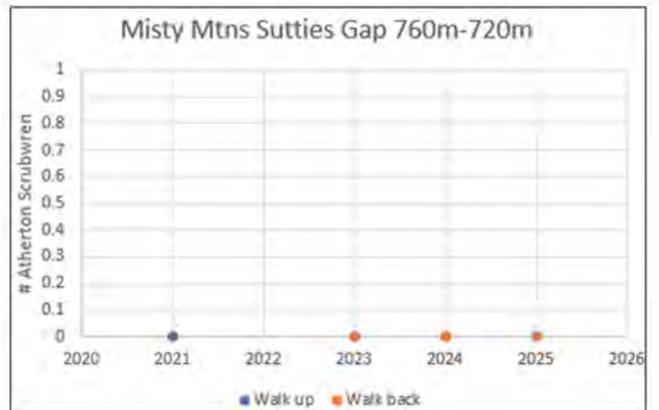
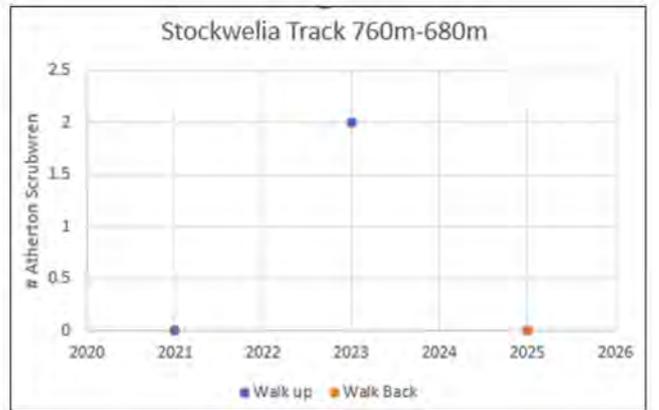
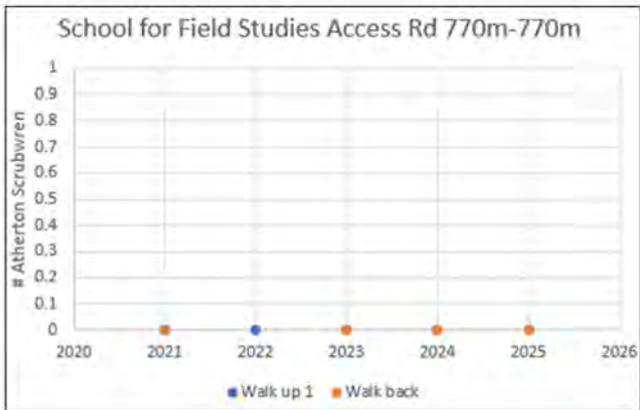
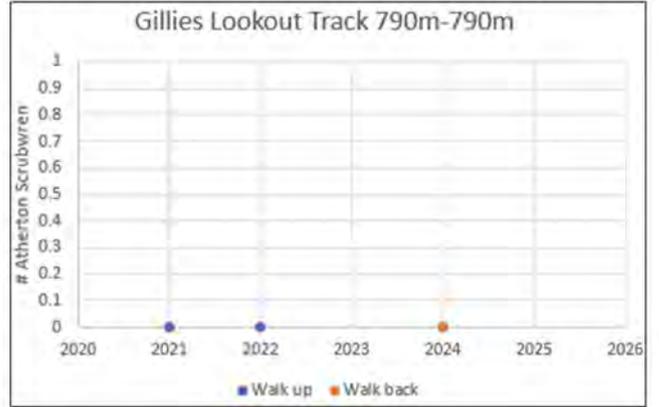
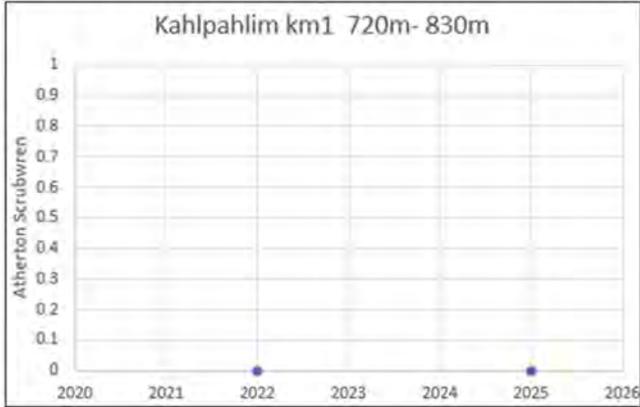
Atherton Scrubwren count along 1km track 850m - 1000m Sites



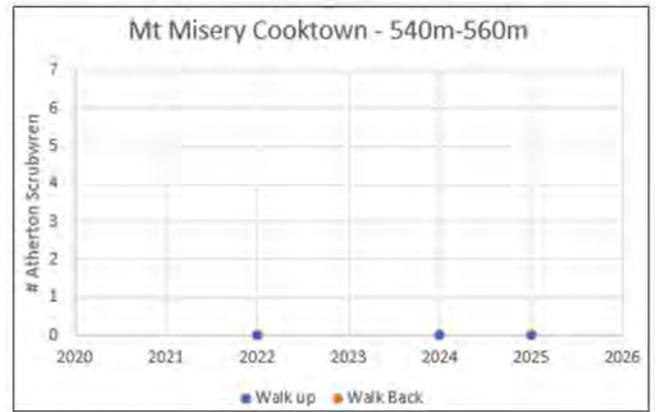
Atherton Scrubwren count along 1km track - 700m - 850m Sites Page 1



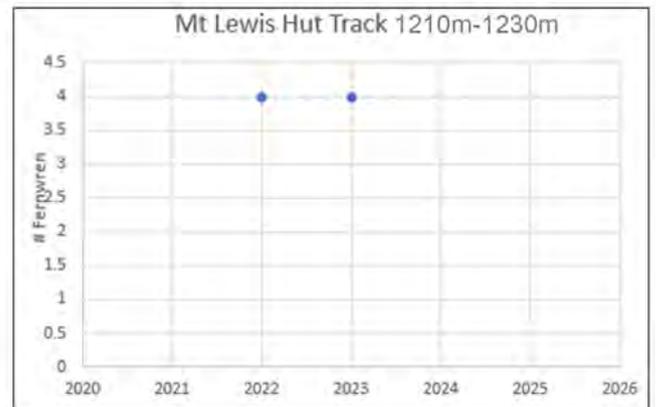
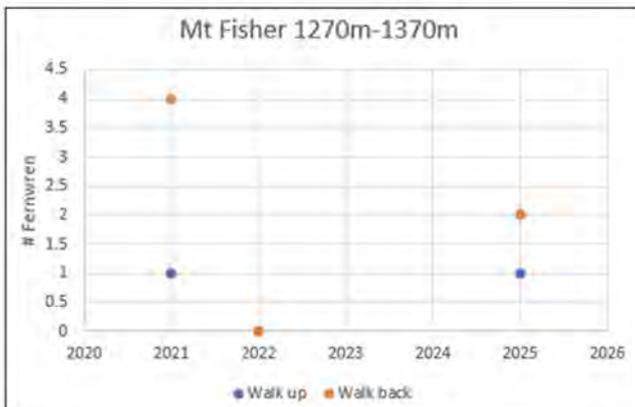
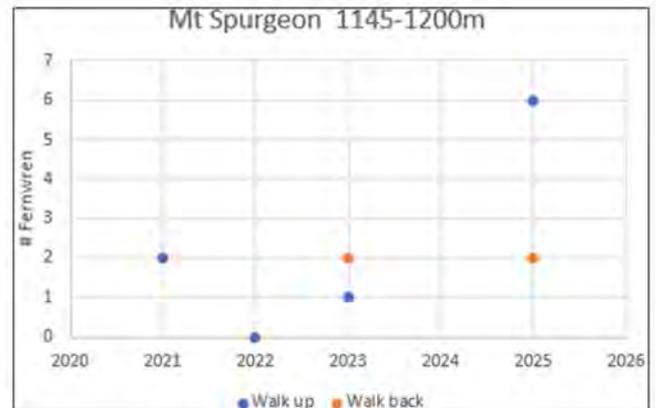
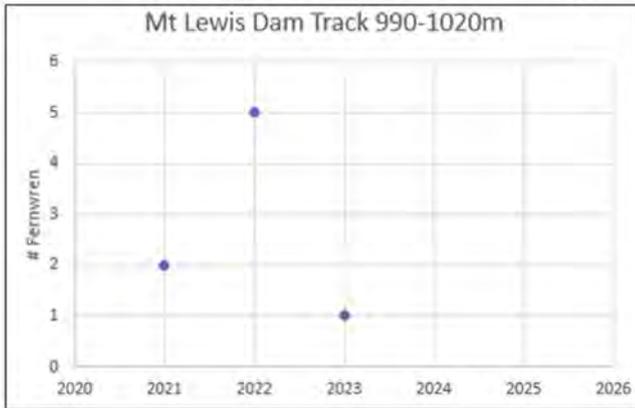
Atherton Scrubwren count along 1km track - 700m - 850m Sites Page 2



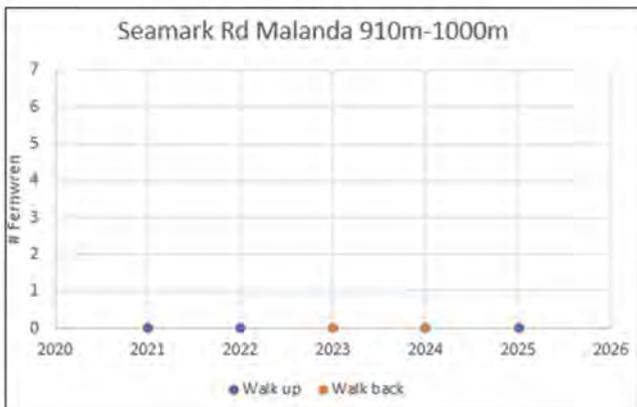
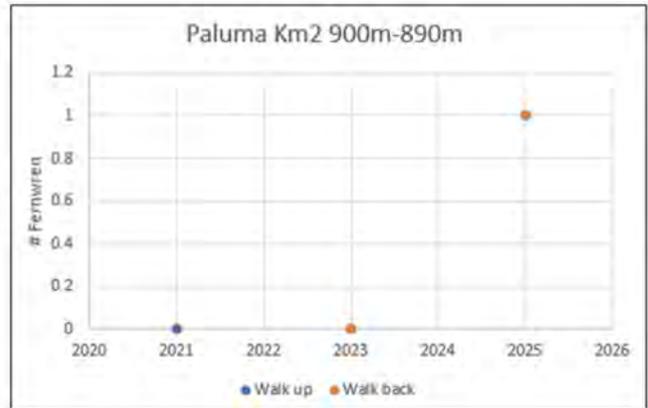
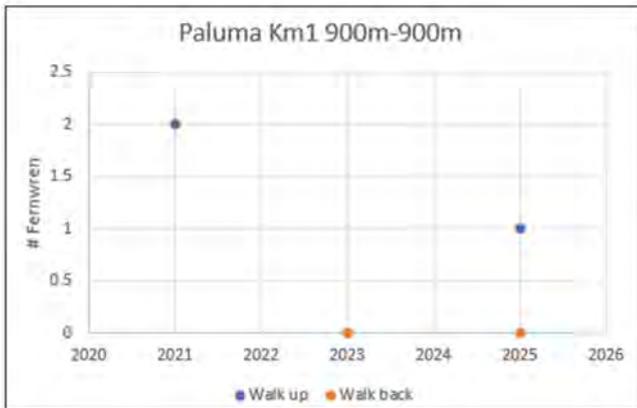
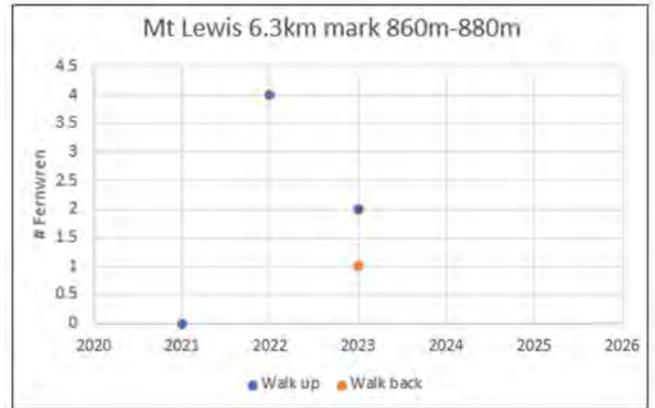
Atherton Scrubwren count along 1km track - Sites below 700m



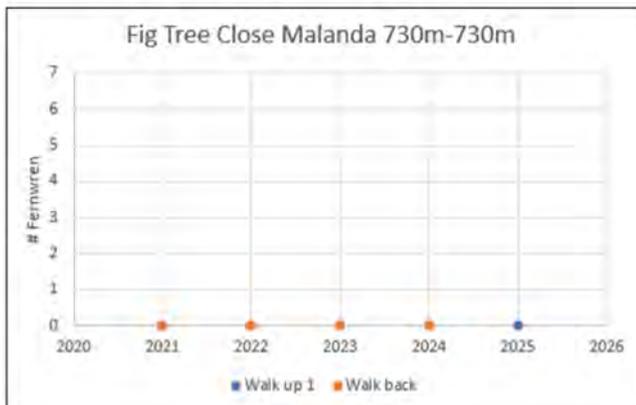
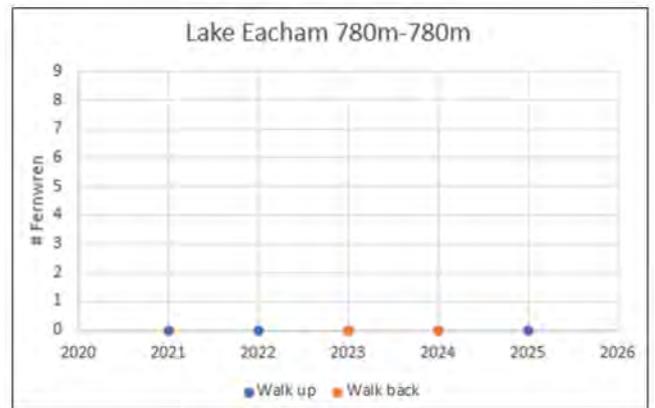
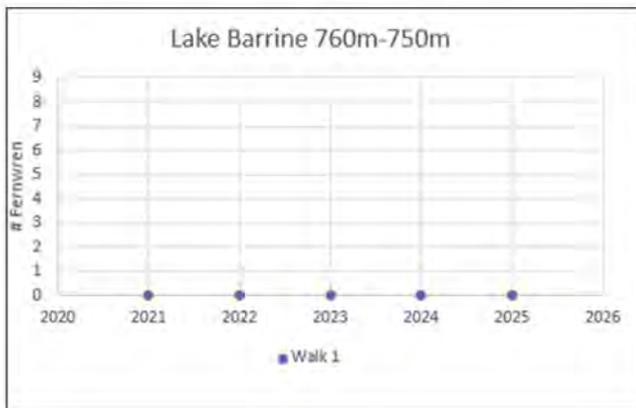
Fernwrens count along 1km track - Sites above 1000m



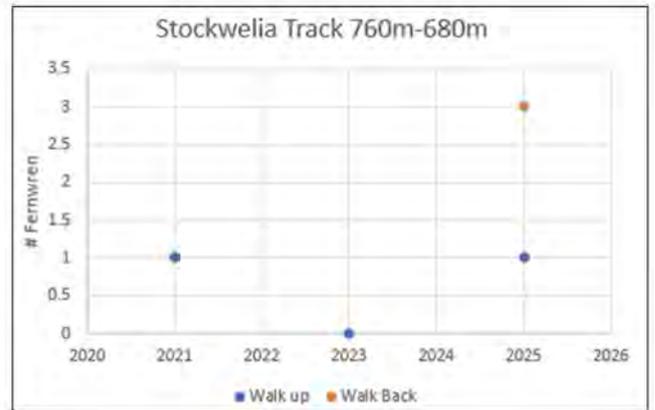
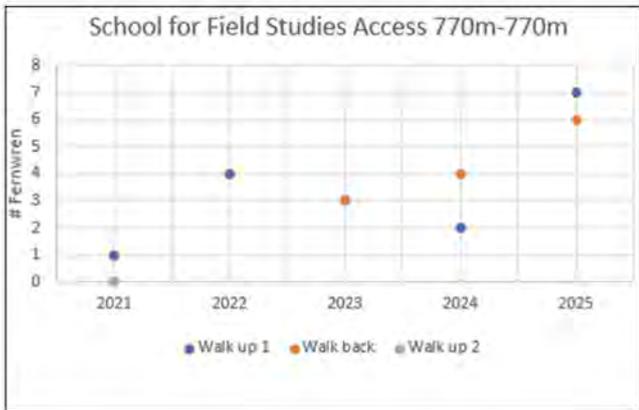
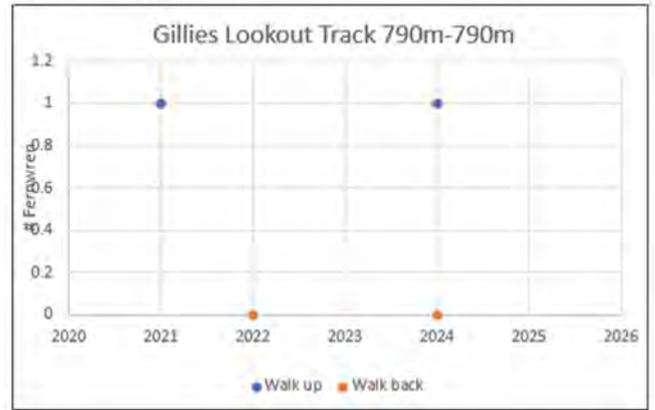
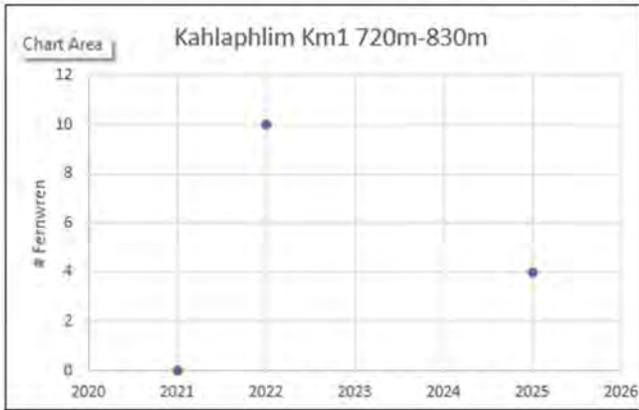
850m - 1000m Sites



