The Cross-Pollinator

Newsletter of the Australian Native Bee Association

Issue 42, April 2023

Original articles, new information and news from the world of native bees

https://ANBA.org.au/

We acknowledge and pay respect to the past, present and future Traditional Custodians and Elders of this nation and the continuation of cultural, spiritual and educational practices of Aboriginal and Torres Strait Islander peoples.

Inside this issue

A natural nest entrance of *Tetragonula* stingless bees. Read a great story inside of how often these natural nests are taken over and how often they change their queens. Image by Laurence Sanders

The Cross-Pollinator
April 2023

ISSN 2652-8010

Circulation: ANBA Members (currently 766)

The **Australian Native Bee Association Inc** promotes the conservation and sustainable use of all Australian native bees. ANBA achieves that by providing resources, disseminating information, supporting members and communicating with stakeholders.

Message from the Management Committee

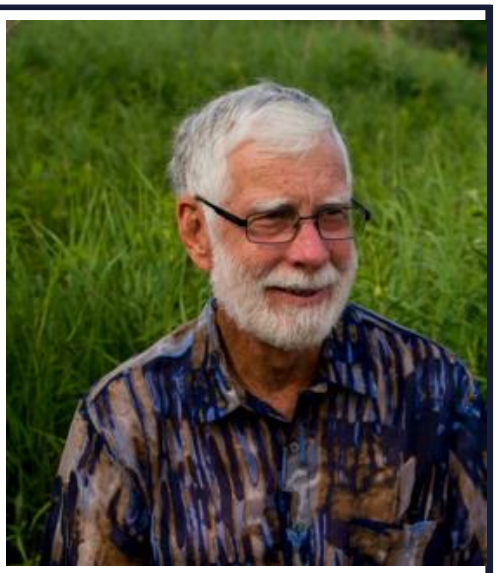
Dear members,

We are currently focused on planning the Brisbane Ekka honey show, developing a code of ethics for keeping native bees, reviewing our strategic plan, providing branches with equipment and planning our next events, including the Expo and Conference.

Most of our branches will hold their AGMs in August of this year, look out for those and get involved.

Warm regards from Tim, Mark, Ian, Megan, Peter, Steve, Alex, Tobias, Dean, Sam, Diane, Monica, Trevor, Lloyd, John, Liz, Stewart and Anne.

Meet the new management committee — Trevor Galletly



Trevor is a retired agronomist previously working with tree and vegetable growers in the Bundaberg district. Since 1990 I have been favouring organic practices. A few years back, honey bees hospitalised me so when I found stingless native bees, I was interested. The fact it is a young industry and we are still developing new management techniques is a fascination.

I build my own very basic hives without honey supers. I prefer eduction for multiplication due to the large potential for increase and the close management required. I have plastic covers and can inspect any hive any time without disturbing the bees. I refuse to break honey pots and the bees extensive work for a small quantity of honey. I have now seen developments by other enthusiasts for bee-friendly honey extraction and look forward to introducing these techniques.

ANBA Inc Management Committee

President: Mark Hall, Email: thebeeecologist@gmail.com

Vice President: Megan Halcroft, megan@beesbusiness.com.au

Past-president: Ian Driver, Email: ian.driver@anba.org.au

Treasurer: Peter Stone, Email: treas@australiannativebee.org.au

Secretary and Communications officer: Tim Heard, 0434 416053, tim.heard@anba.org.au

Web administrator: Steve Flavel, Email: steve.flavel@anba.org.au

***Committee Member*:** Alex Griffiths, Email: griffiths.alex@bigpond.com

***Committee Member*:** Tobias Smith, Email: t.smith5@uq.edu.au

Sydney Branch Representative: Sam Higgins, Email: sam.higgins@outlook.com.au

Mid-north Coast Branch Representative: Diane Norris, Email: diane.beewild@gmail.com

Coffs Harbour Branch Representative: Monica Rich, Email: Monicarich00@gmail.com

Wide Bay Branch Representative: Trevor Galletly, trevorbundy8@gmail.com

Rockhampton Branch Representative: Lloyd Younger, Email: rockyyoungers@hotmail.com