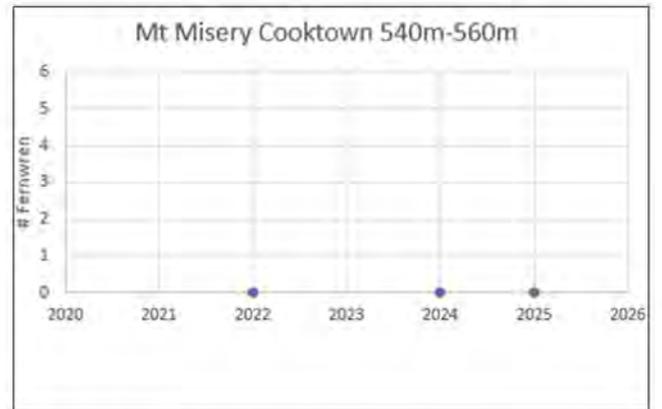
700m - 850m Sites Page 1



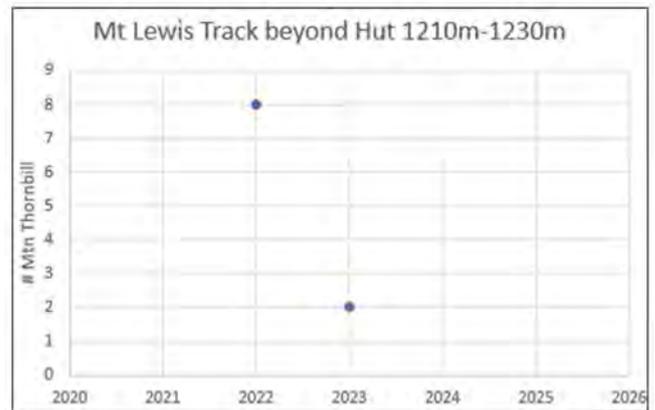
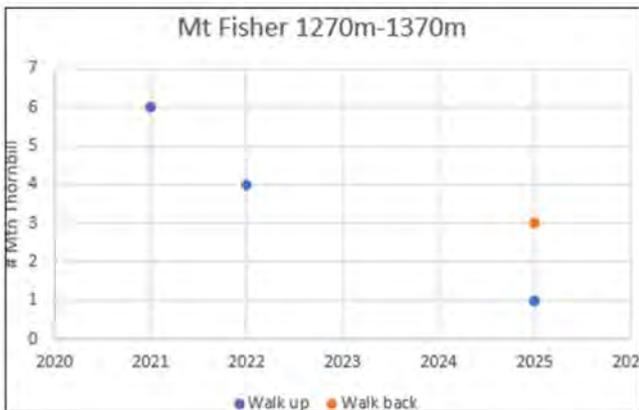
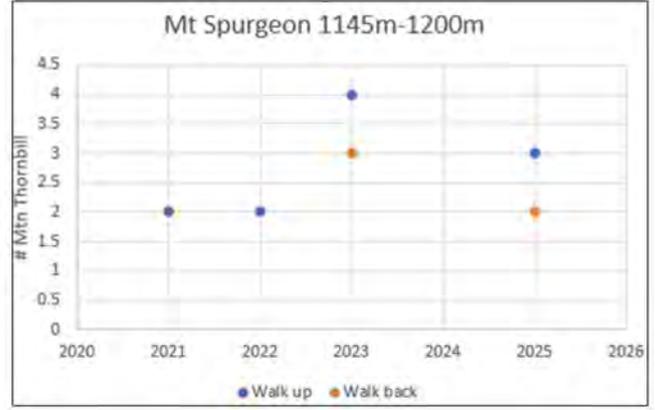
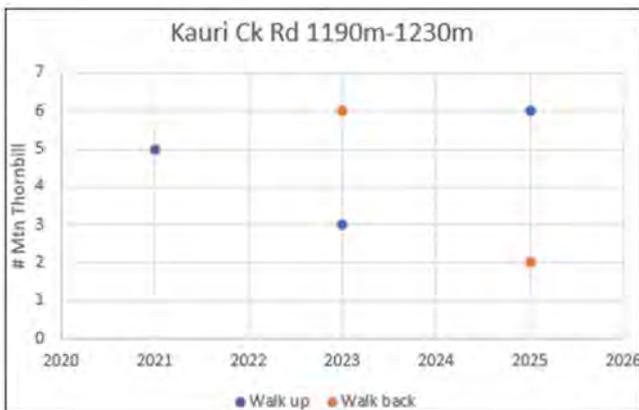
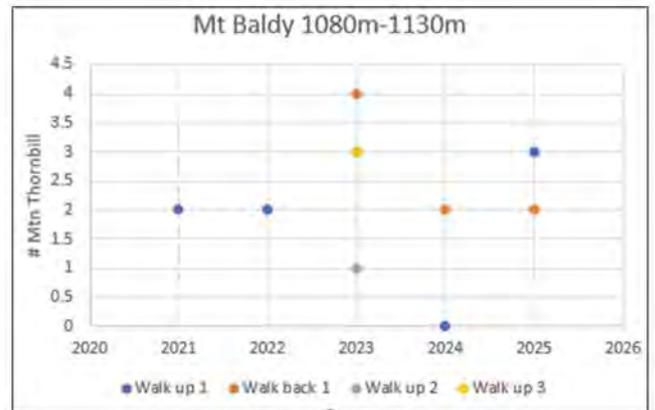
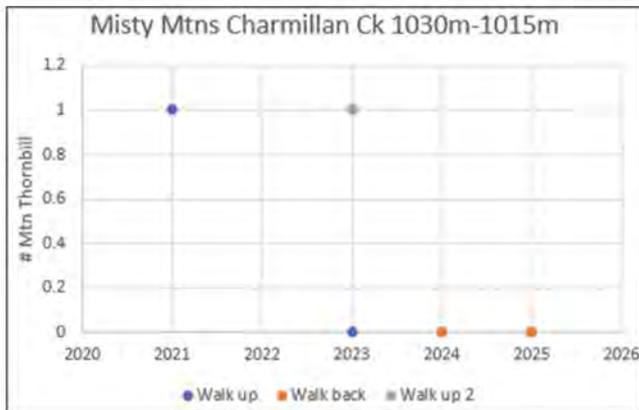
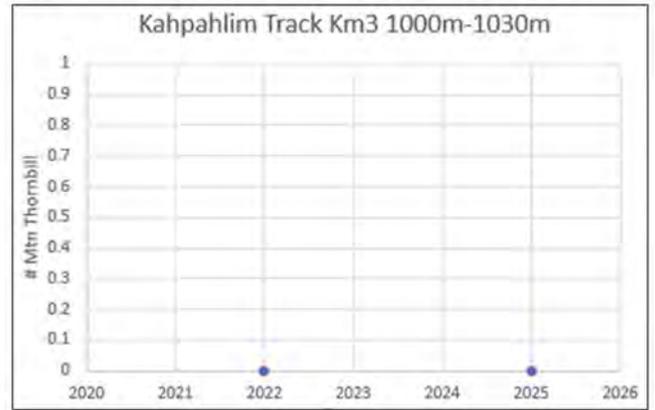
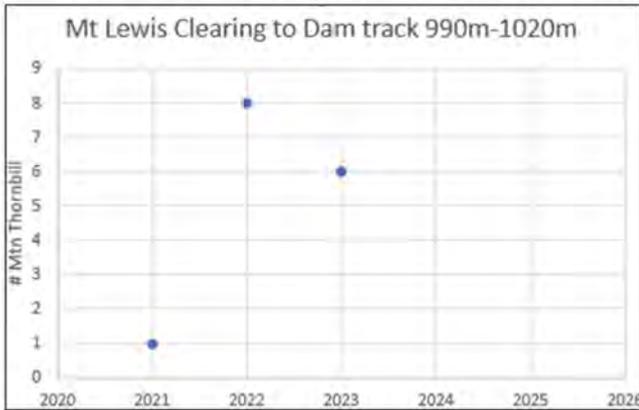
700m - 850m Sites Page 2



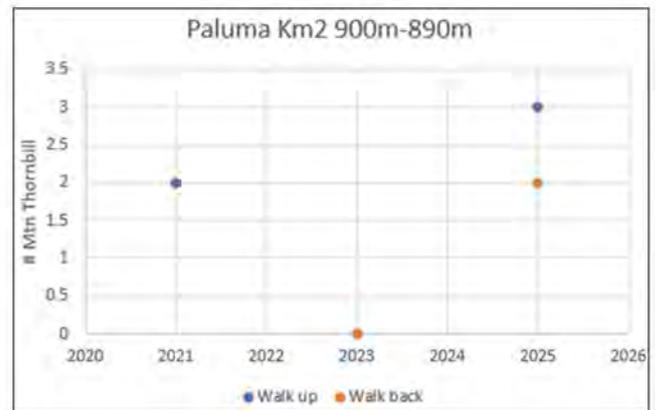
Fernwrens count along 1km track - Sites below 700m



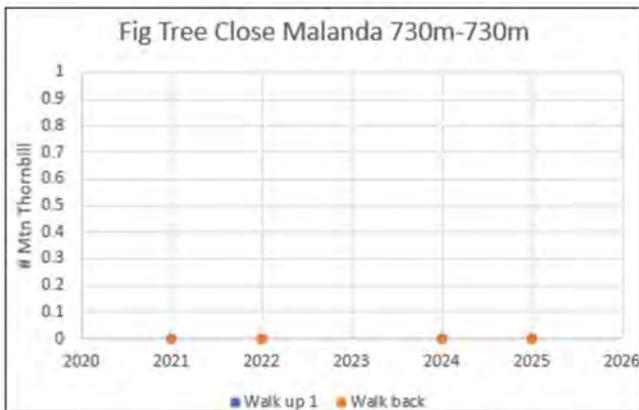
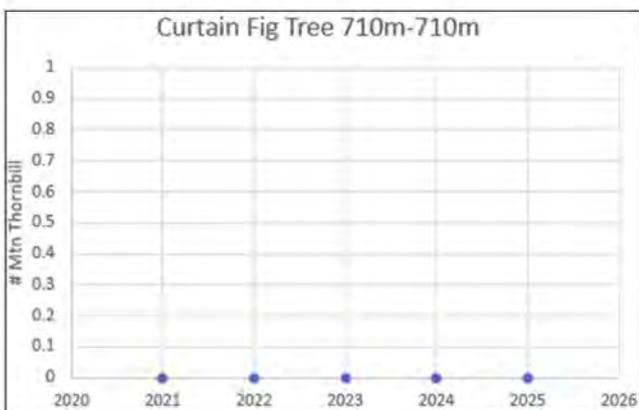
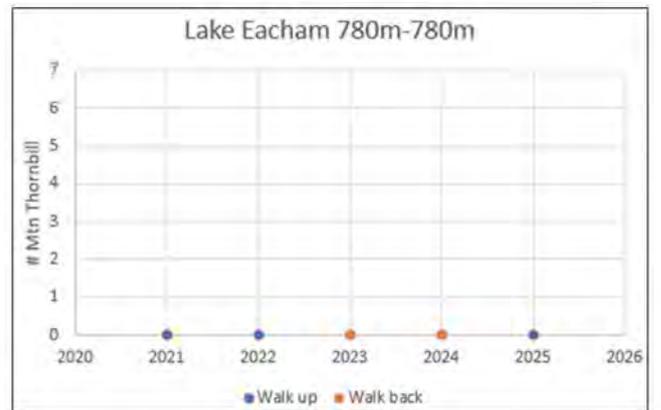
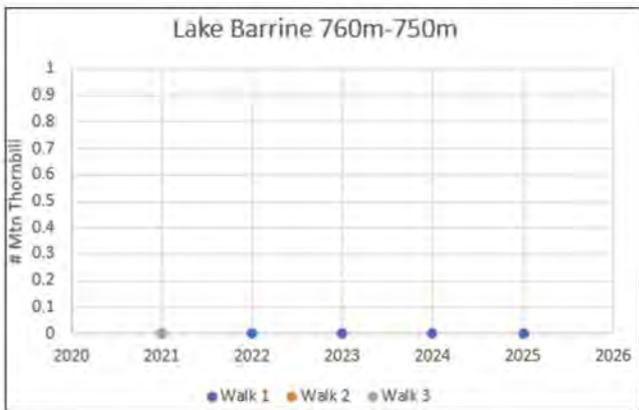
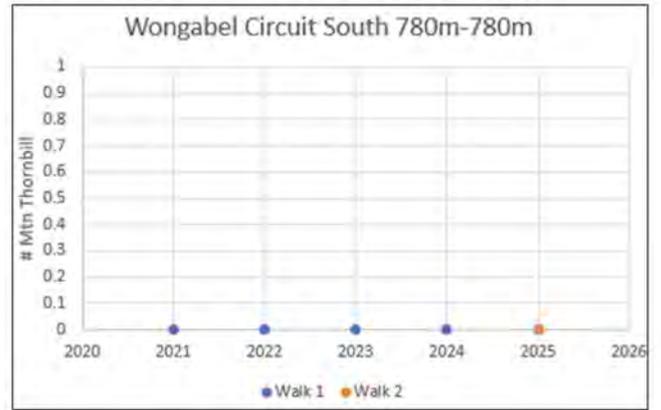
Mountain Thornbill count along 1km track - Sites above 1000m



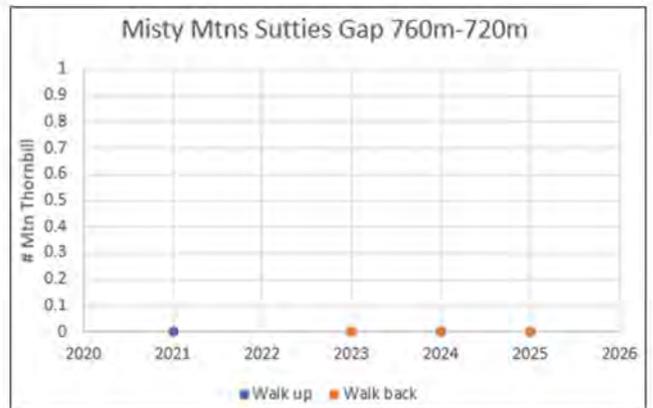
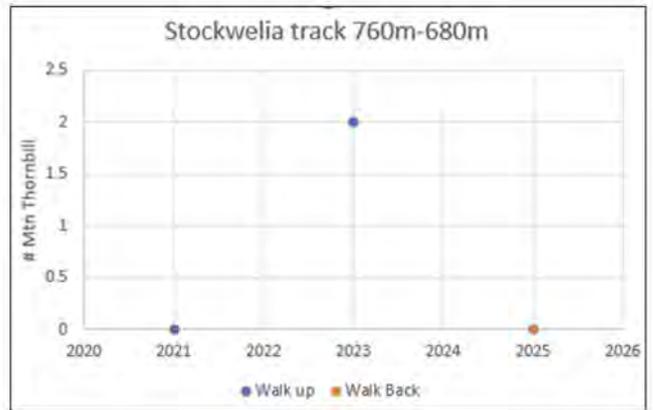
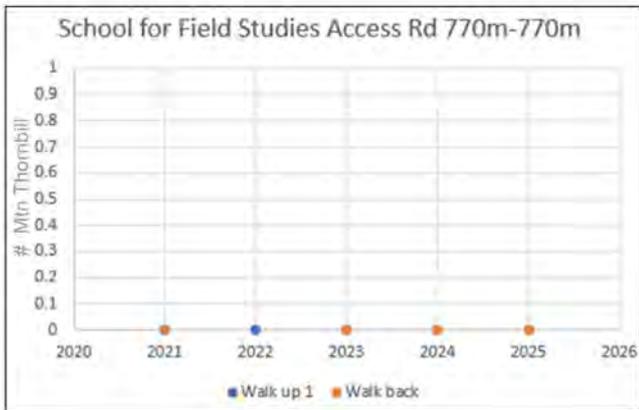
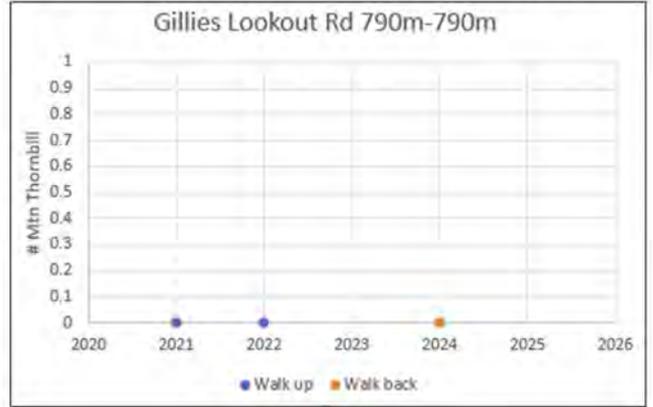
Mountain Thornbill count along 1km track 850m - 1000m Sites



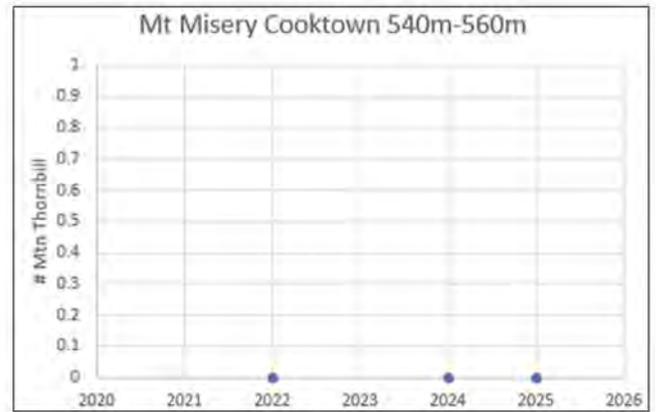
Mountain Thornbill count along 1km track - 700m - 850m Sites Page 1