***Gladstone Branch Representative*:** John Starr, Email: jstarr@outlook.com.au

Cassowary Coast Branch Representative: Liz Lang, Email: busylizzy.lang@gmail.com

Cairns Branch Representative: Stewart Clarke sclarkehk@gmail.com

***Brisbane Branch Representative & Chair of Honey Subcommittee*:** Dean Haley, Email: josephhale67@gmail.com

***Chair of varroa response subcommittee*:** Anne Dollin, Email: varroa@anba.org.au

Next Cross-Pollinator: Issue 43, May 2023.
Deadline for contributions: Tue 23 May 2023. Send your news/stories/notices/events to the editor: tim.heard@anba.org.au

FEATURE ARTICLE

This month's feature article is brought to you by Ros Gloag. Ros first began research on stingless bees as an undergraduate Honours student in the University of Sydney BEE Lab. She then undertook her PhD (Zoology) at the University of Oxford, during which time she studied the evolutionary ecology of birds. In 2014 she returned to bee research as on a University of Sydney Postdoctoral Fellowship, working on the genetics and ecology of invasive honey bees. In mid-2018 she began a Lectureship in Evolutionary Biology at the School of Life and Environmental Sciences. In 2022 she began as an ARC DECRA Fellow researching the genetics and ecology of native Australian bees. This is the second of a series that Ros will contribute to the Cross-Pollinator over the coming years.

Takeover and turnover in the *Tetragonula* of Toohey Forest

Ros Gloag

Behaviour Ecology and Evolution (BEE) Lab, The University of Sydney

Ros sampling bees from the nest entrance while Genevieve holds the ladder.

Stingless bee colonies are perennial and can persist in the same nest site as an uninterrupted succession of one maternal line, with generations of workers and queens inheriting the nest from their mothers and sisters. To do so though, they must avoid takeover from rival colonies hoping to install their own dynasty.

Among the most spectacular behaviours of our Australian stingless bees is the "fighting swarm" [1]. These battles arise when the workers of one colony attempt to usurp the nest site of another. When the first intruders are recognised, the defending colony launches an air force of workers that pick off incoming attackers mid-air and pull them to the ground, creating a rain of tussling bee pairs. Once on the ground, they wrestle to the death, such that the ground can be carpeted black with bodies after large fights [2]. If the defensive air force fails, the attackers will secure for themselves a new nest site, already stocked with food, and install their own queen [3]. They will even enslave the young emerging workers of the previous colony, which are put to work for the new regime [4]. While fights have a high rate of casualties, a successful takeover is a far easier way of establishing a new nest than the non-violent alternative of slowly provisioning an empty cavity over many months, so it is not hard to understand why nest usurpation has evolved.

There are many aspects of nest usurpation behaviour, however, that we still don't understand. One issue is that, while it is commonly observed at hives, it remains unclear just how frequently colonies employ this tactic under natural conditions. Could it be that nest usurpations are particularly frequent in hived colonies because hives are especially conspicuous or attractive nest sites? Or could it be that bee-keeping practices, such as hive splitting, make colonies more vulnerable to takeover, and thus elevate the rates of nest usurpation observed at hives above that of wild nests?

We set out to better understand natural rates of nest usurpation in our Aussie *Tetragonula* by recording changes in nest site occupancy of the colonies in Toohey Forest, a nature reserve in Brisbane, over a five year period (2017-2022). Two species occur in this forest: *T. carbonaria* and *T. hockingsi*.

Step one was to identify as many nests as possible. Natural nests of *Tetragonula* are often highly cryptic, but thanks to the keen eyes of Dean Haley and the diligent

searching of Matt Keir (Queensland University of Technology), 56 nests were identified in 2017 within tree cavities in a patch of the forest, and a sample of foraging workers collected from each. These samples were then sent to the University of Sydney's BEE Lab for genotyping and species identification. From this we confirmed that the initial population consisted predominantly of *T. carbonaria* (77%) with the remainder *T. hockingsi* (33%).