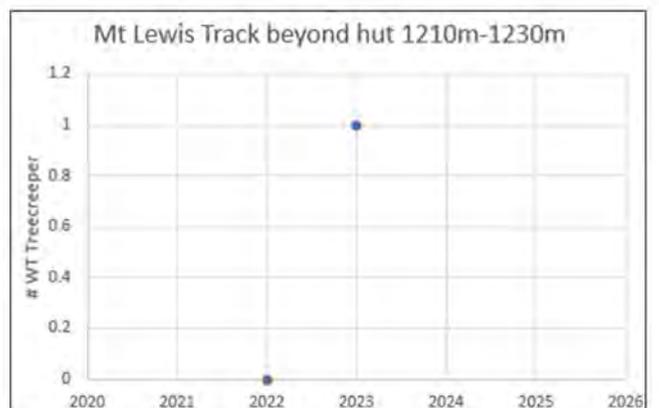
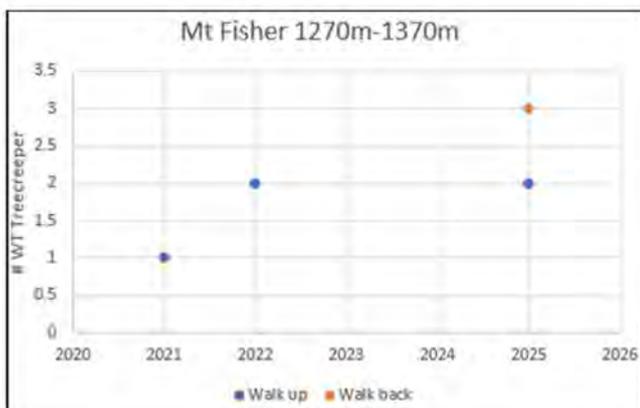
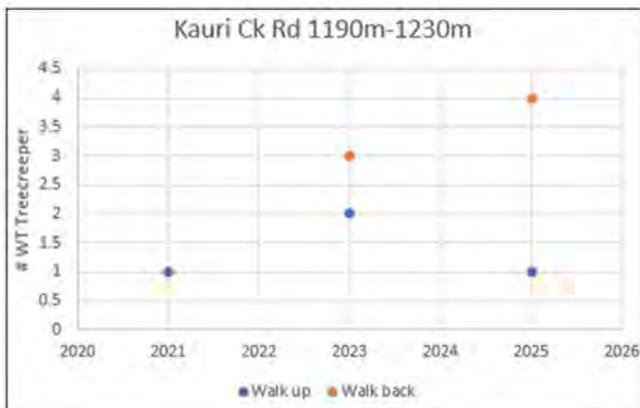
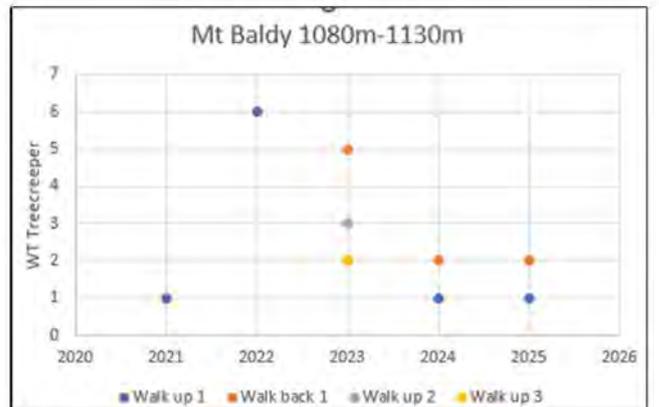
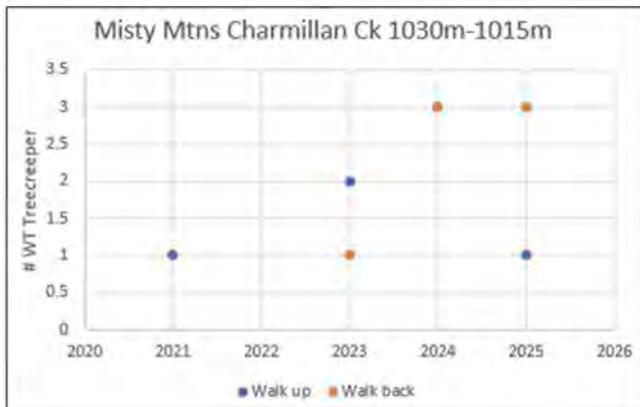
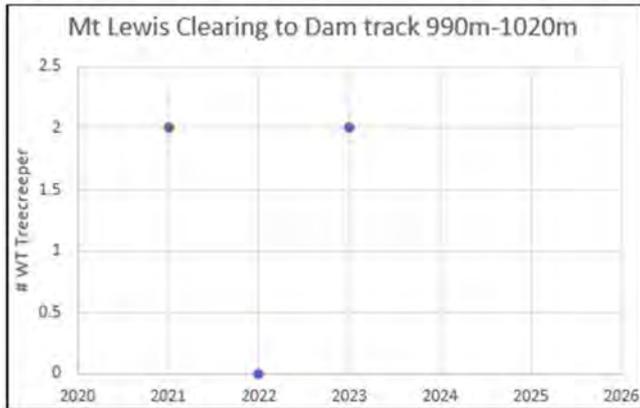
Mountain Thornbill count along 1km track - 700m - 850m Sites Page 2



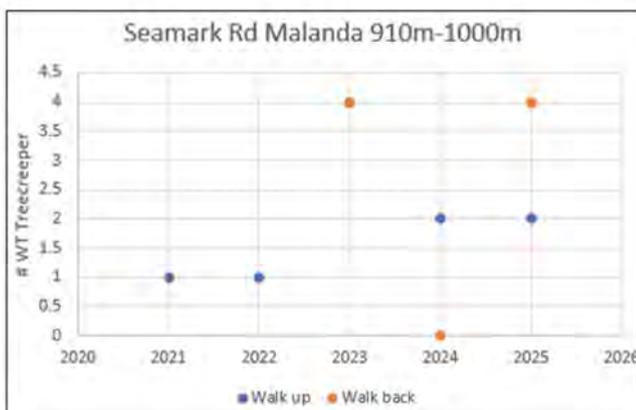
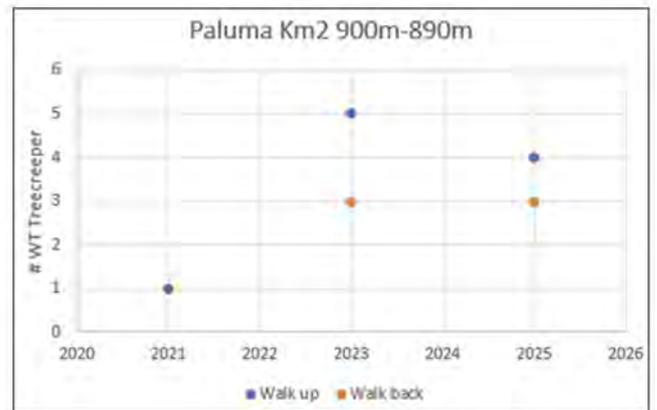
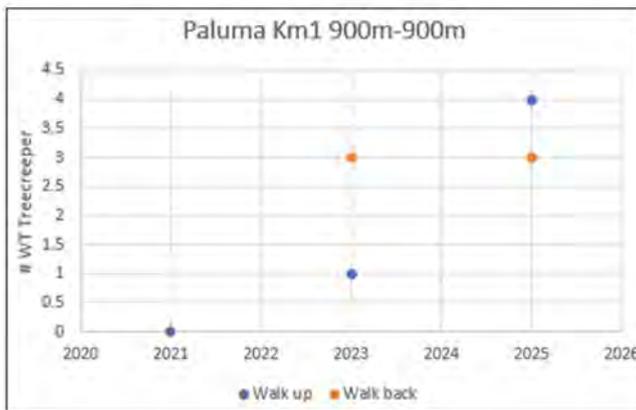
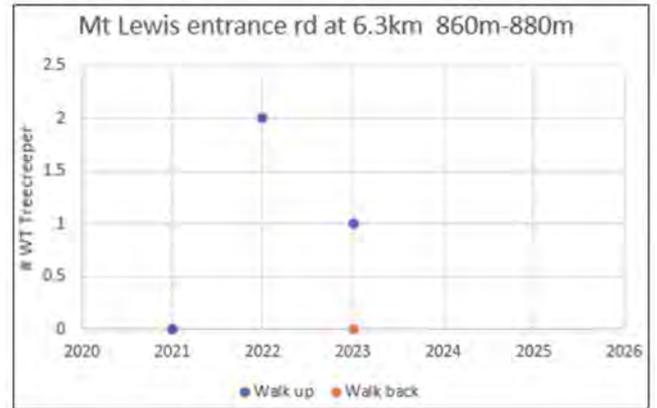
Mountain Thornbill count along 1km track - Sites below 700m



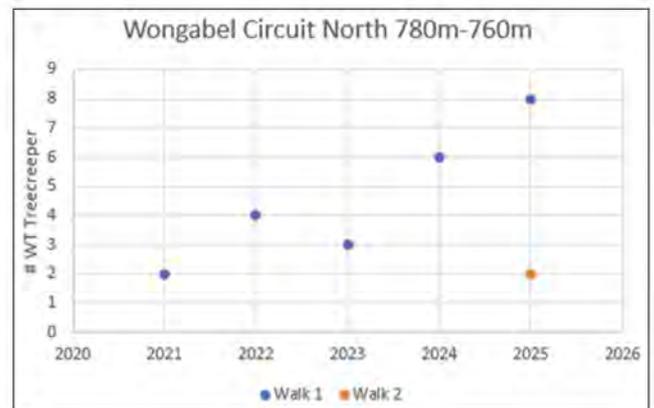
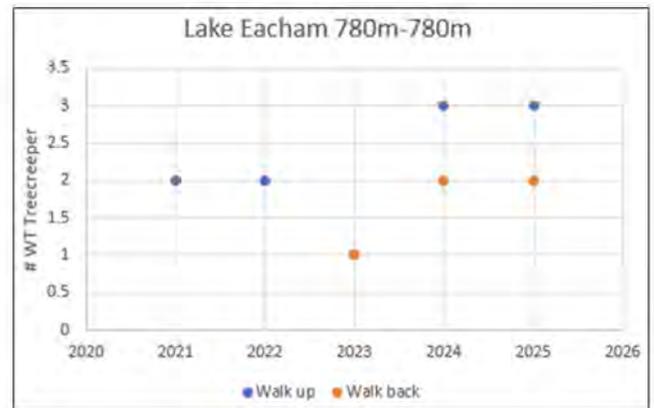
White-throated Treecreeper count along 1km track - Sites above 1000m



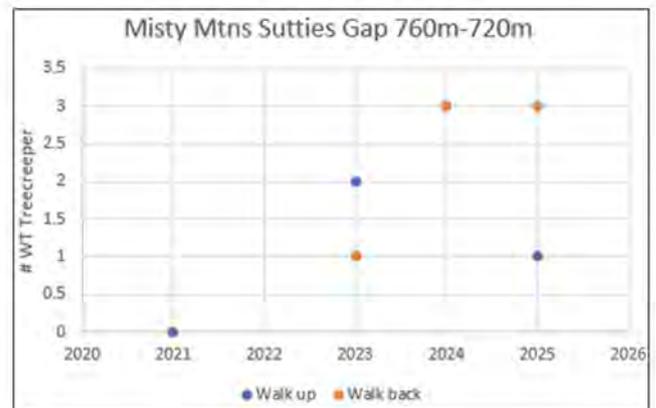
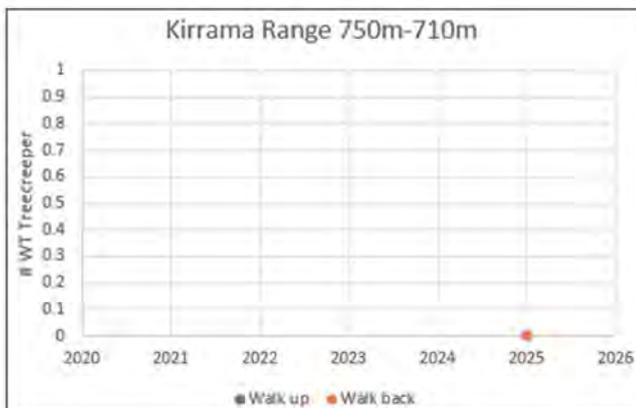
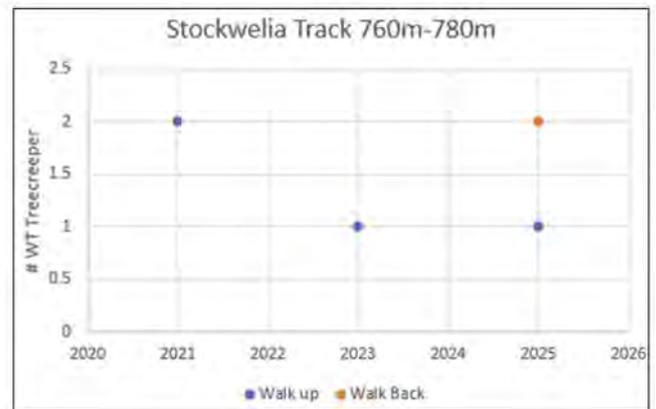
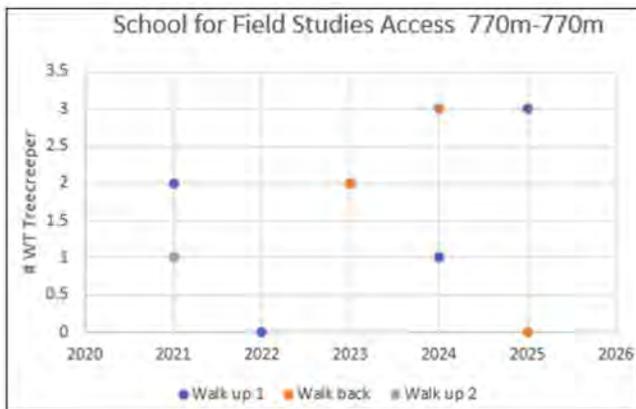
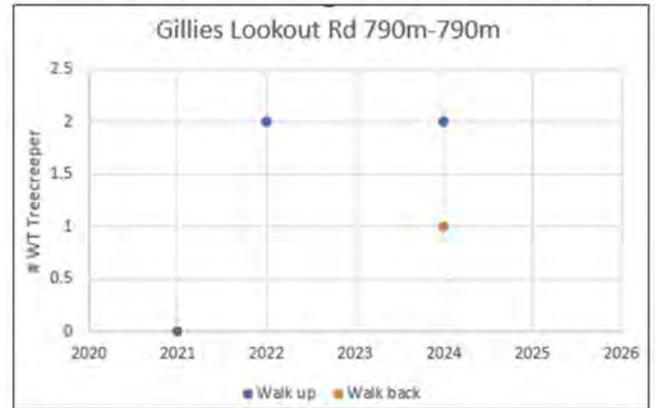
White-throated Treecreeper count along 1km track 850m - 1000m Sites



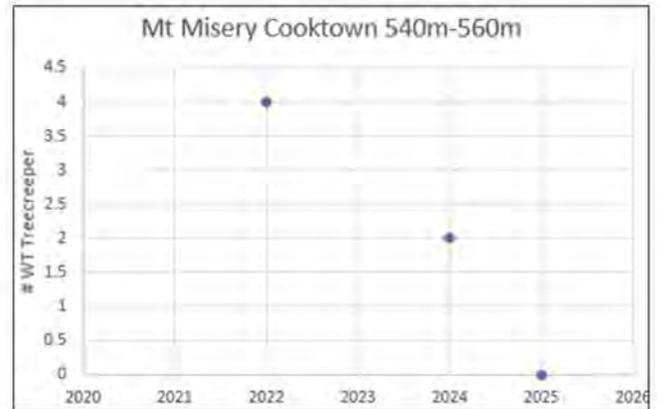
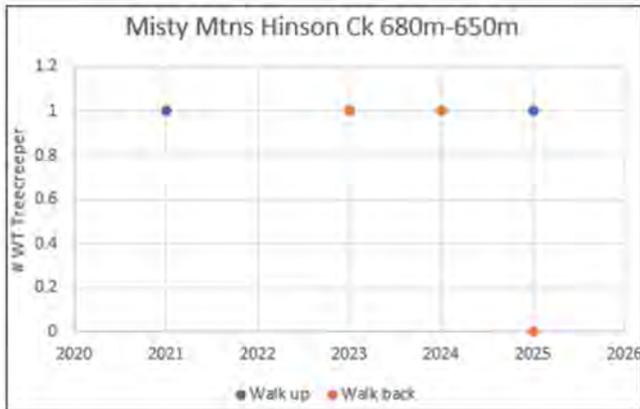
White-throated Treecreeper count along 1km track - 700m - 850m Sites p1



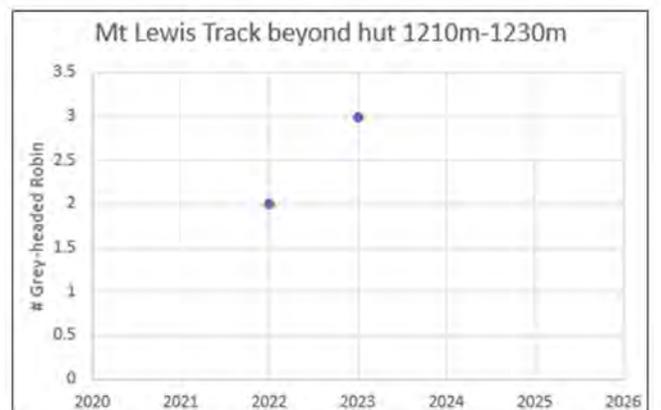
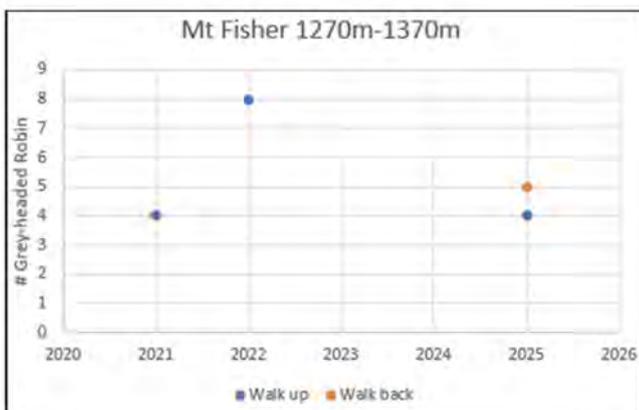
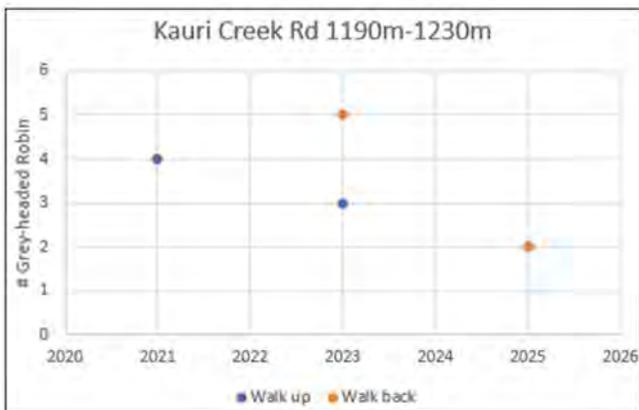
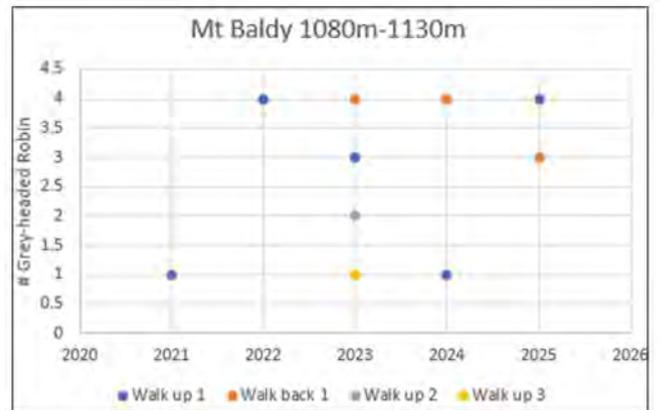
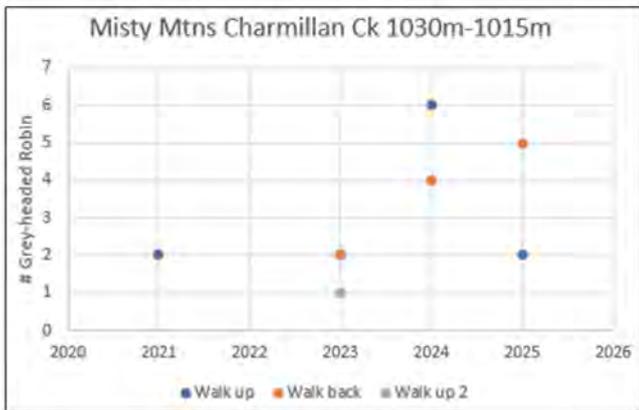
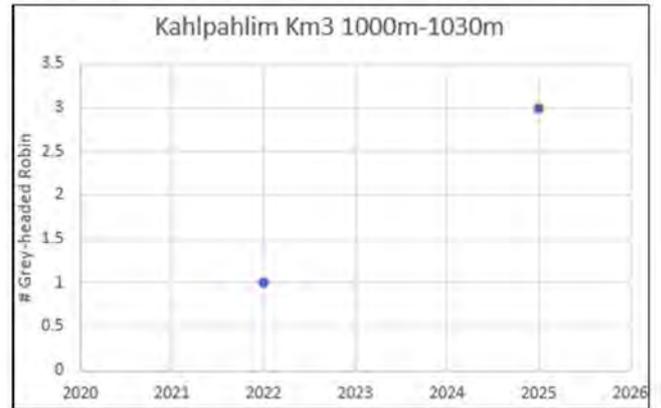
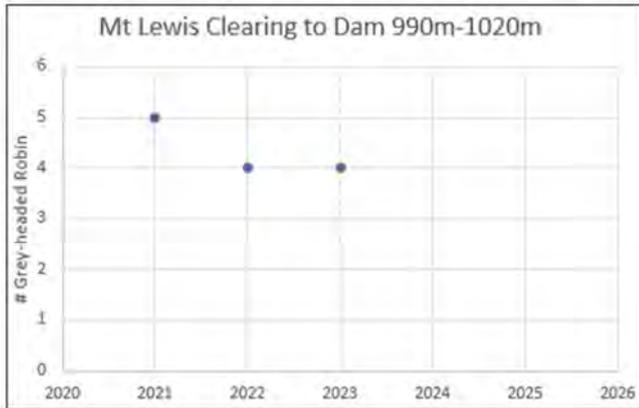
White-throated Treecreeper count along 1km track - 700m - 850m Sites p 2



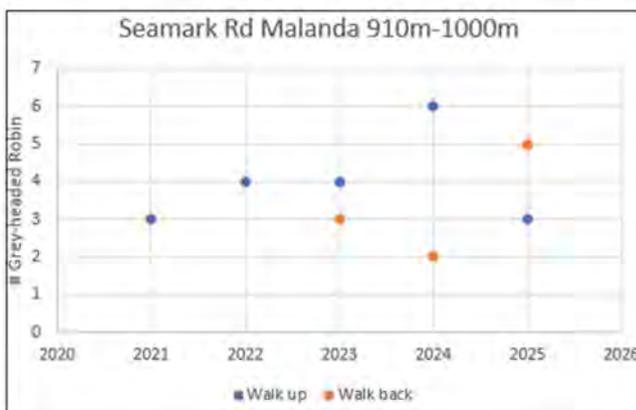
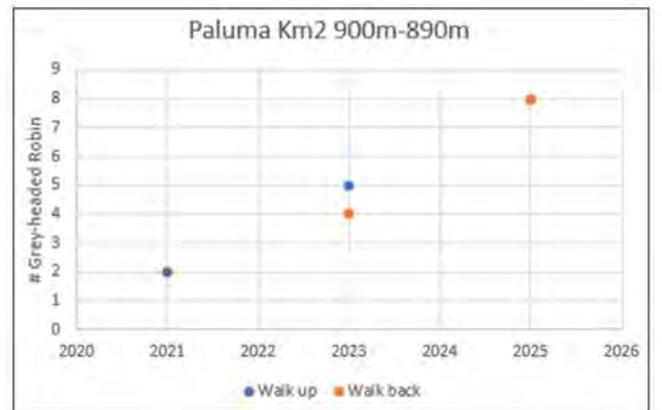
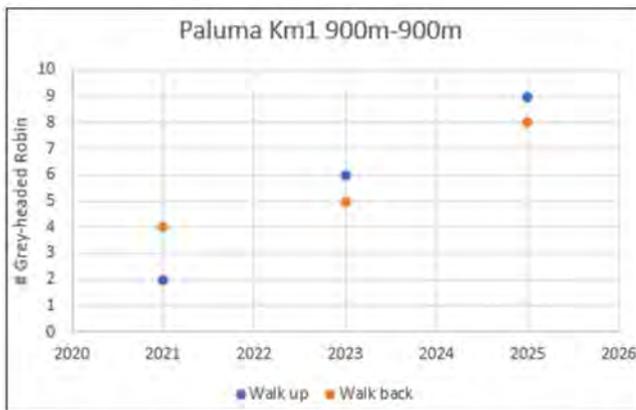
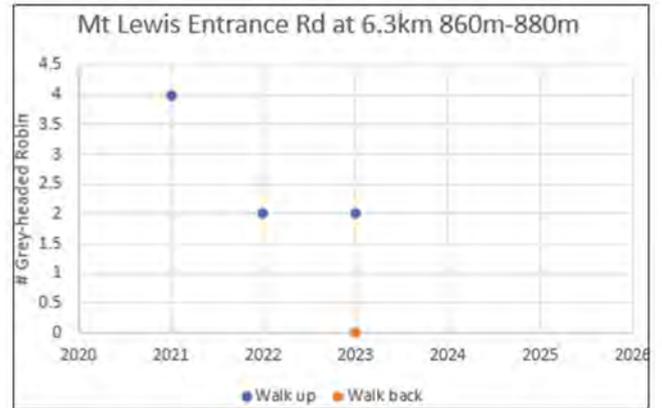
White-throated Treecreeper count along 1km track - Sites below 700m



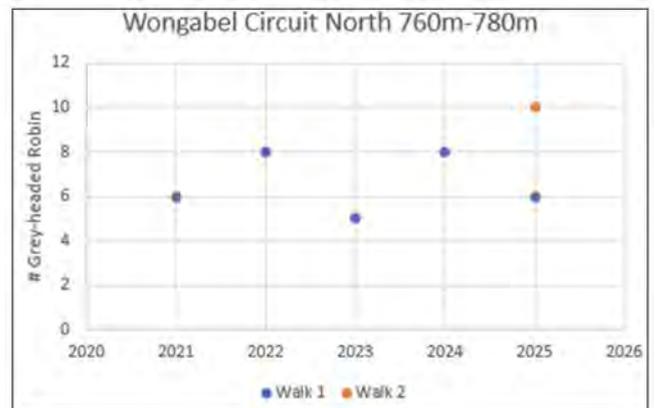
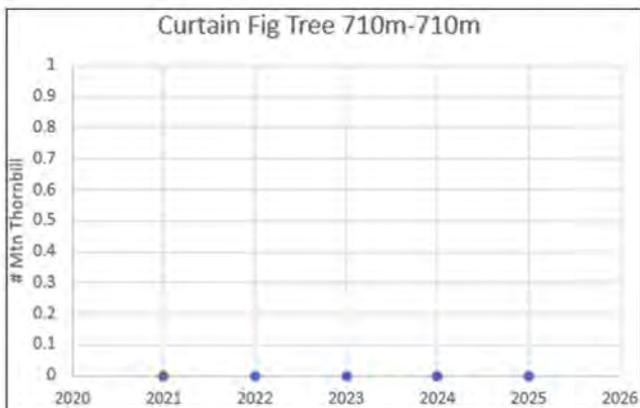
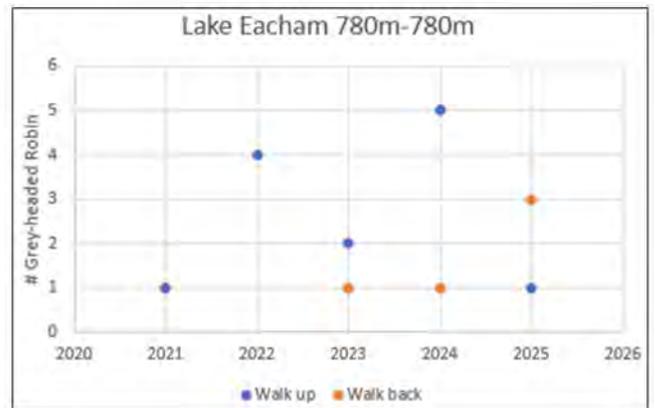
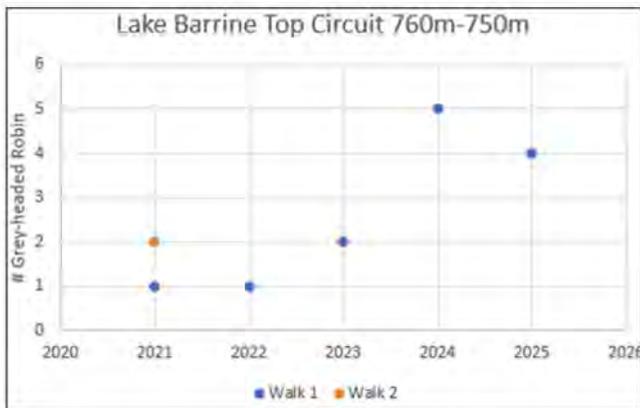
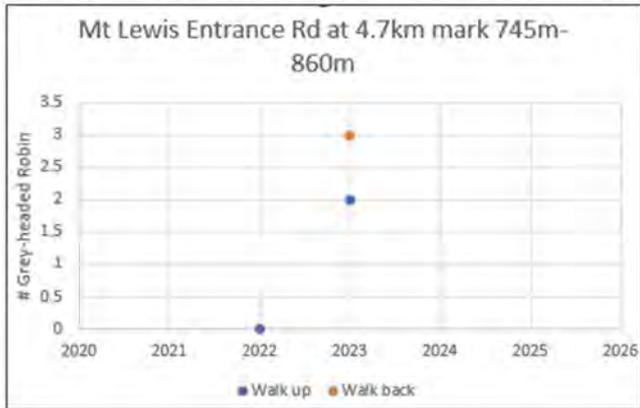
Grey-headed Robin count along 1km track - Sites above 1000m



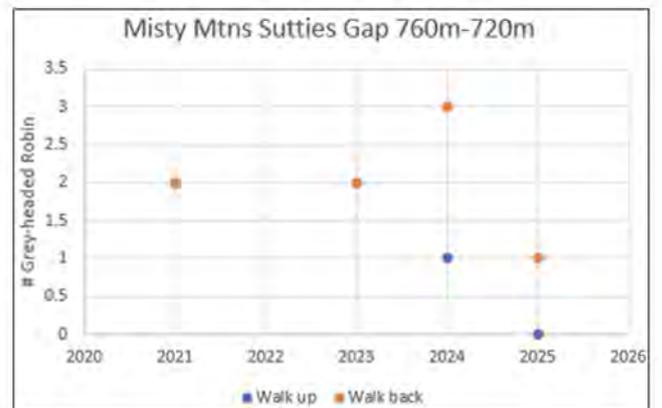
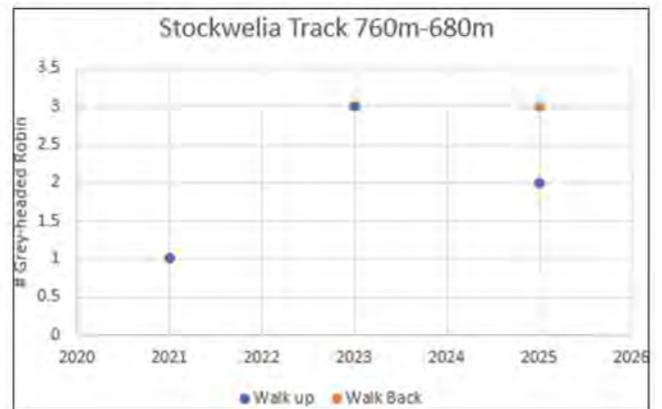
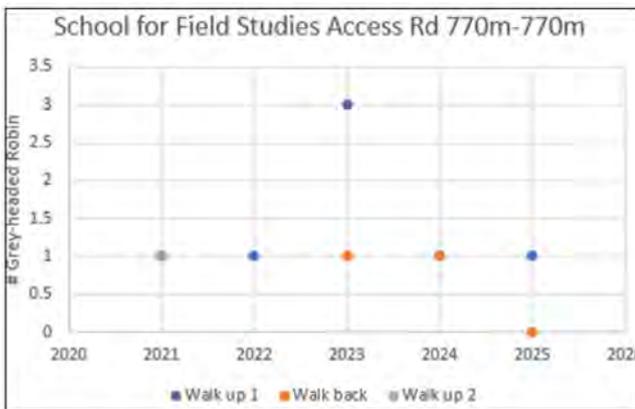
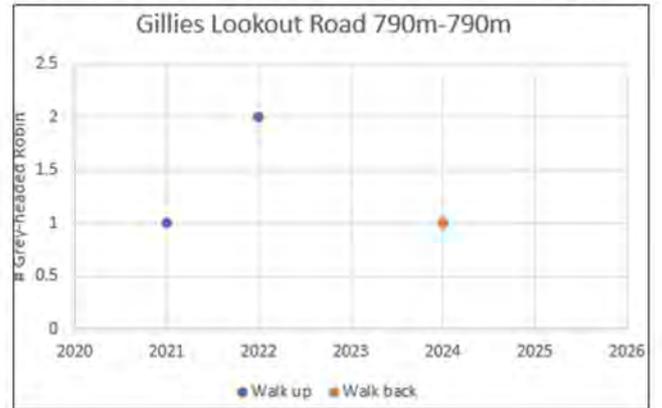
Grey-headed Robin count along 1km track 850m - 1000m Sites



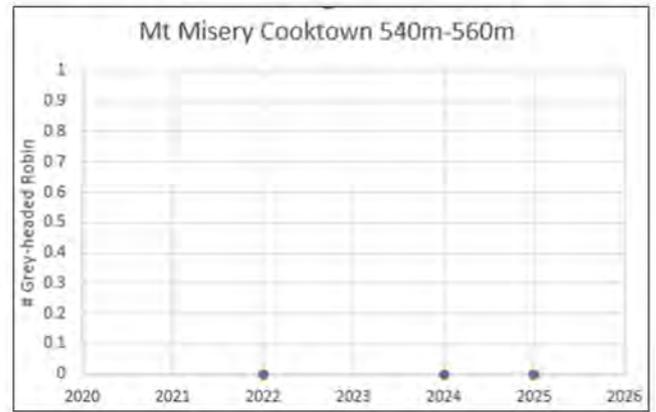
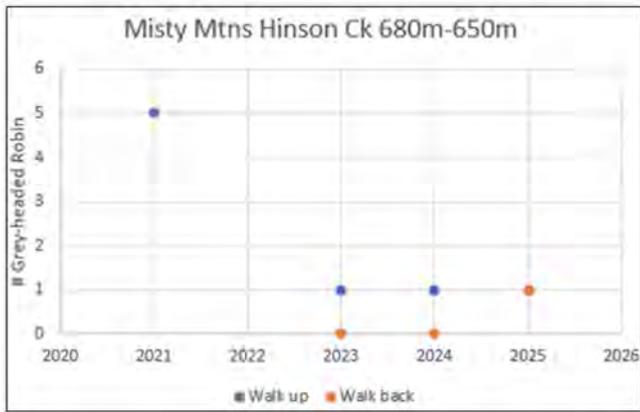
Grey-headed Robin count along 1km track - 700m - 850m Sites Page 1



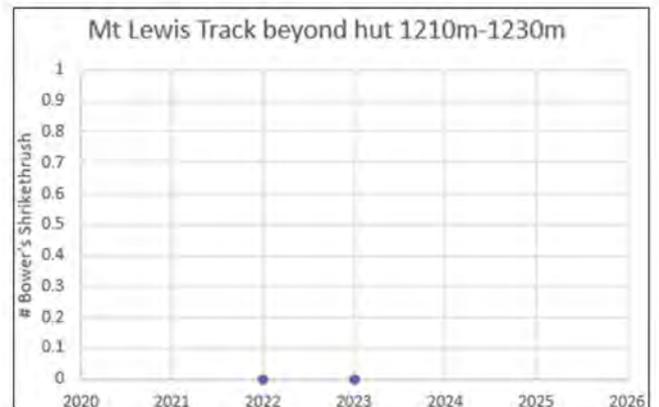
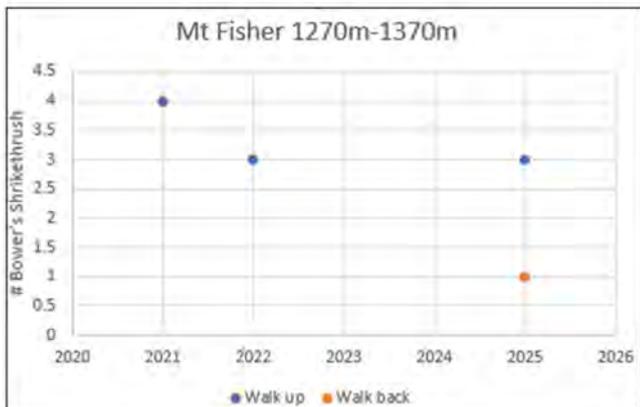
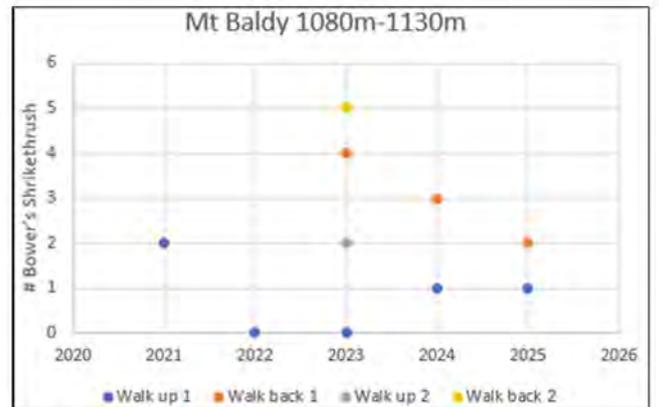
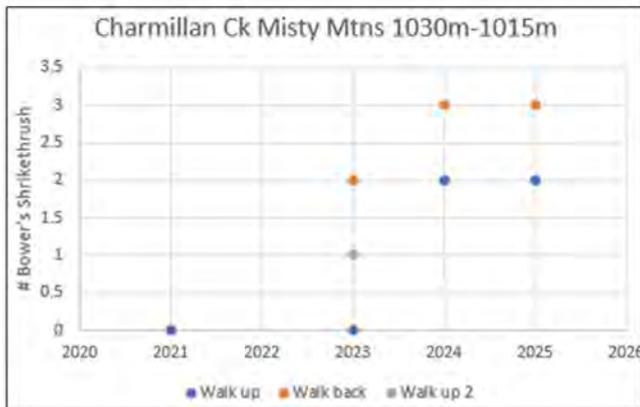
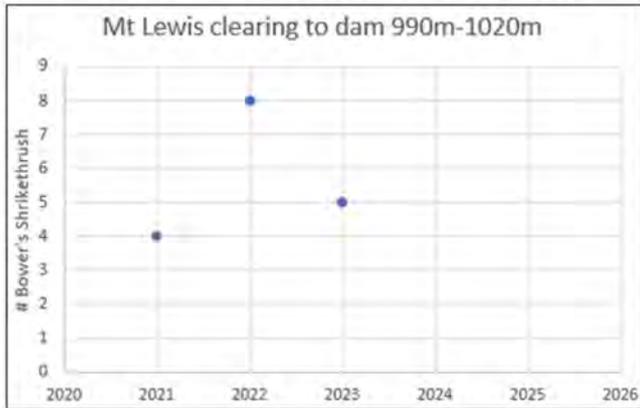
Grey-headed Robin count along 1km track - 700m - 850m Sites Page 2