We then resampled the same nests in 2018, 2019 and 2022 and compared the genotypes of workers over the years. With this data, we were able to infer the genotypes of the queens in each colony over time and classify each of the 56 nests into one of four categories: (i) no queen change, (ii) natural succession (i.e. new queens were the daughters or granddaughters of the initial queen), (iii) new lineage or (iv) nest death (the nest site was no longer occupied at all); **Figure 1**. Those categorized as new lineages were considered nest usurpations. This assumes that colonies did not die naturally and then have new residents move into the same tree cavity in the period between two sampling events. We feel this is probably a safe assumption, given that *Tetragonula* are not known to re-colonize dead nests.

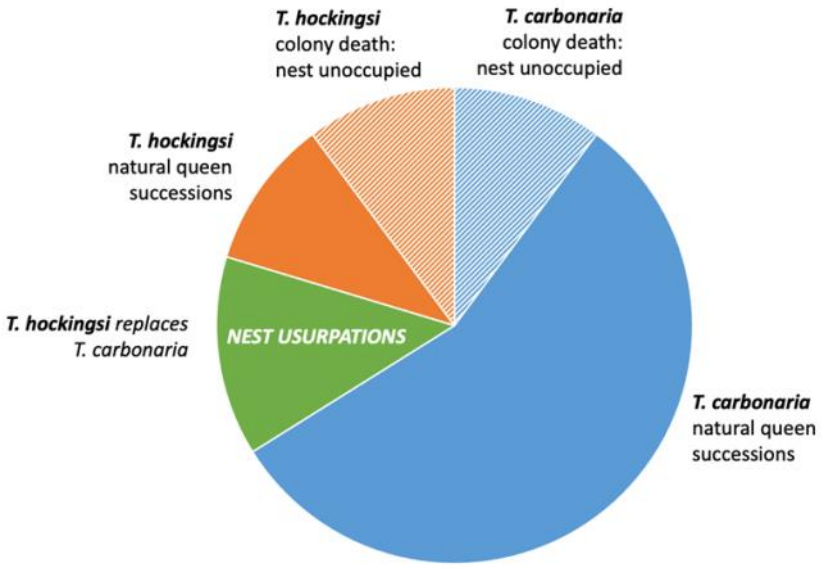


Figure 1. A simplified summary of the fate of 56 *Tetragonula* nests from Toohey Forest Brisbane, monitored over a 5-year period (2017-2022). In total, eight *T. carbonaria* nests were usurped by *T. hockingsi*. All other nests either remained alive at the end of the 5 years (with daughter queens replacing mother queens in natural successions) or the colony perished and the tree cavity was no longer occupied.

At the end of the five years then, we had the first snapshot of colony persistence over time in a natural population of Aussie *Tetragonula*. What did we find? Queens turned over regularly in these wild nests. From year to year, around one third of the colonies changed queen and only one nest retained the same queen for the full five years. From this data, we estimate the average queen in Toohey Forest reigns for about 2.5 years.

Most of the queen turnover was mother to daughter with no evidence of foul play, but eight of the 56 nests showed a change in worker genotypes over time that indicated a usurpation had occurred. In every case, this involved *T. hockingsi* usurping a nest of *T. carbonaria*.

Given that *T. hockingsi* were the minority species at the outset, they would encounter *T. carbonaria* nests most often by chance, but this factor alone cannot explain the strength of the observed directional bias in nest usurpation. That is, there is a genuine difference between species here: *T. hockingsi* are either more inclined to attempt interspecific takeovers than *T. carbonaria*, or more likely to succeed when they do try. Indeed, this result is consistent with previous work showing that in the Brisbane area, *T. carbonaria* in hives are more likely to be usurped by *T. hockingsi* than vice versa [3]. Perhaps the slightly larger body size of *T. hockingsi* gives them a fighting advantage.

This result of course raises a compelling *new* question. If *T. hockingsi* are forever usurping *T. carbonaria*, but never or rarely the reverse, then surely wild populations like the one in Toohey Forest will, over time, convert to single-species populations?