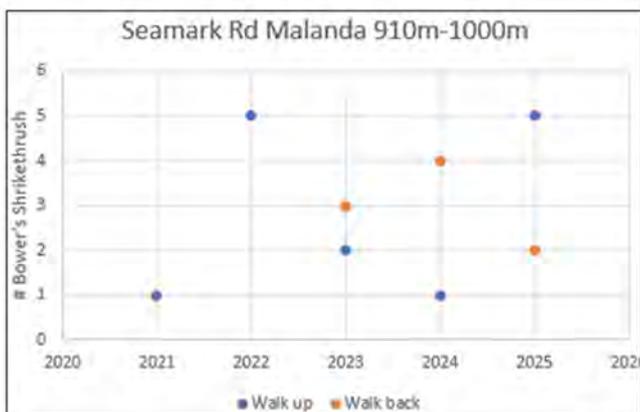
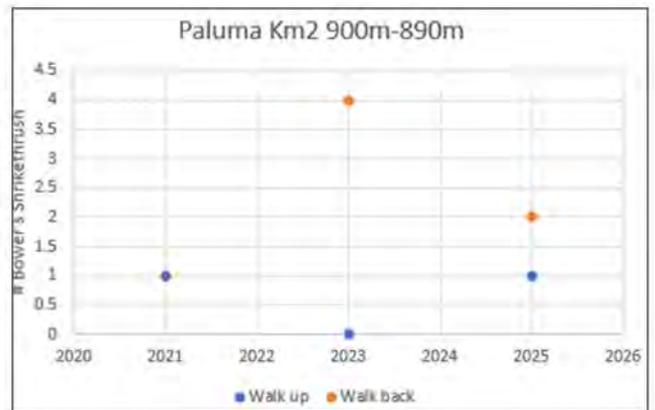
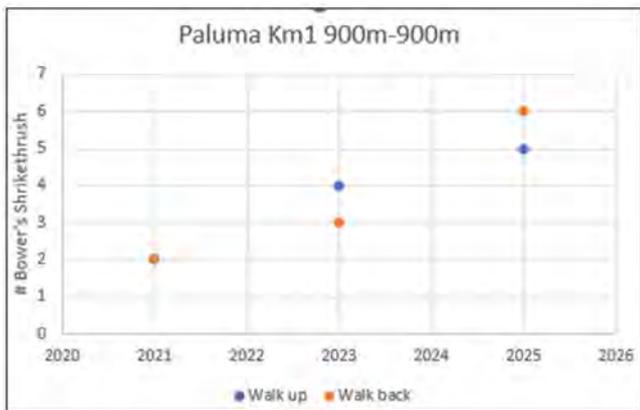
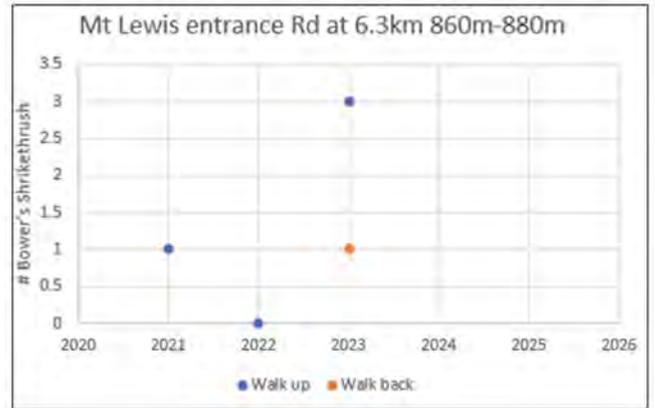
Grey-headed Robin count along 1km track - Sites below 700m



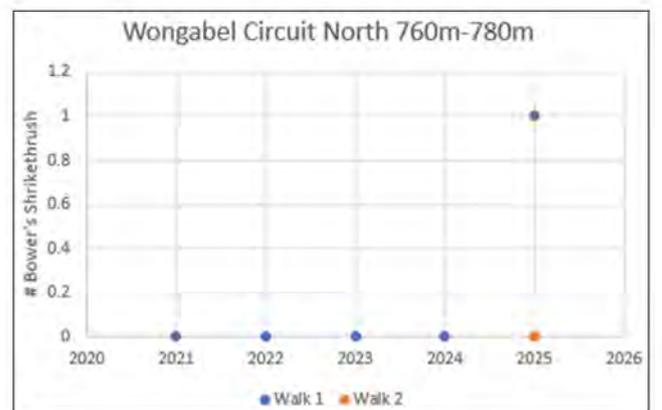
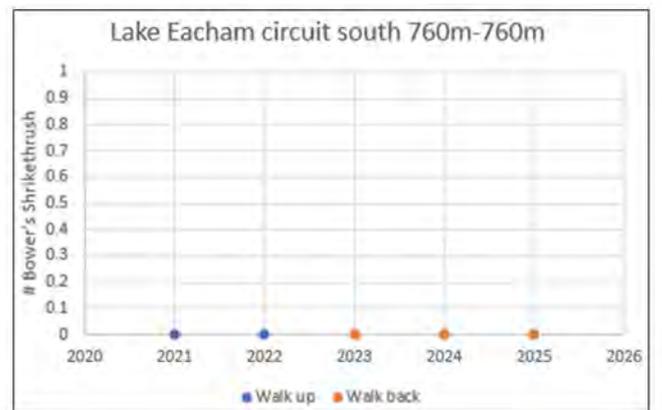
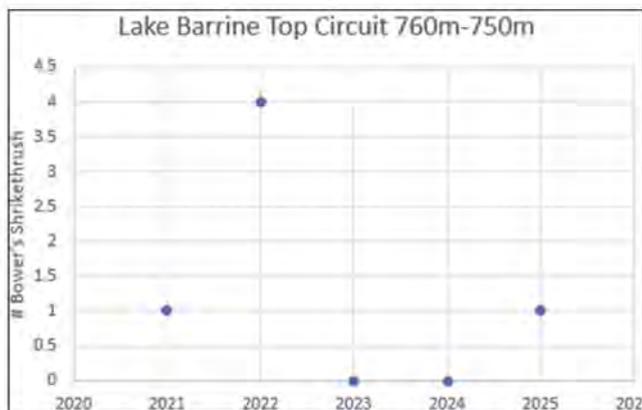
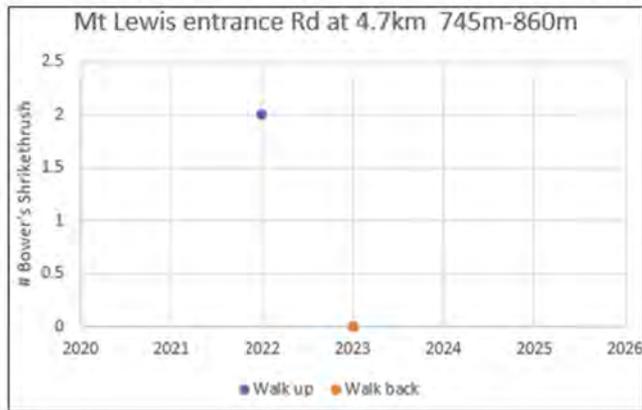
Bower's Shrikethrush count along 1km track - Sites above 1000m



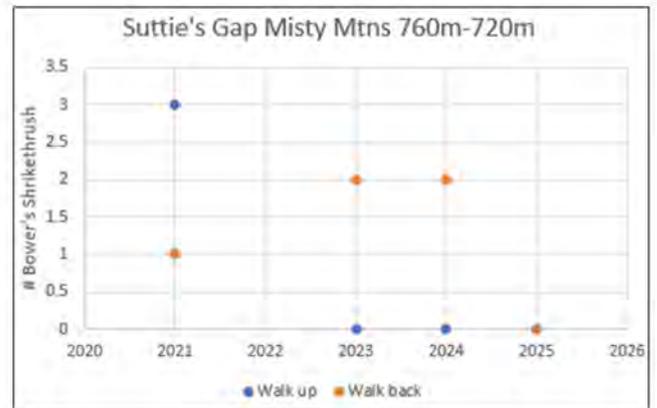
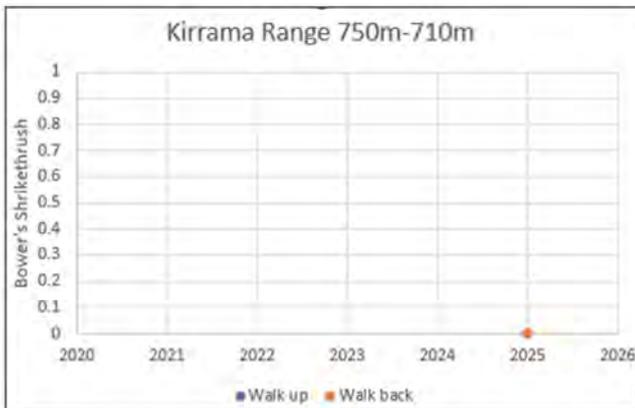
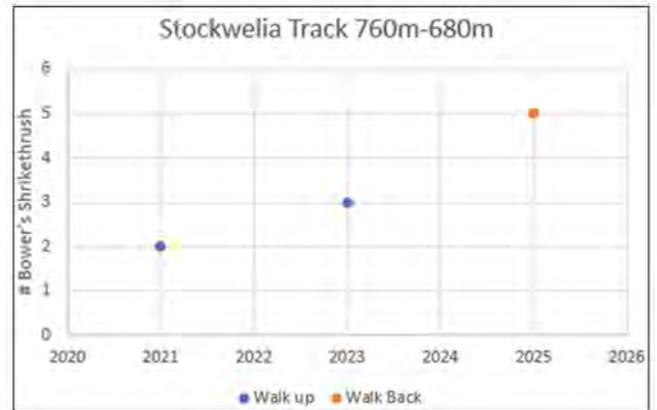
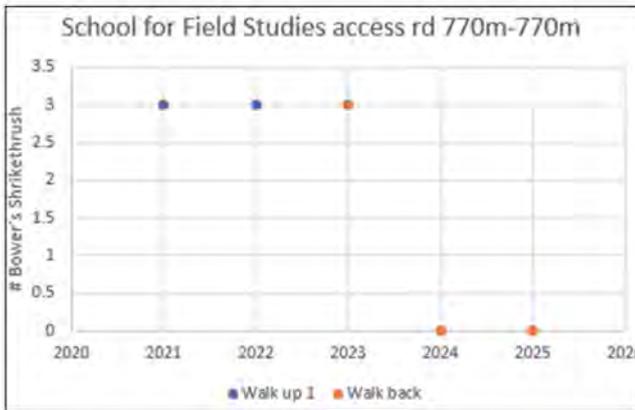
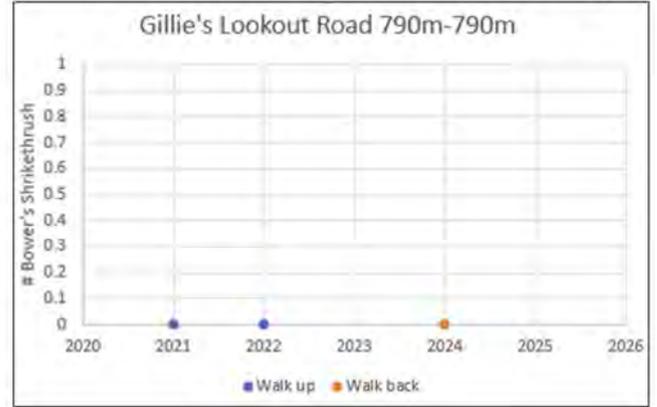
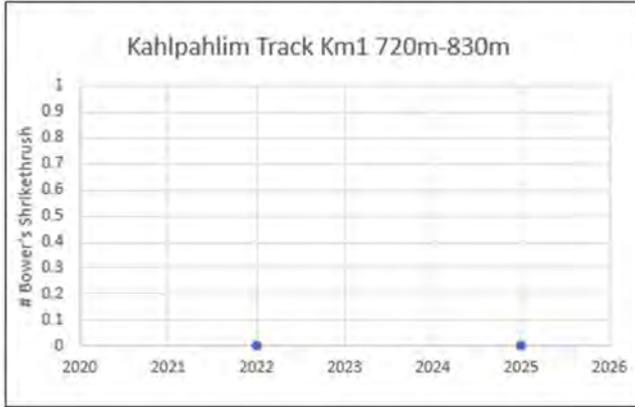
Bower's Shrikethrush count along 1km track 850m - 1000m Sites



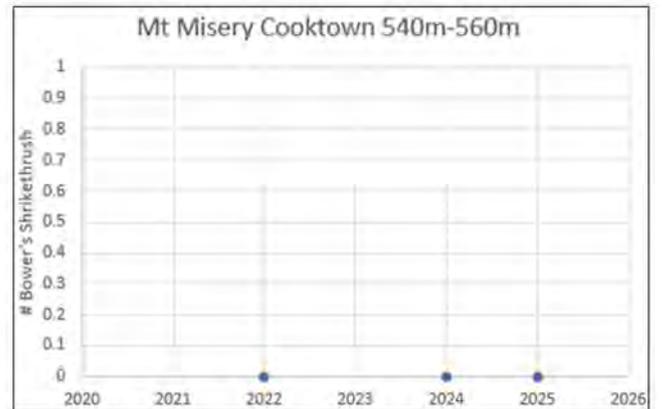
Bower's Shrikethrush count along 1km track - 700m - 850m Sites Page 1



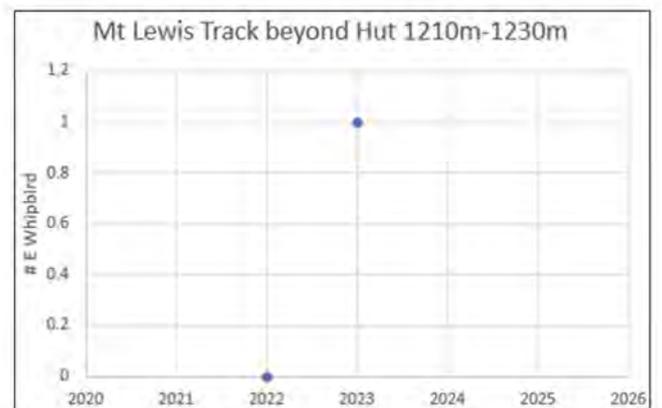
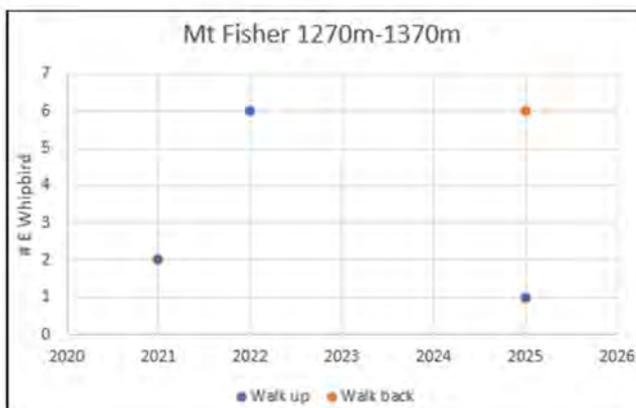
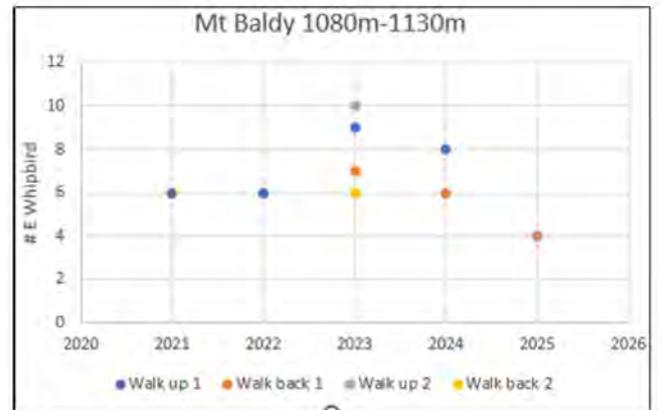
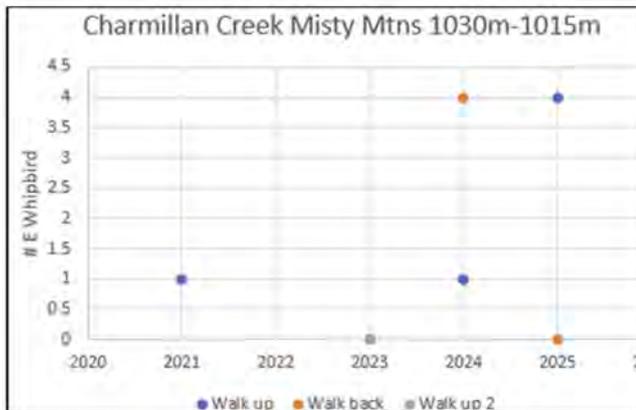
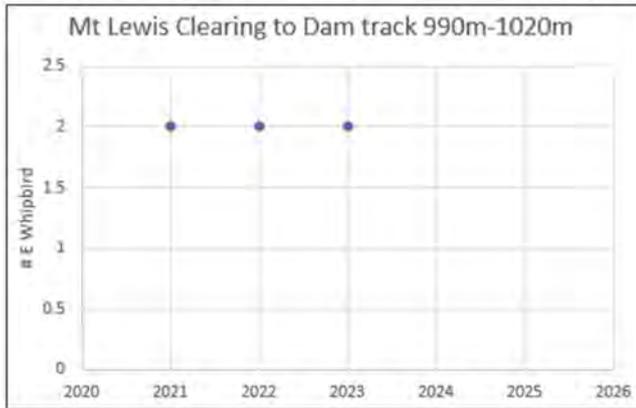
Bower's Shrikethrush count along 1km track - 700m - 850m Sites Page 2



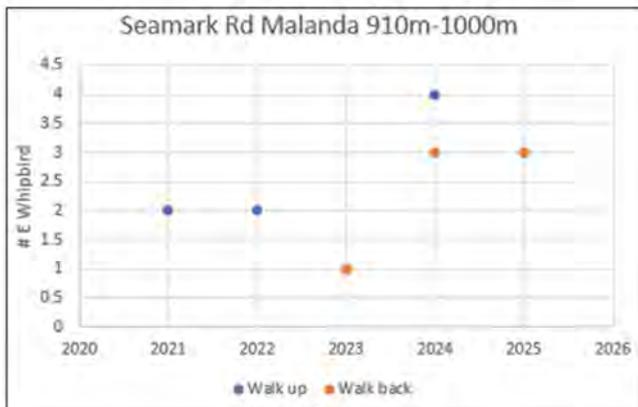
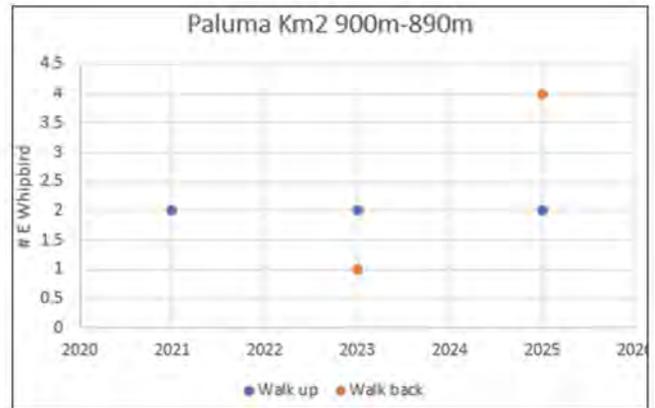
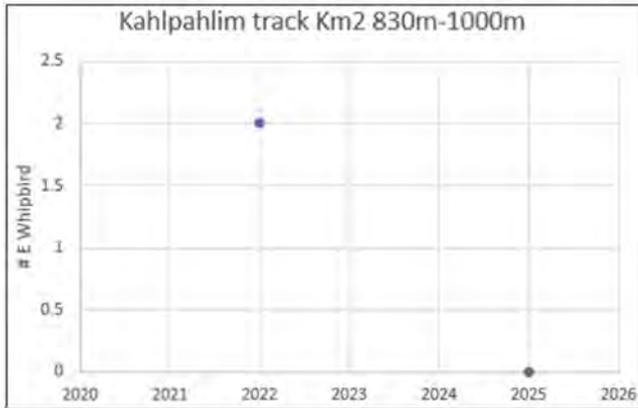
Bower's Shrikethrush count along 1km track - Sites below 700m



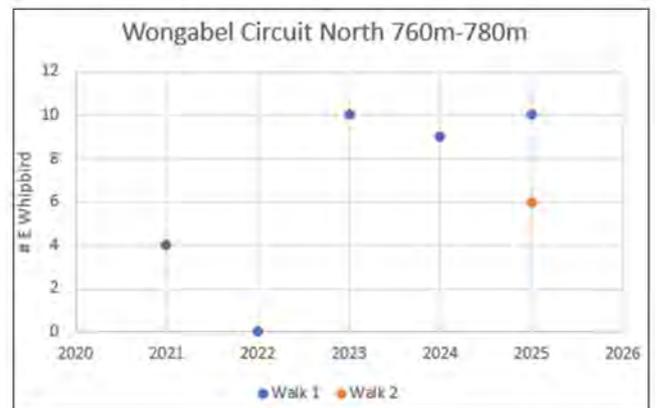
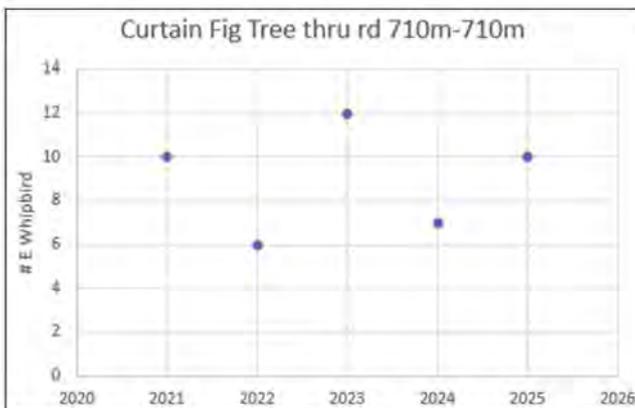
Eastern Whipbird count along 1km track - Sites above 1000m



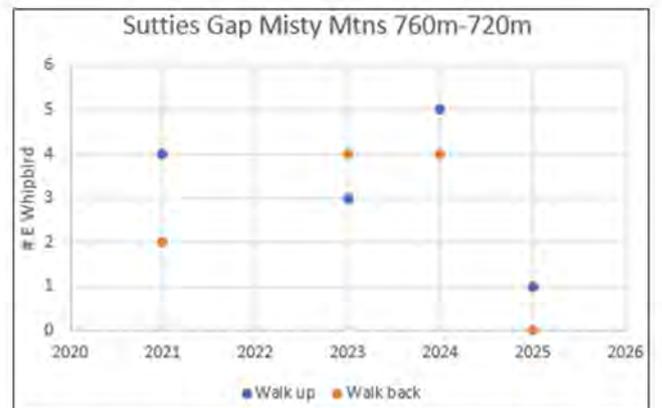
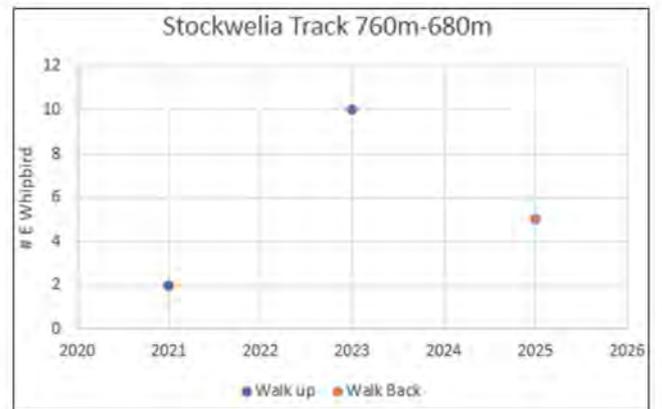
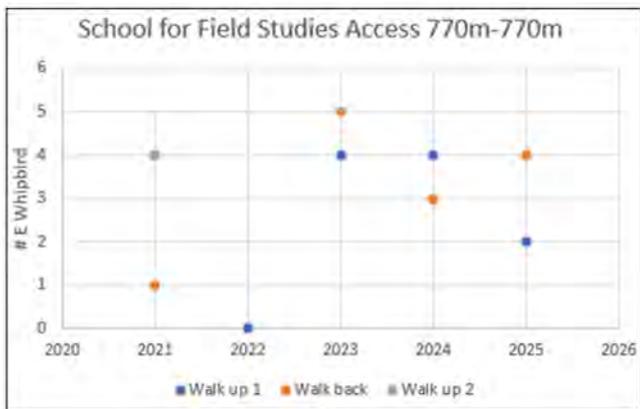
Eastern Whipbird count along 1km track 850m - 1000m Sites



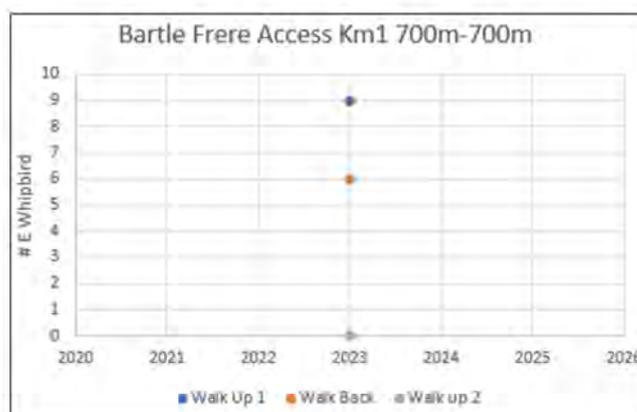
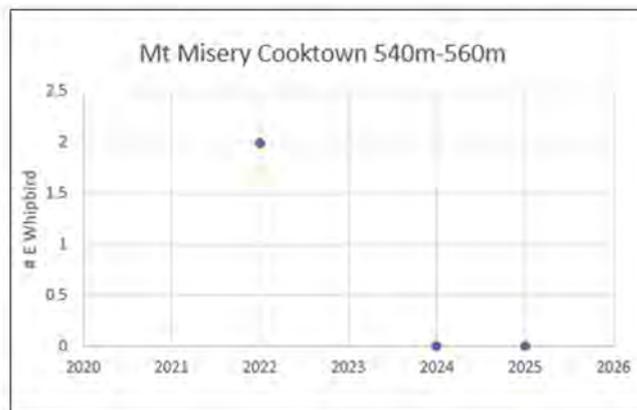
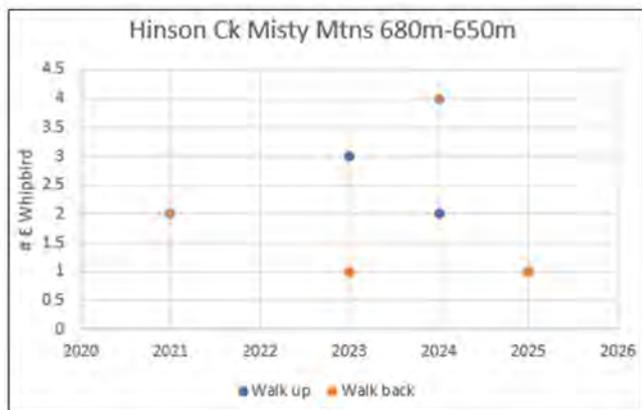
Eastern Whipbird count along 1km track - 700m - 850m Sites Page 1



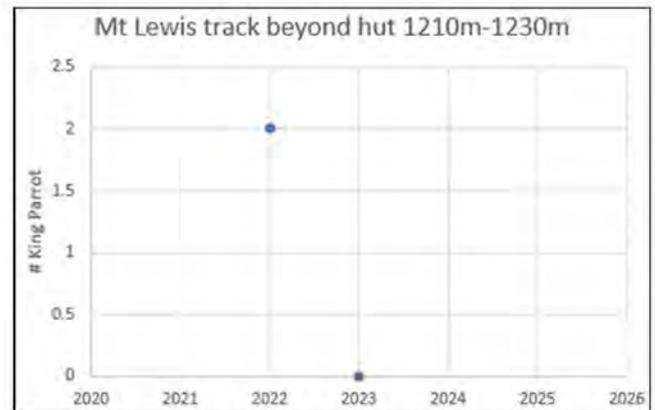
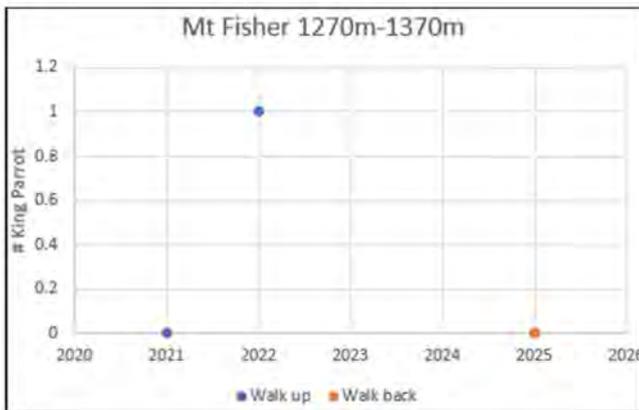
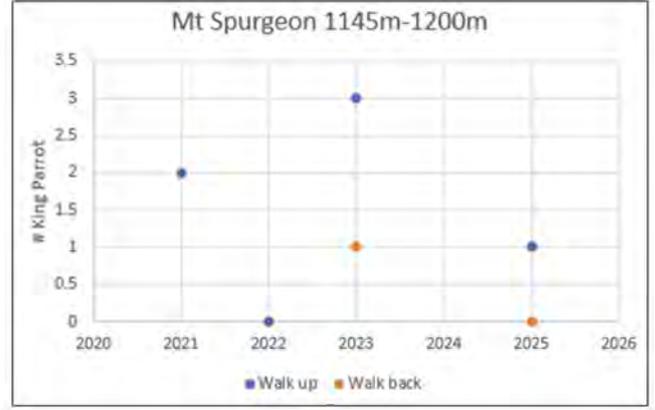
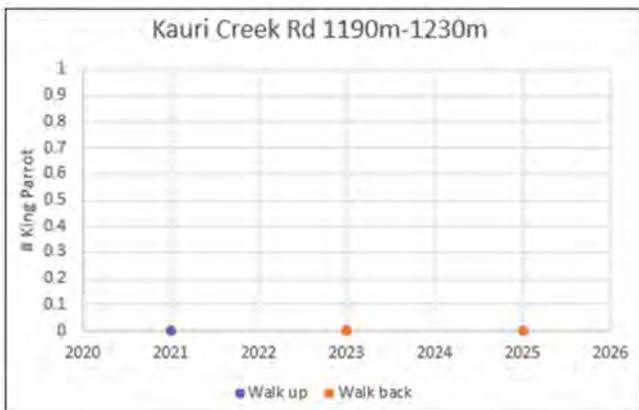
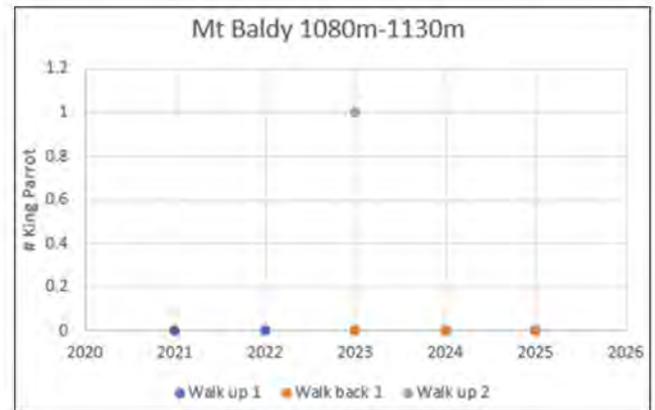
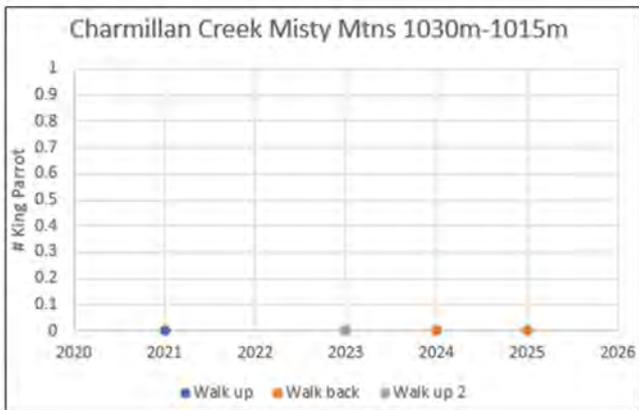
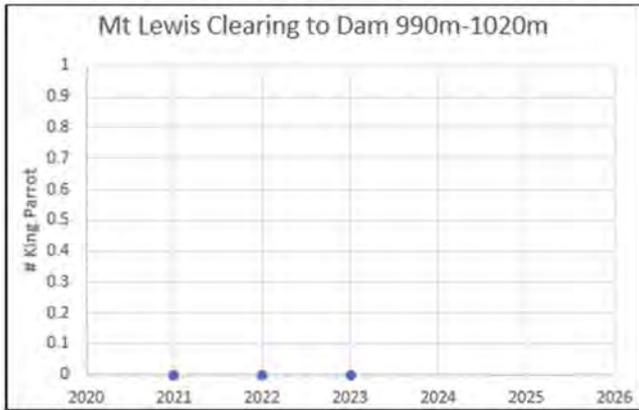
Eastern Whipbird count along 1km track - 700m - 850m Sites Page 2



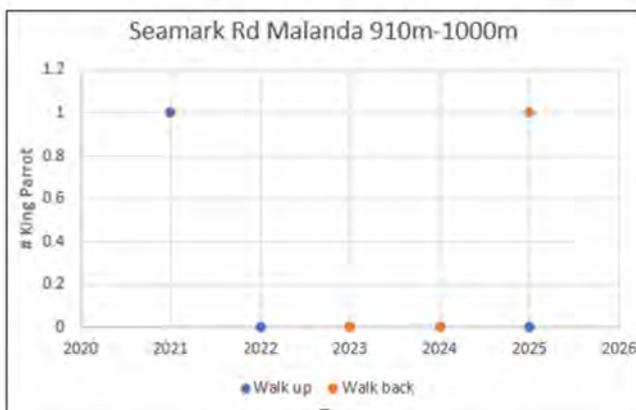
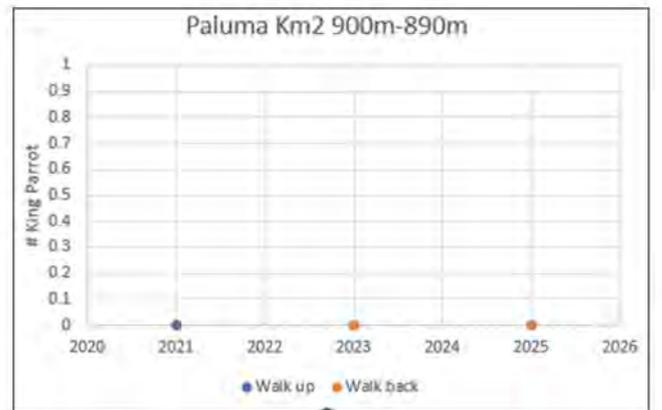
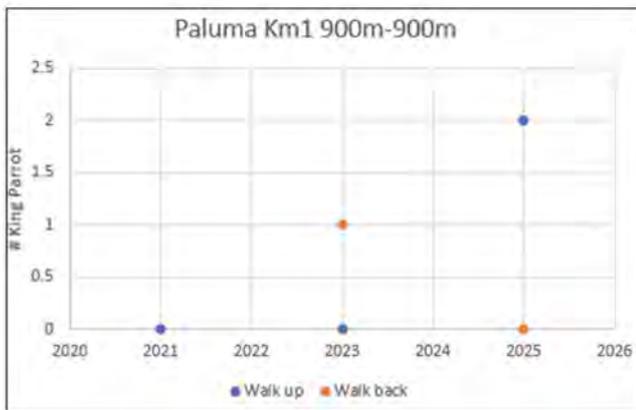
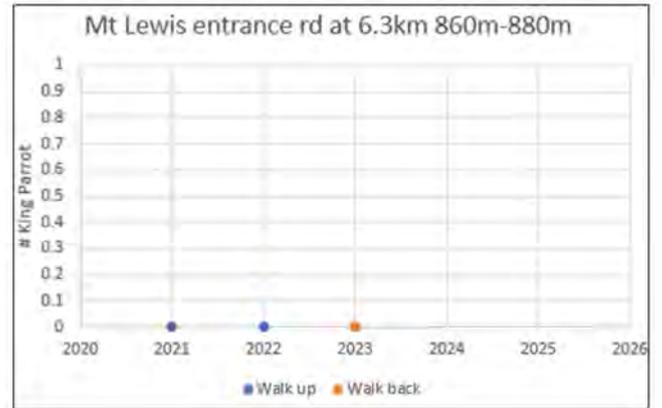
Eastern Whipbird count along 1km track - Sites below 700m