Our data suggests a solution to this puzzle also. In total, 16 of the 56 nests died over the five years of our study and these were disproportionately *T. hockingsi*. By the end of the study period therefore (in 2022), the species composition of nests in the forest was more-or-less unchanged. That is, the species bias in nest usurpation was precisely offset by a species bias in nest mortality. Why mortality was higher for *T. hockingsi* here is unclear. It might be because *T. hockingsi* in Brisbane are at the southern edge of their natural range and struggle somewhat with the local climate, but for now that is only speculation.

Nest usurpation then is very much a part of life for the *Tetragonula* of Toohey Forest. For *T. hockingsi* at least, this first glimpse of natural usurpation rates seems to suggest they are no different to what we see at hives. For *T. carbonaria*, the story is less clear. This is because we were unable to confirm any nest takeovers by *T. carbonaria* during our study period (though we can't rule out that some occurred but were not detected, which might be the case if usurpers were close relatives of those usurped). *T. carbonaria* are certainly very capable of fighting and do so often at hives kept in N.S.W. (where

there are no *T. hockingsi* around to blame!). For *T. carbonaria* therefore, one interesting next step might be to better understand if and how hive propagation by splitting interacts with nest usurpation rates. In my experience in Sydney, at least, fights do seem more common at hives that have been recently split.

It is also worth adding here that while fighting swarms are the most spectacular manifestation of nest usurpation, it is not necessarily the case that every nest takeover involves such all-out warfare. During his PhD research at The University of Sydney, Francisco Garcia Bulle Bueno collected several dead young queens from outside hives that had no visible fighting, and some of these queens were not related to that colony's workers [5]. This suggests that virgin queens might sometimes try to infiltrate foreign colonies on their own, a behaviour known also in some South American stingless bees [6].

Clearly there remains plenty yet to learn about nest usurpation in our stingless bees. But with every new study, we add a little more to our picture of this remarkable behaviour. The *Tetragonula* of Toohey Forest have provided us with a fantastic glimpse into how nest usurpation typically proceeds in natural populations.

This project was led by two students, Matt Keir (QUT) and Estella Xia (USYD), with assistance from Tim Heard, Dean Haley, Boyd Tarlinton, Carrie Hauxwell and Ros Gloag.

References: [1] Wagner & Dollin 1982. *Australasian Beekeeper* 84: 34-38 [2] Gloag et al. 2008. *Insectes Sociaux* 55:387-391 [3] Cunningham et al. 2014. *The American Naturalist* 184: 777-786 [4] Lau et al 2022 *Insectes Sociaux* 53: 47. [5] Bueno, FGB. 2020. PhD Thesis, The University of Sydney. [6] Wenseleers 2011. *Biology Letters* 7:173-176.

Below: Estella and Matt conducting field work

Tips on rearing bees

Wet Winter Worries

By Dean Haley

The long wet winter of 2022 was not good for stingless bees in SE Queensland. Stories abound of dead, weak, or sometimes mouldy hives. Experienced meliponists found themselves unable to split hives, or found they had to wait much later in the season before doing so. People keeping many hives in a single location (e.g. myself with 50 hives in the backyard) had more troubles than those with one or two boxes.

All my bees came through winter, but in spring three hives died suddenly, seemingly from lack of pollen and brood. Investigating, I found five hives very weak but at the time was not too concerned because the weather was warmer and plants were starting to flower. By early January however, I had decided that the flowers I could see everywhere were not much good. Frequent rain throughout spring washed the pollen out of flowers and diluted the nectar. On the sunny days following rain, bees flew out in numbers, only to find flowers washed clean of their goodness. I started to feed my weak hives.

In January 2023 a request for help came in from a Brisbane ANBA member. This meliponist has decades of experience, and keeps hundreds of hives across multiple sites in Brisbane bayside suburbs. He had a big problem, with dead hives, weak hives, sunken brood, and bee behaviour similar to poisoning. He was worried about Shanks disease, or aerial spraying for mosquitoes. I visited his home where he keeps about 40 hives on stands about one metre off the ground. They are mostly carbonaria though there are some hockingsi. We looked in half the hives, finding one dead without pests, two normal enough looking, but the rest weak and "strange". Strange brood consisted of sunken cap brood, "shot" brood, indicating that many cells had died and been cleared away, or very small brood areas the size of 50 cent coins. We judged that 90% of the weak hives would not make it through winter 2023, due to their small size, lack of stores, or failure of adults to emerge from the strange brood, see images.

Another Brisbane meliponist wrote to me; "Like so many others, last winter was a devastating year for many hives, we lost many.." This keeper reported that dead hives had no stores, and some weak hives were still struggling in April 2023. She thinks the problems are not just the wet cold winter, but also inadequate roofs and coverings that allowed water to enter some hives, causing dampness and cold.

Above left: Colony as found. Above right, dried top layer of brood removed to reveal small amount of brood beneath. Cell caps are sunken and do not contain developing bees. There is some pollen but no honey, very few bees, and there is some surface mould. This colony will not survive.

Keepers of European honey bees sometimes feed their bees supplements to prepare them for winter, or to stimulate brood production in spring. These supplements include sugar candy, sugar syrup, pollen, or high protein pollen substitute. Supplements often have added amino acids (the specific building blocks of proteins), herbal extracts, seaweed extracts, and vitamins (e.g. vitamin B). Yes, vitamin B is good for bees (Fat Bees, Skinny Bees, Doug Sommerville, Rural Industries Research and Development Corporation, Barton, ACT, 2005).

I fed my weak bees for two months, with feeders placed inside the honey supers. Placing the feeders internally meant that the bees did not have to fly out to find the

Colony with very few stores, very few bees. Above left: Multiple layers of involucrum removed to locate brood. Finger for scale to show amount of involucrum removed. Above right: Close up of brood, showing that brood is viable with hatching callows, but there are large empty areas where presumably brood has died.

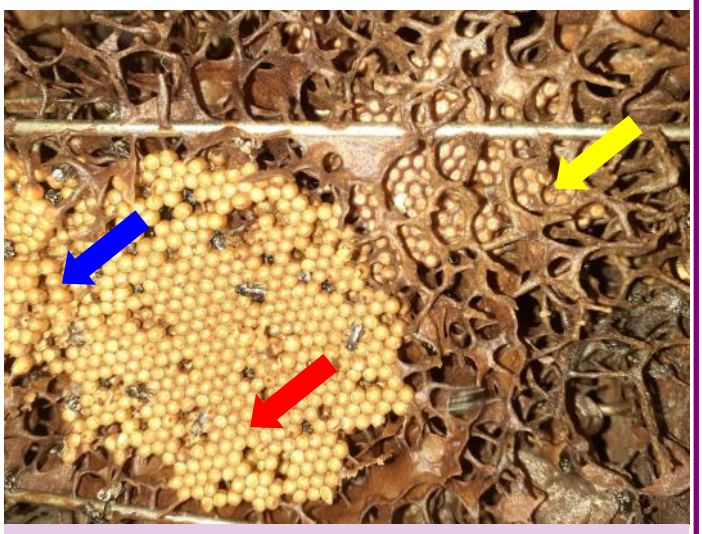
food, and also meant that only the intended hives received the food. I fed 2:1 ratio heavy sugar syrup, with 30mL Agrisea Bee tonic per litre of syrup. I fed Custom Bee Feed (www.custombeefeed.com.au) with 37% crude protein as a dry powder. I found the bees would not take candy, pollen cakes, or light sugar syrup.

The Brisbane bayside meliponist also fed his bees with sugar syrup and Agrisea tonic. He trialled custom bee feed, but felt his bees were not using it. After 2 months of feeding, he also reported that many of his weak hives had improved, and now estimates that at least 80% of his bees are prepared for the coming winter.

My gut feeling is that feeding has made the difference for these weak bee hives. I could see changes in the bee behaviour when looking through the viewing panels.

Freshly provisioned brood cells as indicated by the greenish brood food. However, the cell caps look sunken or concave. They do not look correct. The bees in this colony looked active, with reasonable numbers of bees and adequate provisions.