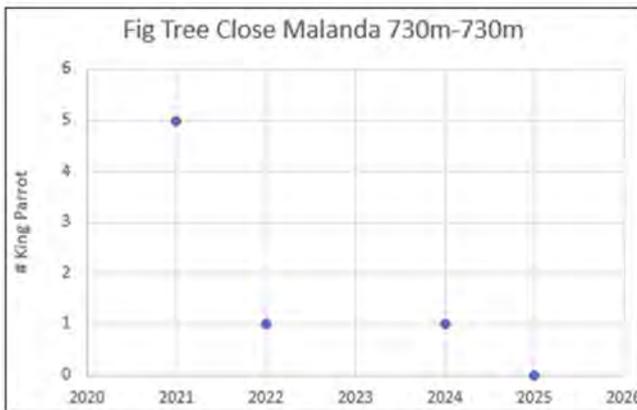
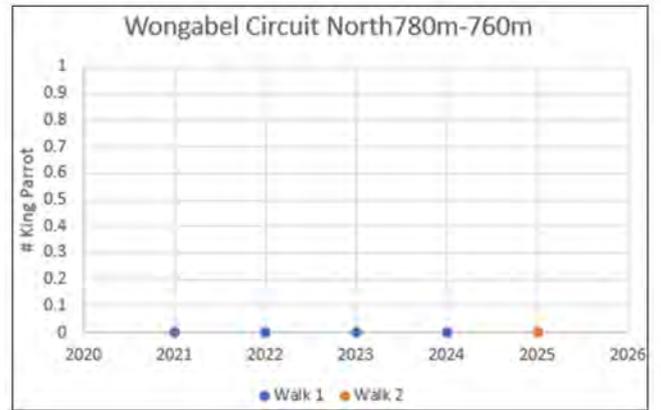
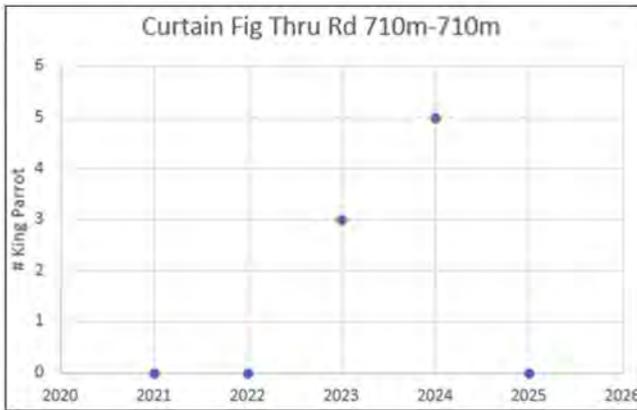
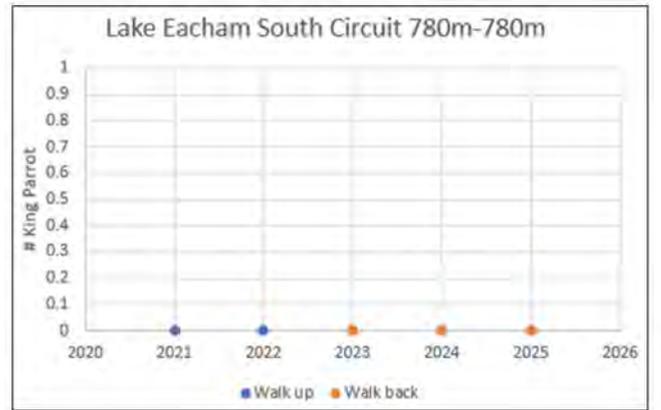
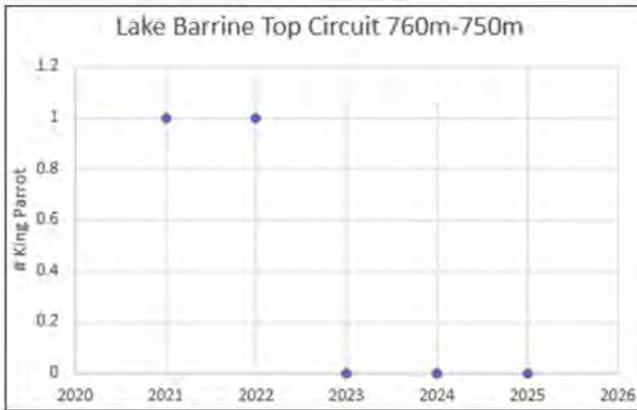
Australian King Parrot count along 1km track - Sites above 1000m



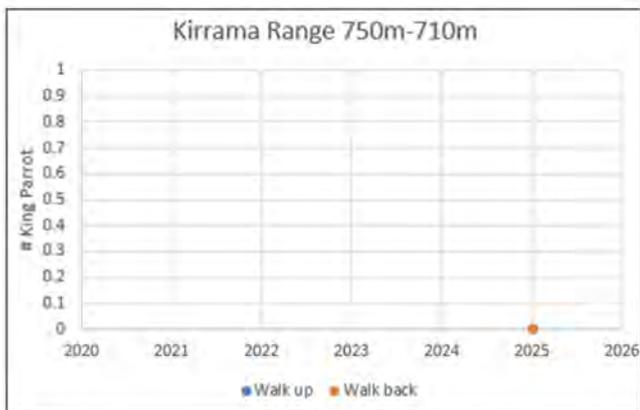
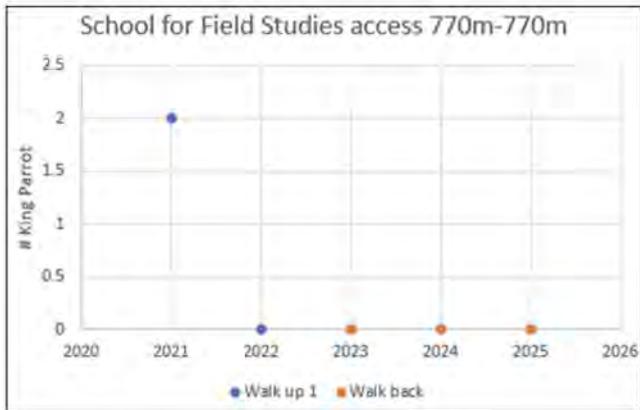
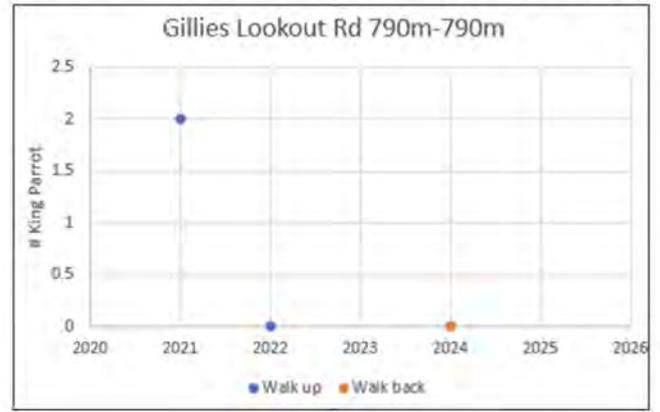
Australian King Parrot count along 1km track 850m - 1000m Sites



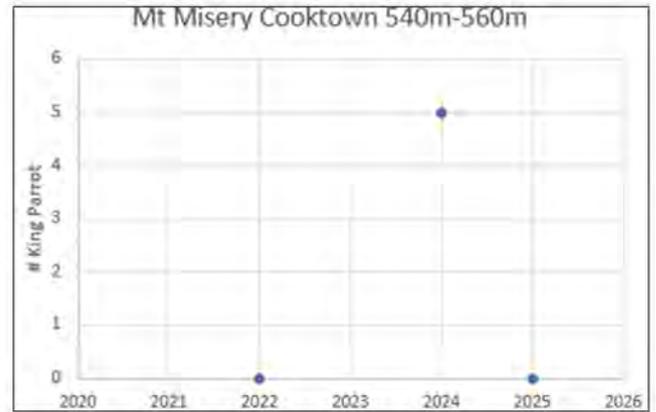
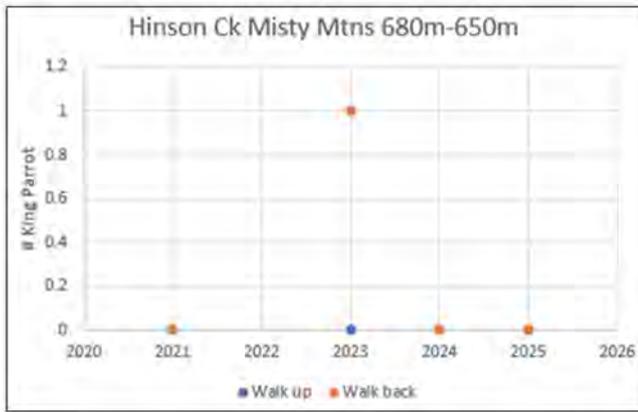
Australian King Parrot count along 1km track - 700m - 850m Sites Page 1



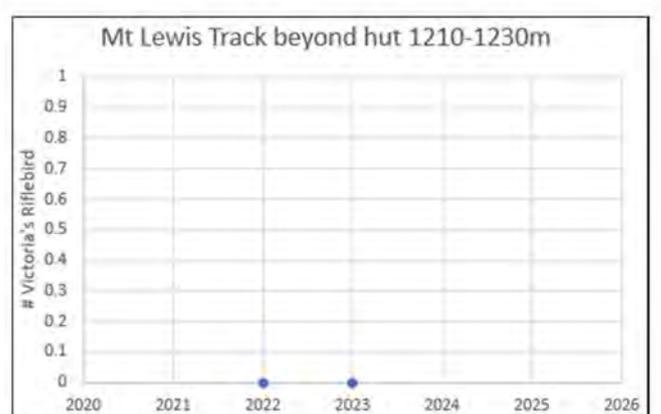
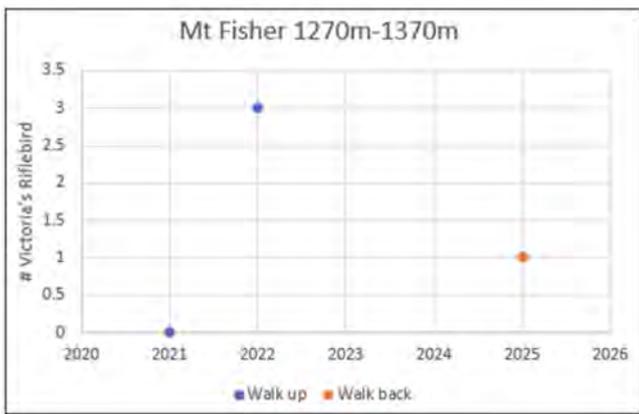
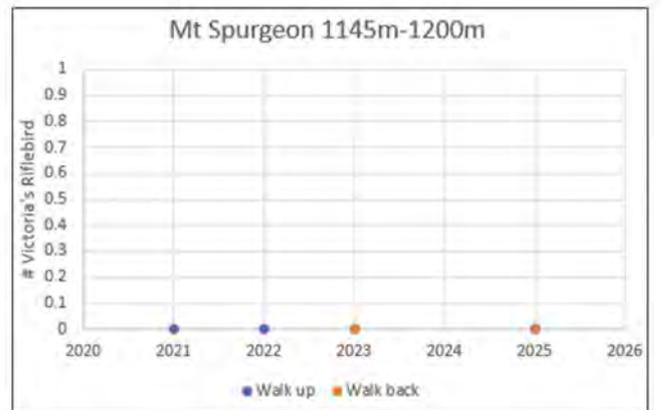
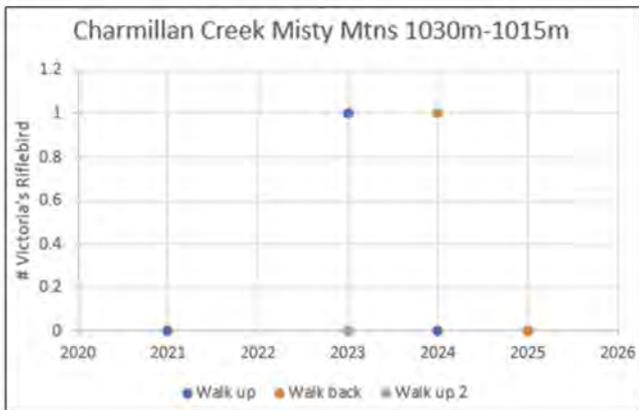
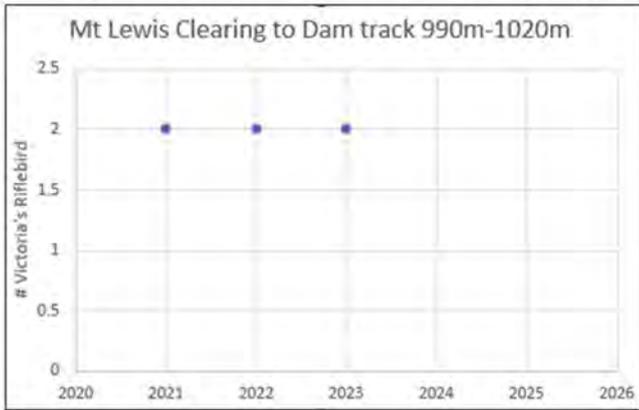
Australian King Parrot count along 1km track - 700m - 850m Sites Page 2



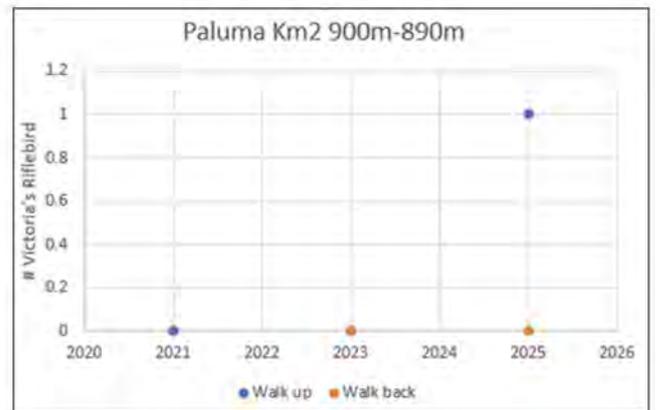
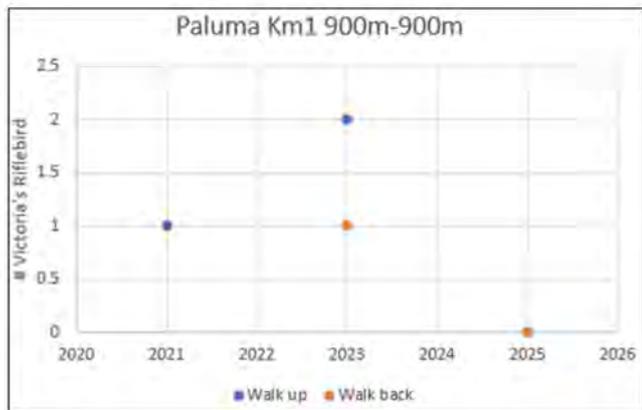
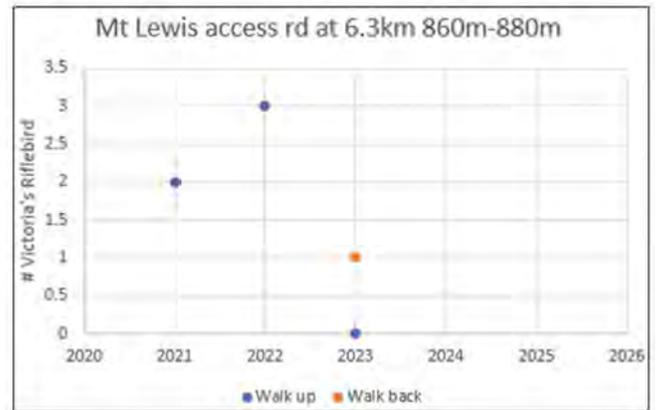
Australian King Parrot count along 1km track - Sites below 700m



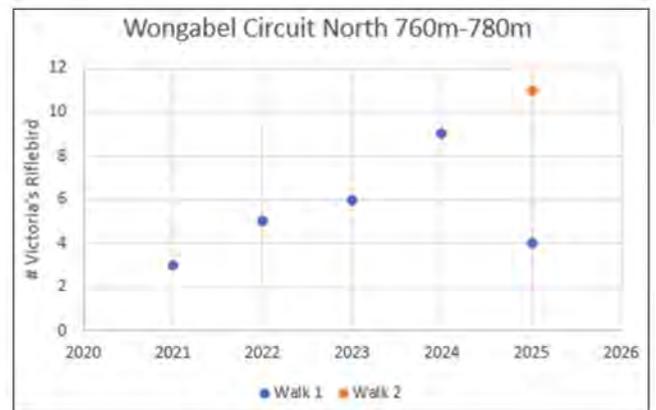
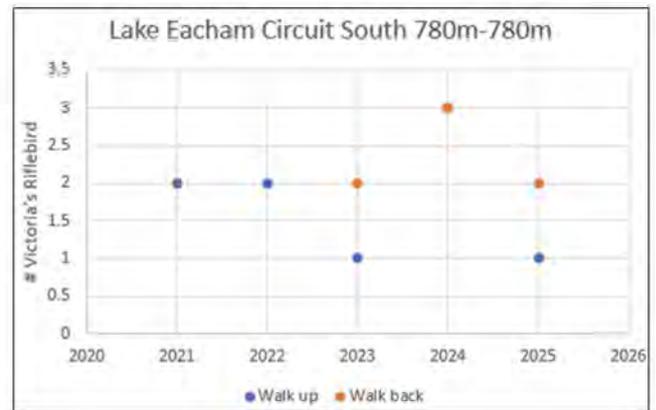
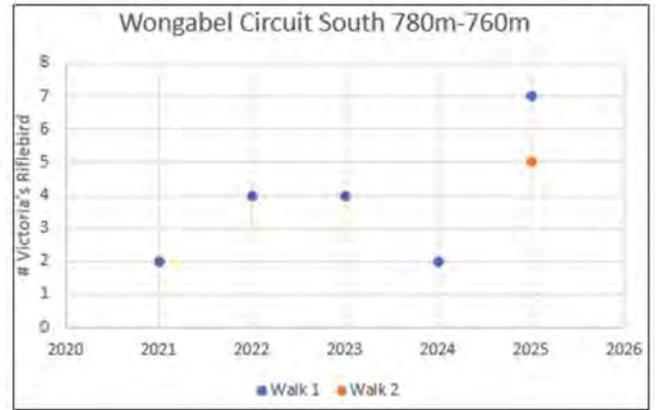
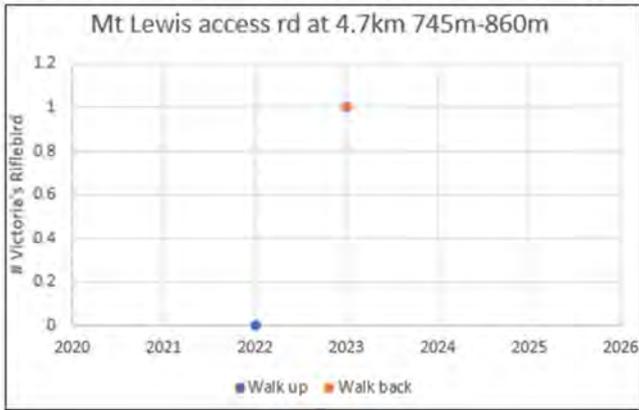
Victoria's Riflebird count along 1km track - Sites above 1000m