Listless, poisoned looking bees were suddenly alert and attending to hive duties. Guards were on duty at the entrance, and forager numbers increased dramatically. There is also the possibility though, that the drier reasonably warm Brisbane weather of the last three months also allowed the bees to help themselves. Maybe it is a bit of both. In any case, I'm not encouraging back yard beekeepers to feed their bees, I already see a lot of bad advice on social media. If you can keep your bees in warm winter positions and keep them dry (good roofs and covers), you may never need to do this. If you have one or two hives in your back yard, you do not need to do this. This advice is for larger meliponists, under certain wet and cold conditions.



So much to see in this image. Blue Arrow: Healthy brood. Red Arrow: Sunken brood, not developing. Yellow Arrow: The bees have attempted to move the brood away from the sunken brood. The new brood is also sunken, and will not develop. Mould is starting in the bottom right of this image.

Tips on rearing bees—Wet Winter Worries (continued)

A reasonably common observation at this meliponary. This brood is healthy, but there is very little of it. It's like three 50 cent coins of brood. That's all they have.

How baffling is this? This colony has pollen as well as honey. The brood, while healthy is very small. Three or four discs the size of a 50 cent piece.

There are a few pollen pots but no honey in this colony. The mould is becoming quite advanced and this colony is unlikely to survive.

In this colony, there is no brood at all.

Native Bee News

Survey of the IUCN Wild Bee Specialist Group Oceania

It would be great if ANBA members who haven't done it yet could fill out the survey of the IUCN Wild Bee Specialist Group Oceania. The survey will help to shape the activities of the group. The survey is about all > 1700 native bee species (so not just the few stingless bee species, and not 'pollinators').

The link is **HERE**.

Best regards, Katja Hogendoorn, School of Agriculture, Food and Wine, The University of Adelaide, Adelaide SA 5005

Kaurna Country,

Ph : +61 8 8313 6555 , Mob: 0409 728 869 http://www.adelaide.edu.au/directory/katja.hogendoorn

It's A Tough Job But Someone Has To Do It: Judging Our Native Bee Honey (Part 1)

A Reflection Series On Honey Judging At The Sydney Royal Easter Show's National Honey Competition

Sam Higgins, ANBA Sydney Branch Member & Royal Agricultural Society (RAS) Native Bee Honey Judge

Our Competition History

Honey has been the subject of competition at the Sydney Royal Easter Show for over 150 years with the first Apiculture exhibit submitted in 1870. Yet, despite the prevalence of our own honey producing stingless native bees it was only in 2019 that our unique product first joined the National Honey Show.

In that inaugural year, Toby Smith, having joined the European honey judging process in 2018, conducted the first ever competitive judging of 18 entries across two classes of "Liquid Honey – Native" Class 19 - Tetragonula and Class 21 - Austroplebeia.

The judging process at the time borrowed significantly from that of European honey with a judge plus one steward assessing each entrant out of 100 points against six weighted criteria.

As Toby himself noted at the time on Facebook, "I used these criteria as best as I could for stingless bee honey, although they are not a perfect fit. I used common sense to interpret some of these in an appropriate form for stingless bee honey."

The result of Toby's efforts was a set of revised guidance across the six criteria published in the National Honey Show Schedule and applied to the 13 entries submitted in 2021 where Dan Smailes presided:

Flavour -The initial taste, secondary taste, and any lingering mouthfeel. Score out of 30
Aroma - The scent imparted immediately and soon after opening the bottle. Smells of mould and fermentation are undesirable. Score out of 25.
Clarity - A measure of contamination from, but not limited to, pollen, dirt, tree bark or propolis. Score out of 25.
Density - Moisture content, measured by a refractometer. Score out of 15.
Brightness - A measure of visible bubbles before opening the bottle. Score out of 5

During 2021 the entry process was also modified with the Royal Agricultural Society providing the standard 2 x 100ml bottles used in our competition to avoid inconsistencies in submission and ensure that no entry could be identified ensuring a fair and equitable contest.

My Transition From Competitor To Judge

In 2022 I was invited to replace Dan as judge. Having been a stingless bee keeper since 2010 and an entrant in both the 2019 and 2021 competition this was an amazing opportunity as few, if any of us, get to taste as much honey in one place at one time. Let alone honey sourced from up and down the east coast! It was a true privilege to even be asked.

It was also an especially exciting time for our native bee honey. Dean Haley's book on the topic had just been published, raising interest within, and beyond, our native bee community and the Association's Honey Committee had begun its work on formulating a food standard for our product. The show offered a unique opportunity to further explore the many questions raised through these activities.

I discussed the judging process with Dan, who himself had recommended that we split the 2021 competition into three classes by dividing the very different Carbonaria from Hockingsi. But the criteria published by Toby remained unchanged, with Dan noting that access to a refactometer was difficult and that as Toby has also suggested in his post-event review of 2019 flavour, aroma and clarity were the key criteria for comparing our honeys.

So, the honour fell to me in both 2022 of judging 25 honeys across the three classes and a total of 21 entries in 2023. During the past 2 years my steward was Patrice Newell of Elmswood Farm, who took over from Dani Lloyd-Prichard who is also a great supporter of our community. Patrice is not only a native bee fan, but importantly a European bee keeper, garlic farmer and olive oil producer and judge. These qualities have made Patrice an invaluable partner on the journey given her produce judging experience.

I also benefited this year from the feedback of renowned food reviewer and Royal National Agricultural and Industrial Association of Queensland (RNA) judge Jeremy Ryland who with support from Ian Driver presided over the Royal Queensland Show (Exhibition or Ekka) in 2022.

The 2023 Field And Results

As Toby noted in 2019, "There were some bloody sensational honeys, and a small handful of rather less pleasant honeys." This has been true in both 2022 and 2023. Dan once said to me he had to get past the "smell of old socks" on more than one occasion during his 2021 judging! But this is a minor downside compared to the wonderful honey on offer each year.

Overall, 2023 was a very different year to 2022, much of the difference both in lower volume and flavours I attribute the very different climatic conditions – that is an extremely long period of wet weather in contrast to the drier conditions in the years prior.

The one and only Austroplebeia entry was fascinating to taste. It provided a pleasant aroma that was warm, bready and a complex scent that became sweeter once left opened which is a key step in the assessment of aroma. That is, we smell the immediately opened bottle and then allow each open bottle to rest for 10-15 minutes before assessing the aromas for a second time. This honey melted in your mouth with a butterscotch lolly sweetness and was smooth – completely free of the grainy mouth feel that accompanies the presence of pollen. Austroplebeia is a rarer honey and so this class has traditionally seen a smaller number of entries, but despite only one entry, this honey was an exceptional example of native bee honey from this species.

Hockingsi entries are also much fewer in the Royal Easter Show given their more traditional range further north. Indeed, all of these were submitted from Queensland. But despite the small group they were all fine examples too. All entries exhibited examples of flavour complexities and pleasant, lingering aromas. This group also had high clarity and near perfect brightness, assessed on the basis of very few bubbles around the top of the honey. The winning entry offered a sweet floral aroma with pleasant tangy notes that lingered. While its flavour was typical of the tension between sweet and sour of our Hockingsi honey this particular entry also had complex subtle buttery notes. It was very smooth on the mouth.

Sadly, half the Carbonaria entries did not meet the current requirements of 2 x 100mls filled to the collar of the bottles provided. These entries were scored but could not be considered for places.

Results Search › Results Display

2023 NATIONAL HONEY SHOW RESULTS

Note: Results for each class are displayed as follows: Award, Catalogue Number, Exhibitor, Exhibit

LIQUID HONEY - NATIVE

CLASS: 19 - Liquid honey, any colour, produced by Tetragonula carbonaria.

1	199	SUGARBAG BEES BRISBANE QLD 4101
2	205	MR MOMODU BILL SUMA TOONGABBIE NSW 2146
3	203	BEELINDA'S BEE HIVE CROOKWELL NSW 2583

CLASS: 20 - Liquid honey, any colour, produced by Tetragonula Hockingsi.

1	209	MR JOE GARCIA HOLLAND PARK WEST QLD 4122
2	208	SUGARBAG BEES BRISBANE QLD 4101
3	206	MR JACKSON HIGGINS BRACKEN RIDGE QLD 4017

CLASS: 21 - Liquid honey, any colour, produced by Austroplebeia.