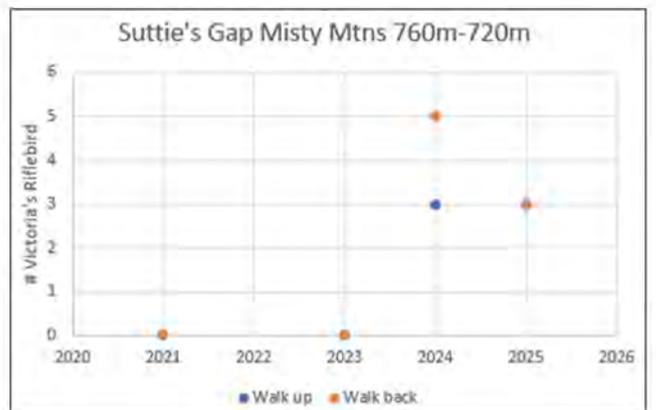
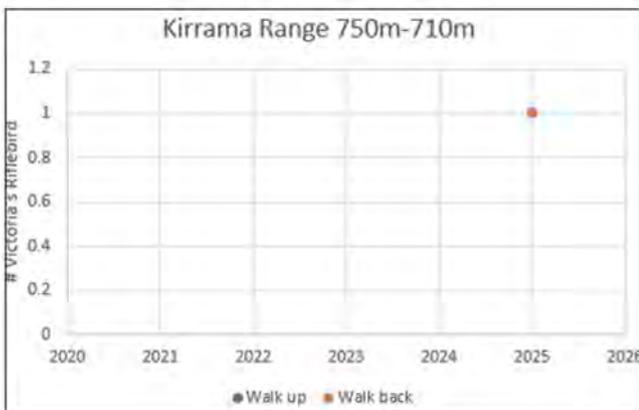
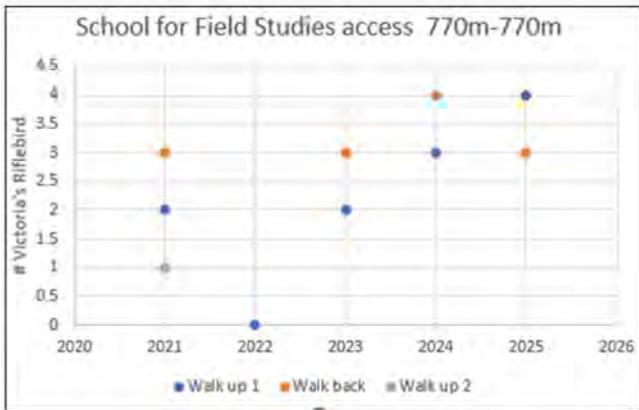
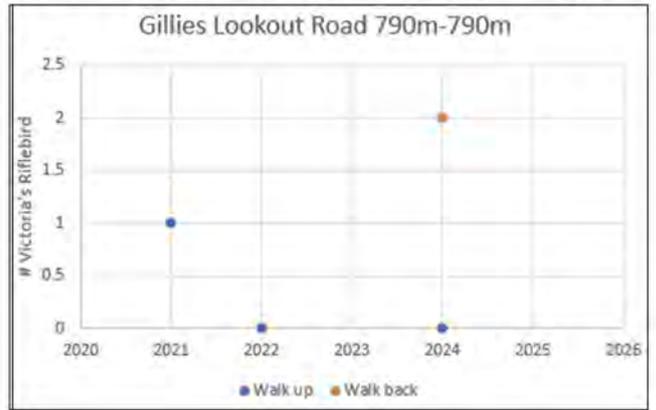
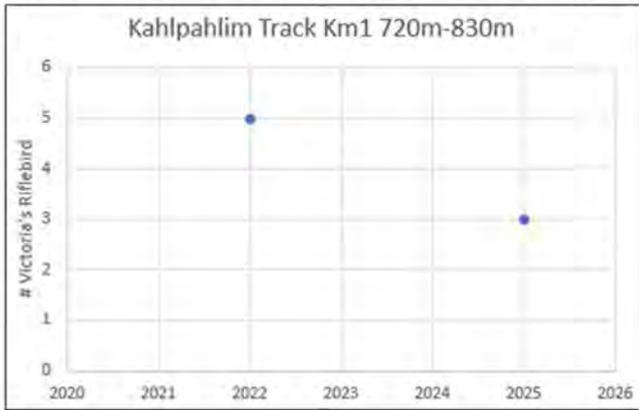
Victoria's Riflebird count along 1km track 850m - 1000m Sites



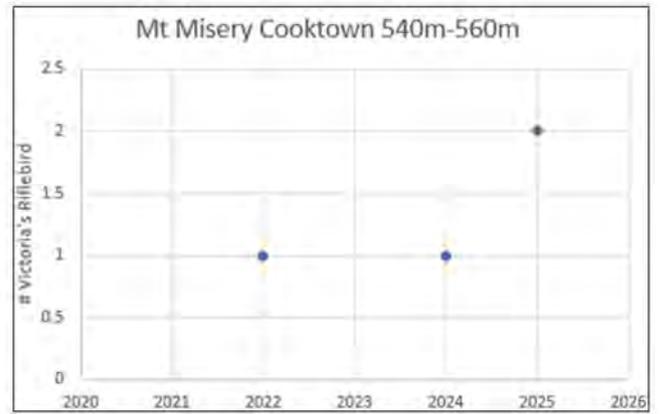
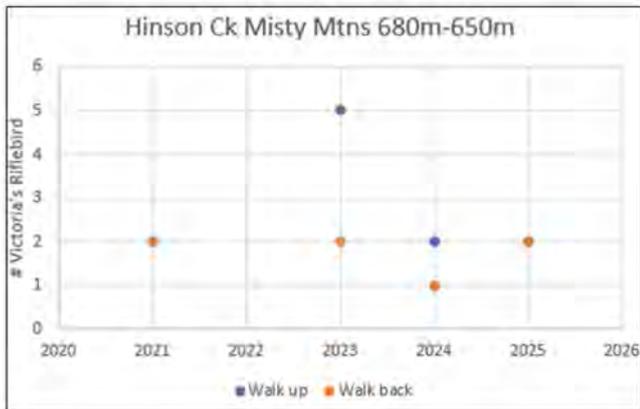
Victoria's Riflebird count along 1km track - 700m - 850m Sites Page 1



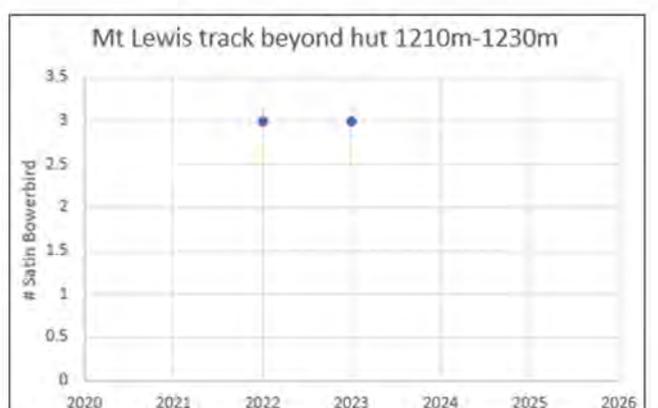
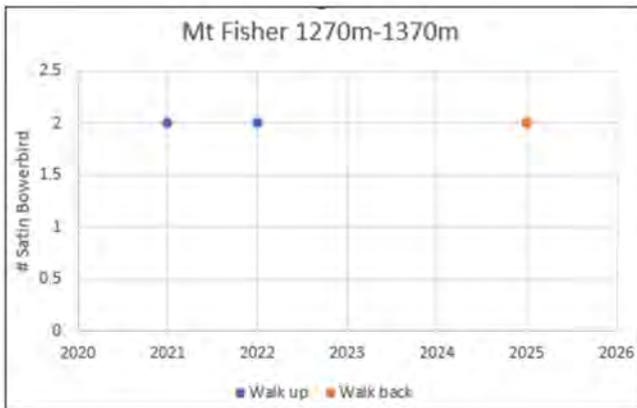
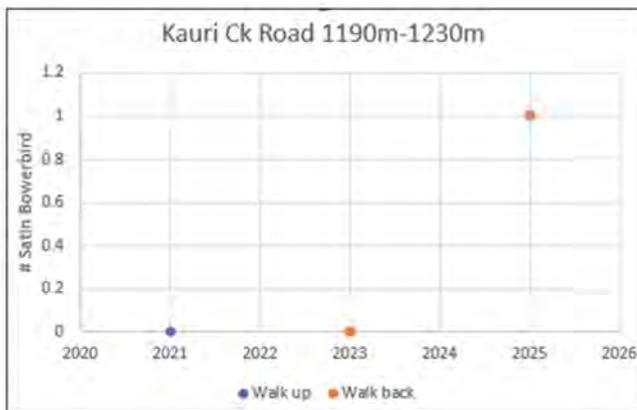
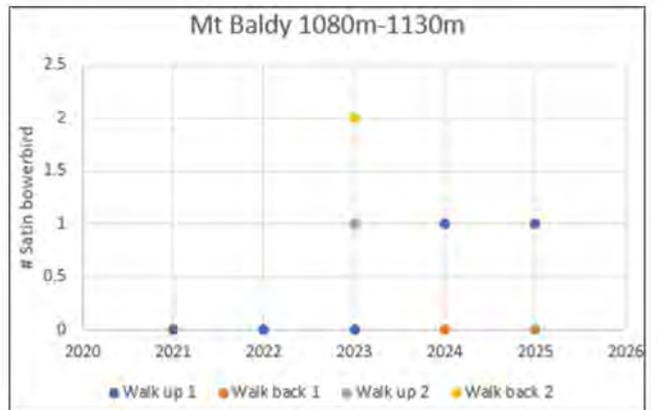
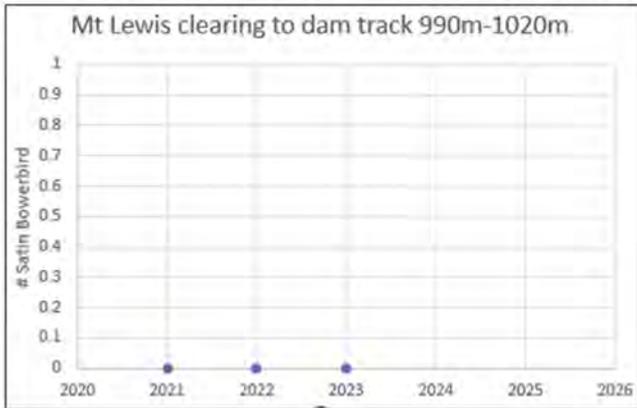
Victoria's Riflebird count along 1km track - 700m - 850m Sites Page 2



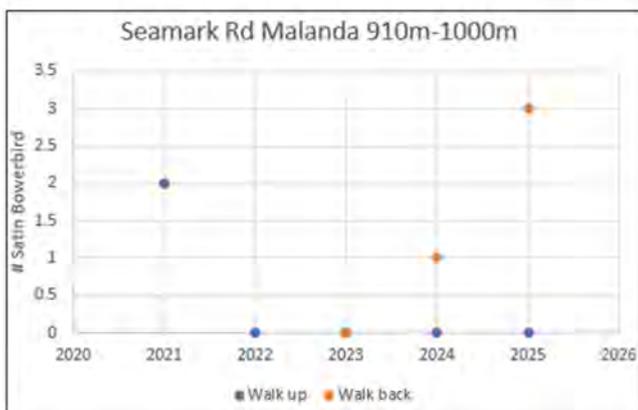
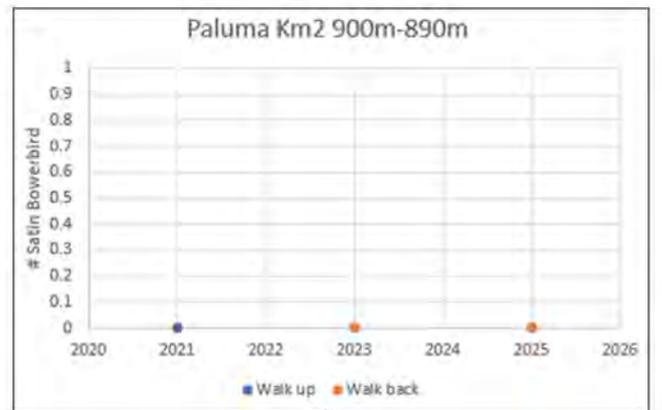
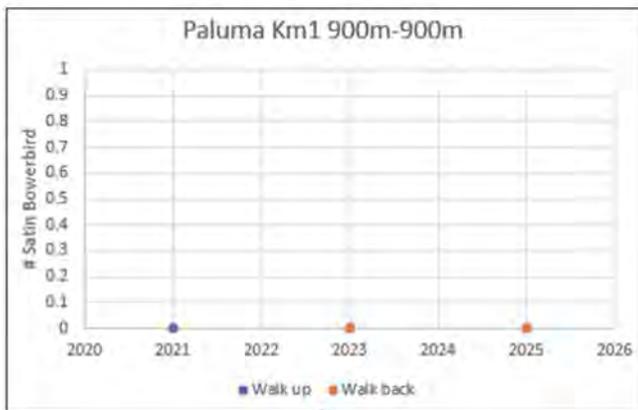
Victoria's Riflebird count along 1km track - Sites below 700m



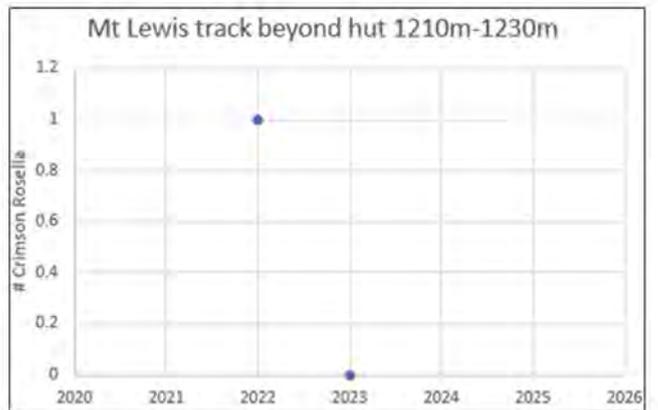
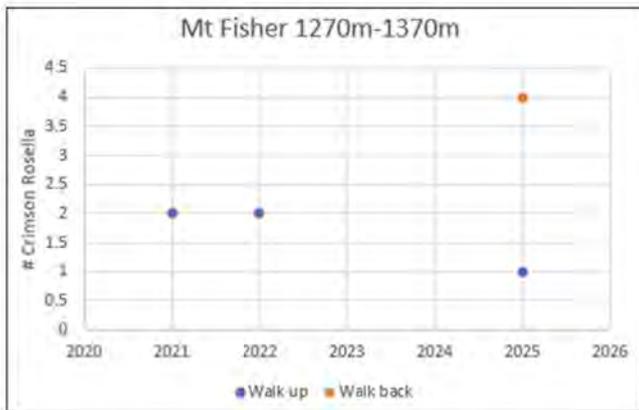
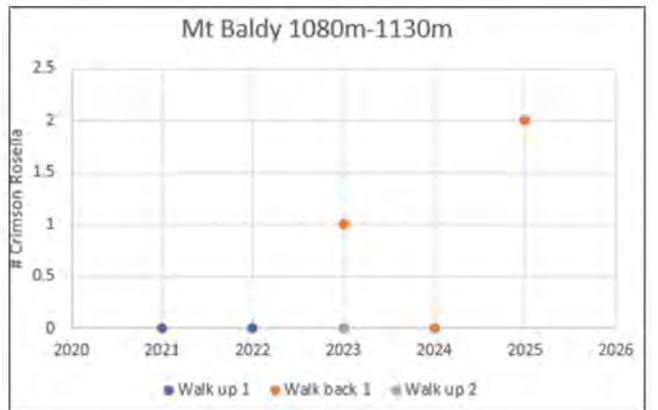
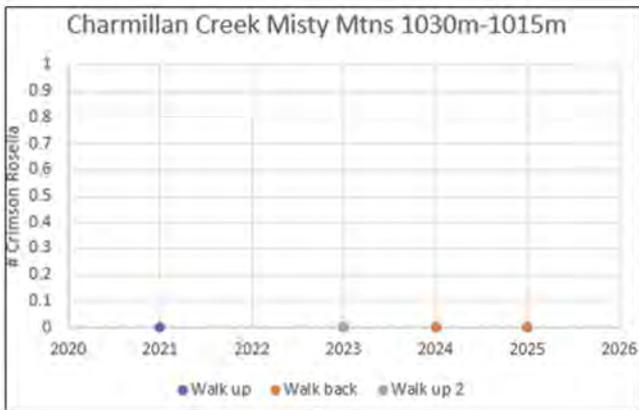
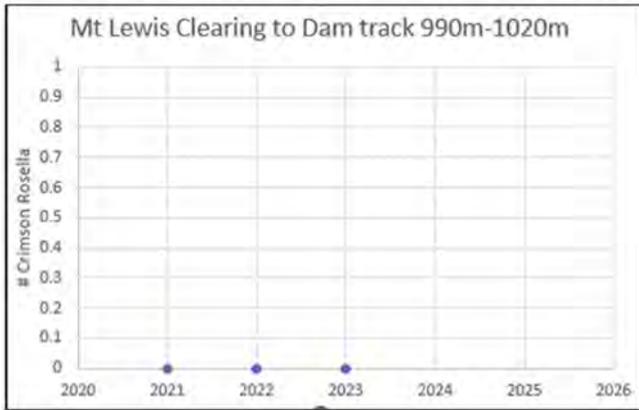
Satin Bowerbird count along 1km track - Sites above 1000m



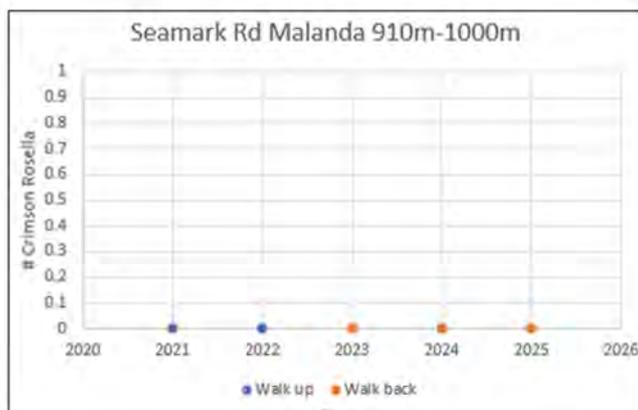
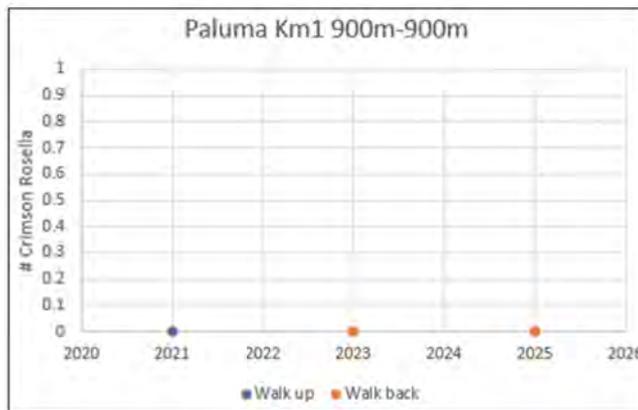
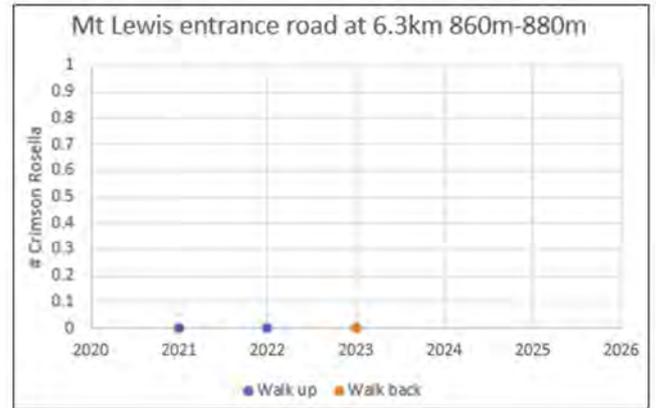
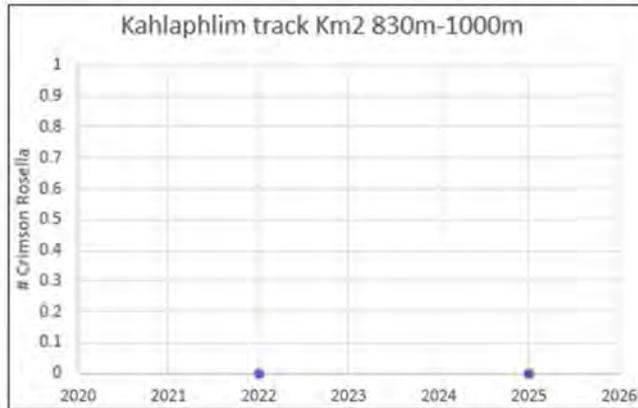
Satin Bowerbird count along 1km track 850m - 1000m Sites



Crimson Rosella count along 1km track - Sites above 1000m



Crimson Rosella count along 1km track 850m - 1000m Sites





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