1	212	SUGARBAG BEES BRISBANE QLD 4101

I also noted that compared to entries in 2022, this year's entries did not exhibit the full potential of flavours and many failed to produce a significant aroma at all with the more distinctive and complex citrus and floral flavours of our honeys seeming washed out or missing. Many of the entries were also grainy and this detracted from the flavour and mouth feel – an experience which when judged should be pleasant on the initial taste, the secondary taste and the lingering mouth feel. That said, the clarity of some honey in this class was exceptional. Although a small number were overly fermented with one bubbling over within minutes of opening – quite a spectacle to watch!

As with the other classes the placed entries were fine examples of this species, with the winner what I would describe as a classic Carbonaria honey: sweet, smooth and floral.

Next month I'll explore in more detail the judging process itself and recommendations for changes to our approach for the National Honey Competition in 2024.

New research on the anti-microbial activity of stingless bee honey and propolis

How do stingless bees protect their stored honey and pollen against unwanted microbes? And can the anti-microbial properties of stingless bee honey be harnessed to benefit human health?

A new research project at The University of Sydney aims to better understand the microbe-fighting potential of honey and propolis from Australian stingless bees. **If you have fresh or stored samples of honey or propolis (50mL) and are interested to know whether your samples show anti-microbial activity, you can contribute them to the project.**

Honey produced by the European honey bee (*Apis mellifera*) is well-known to have anti-microbial properties. These properties derive partly from enzymes and other compounds produced by the honey bees themselves, and partly – in the case of certain honey types, such as Manuka – from the chemistry of the plants on which the bees forage. Because of this ability of honey to protect against bacteria and other microbes, it has been used as a therapeutic for centuries to treat wound infections and other conditions.

But what about honey from Australian stingless bees?

A previous study [1] at The University of Sydney found evidence for high anti-microbial activity in the honey of *Tetragonula carbonaria* when tested against a common pathogen (*Staphylococcus aureus).* Indeed, activity was higher than that of a commercial Manuka honey control. The study also suggested a bee-derived origin of this activity, however this appeared distinct from honey bee honey as the activity was very stable during extended storage, whereas honey bee honey loses activity over time.

Further testing is now underway to improve our understanding of how common pathogenic microbes, including various bacteria and fungi, respond to stingless bee honey. This new project will also extend on previous work to consider stingless bee propolis, and will test both honey and propolis from a greater diversity of species and locations.

If you are collecting honey for upcoming competitions, such as the native bee honey competition at the Brisbane Ekka in August, you might consider setting aside a little extra to contribute to the USYD study. You would later receive from USYD the results for each of your submitted honeys, including measures of the antimicrobial activity via phenol equivalence (the current honey bee industry standard), the activity against a panel of human pathogens, the total phenolics content and the antioxidant content. Samples can be sent either as clean filtered honey, or simply as fresh extractions (i.e. crushed honey and pollen pots all combined in the same container).

To ask about sending samples, contact: **Ros Gloag,** ros.gloag@sydney.edu.au

References: [1] Irish et al. 2008. Antibacterial activity of honey from the Australian stingless bee *Trigona carbonaria*. **International Journal of Antimicrobial Agents** 32:89-90.

https://doi.org/10.1016/j.ijantimicag.2008.02.012

Strategic plans

Please be aware of the difference between the Australian Native Bee Industry RDE Strategic Plan and the ANBA strategic plan. Both were facilitated and funded by Agrifutures Australia.

RDE strategic plan (2022-2027) represents the native bee industry generally. It was produced in 2021 by broad consultation by a series of workshops involving Agrifutures, professional facilitators and industry representation. This plan acknowledges that it needs to be driven by the ANBA, but it is an Agrifutures document, not an ANBA one. Compiled by Olivia Reynolds and Michael Robinson. Available here: https://agrifutures.com.au/product/australian-native-bee-strategic-rde-plan/.

ANBA strategic plan, produced in 2022 by an ANBA committee and lays out a Vision, Mission and the six Pillars that detail how we will achieve our mission. Compiled by Kathy Nguyen and Andrew Gosbell. It is now on our website, HERE.

New planting guides help pollinators thrive—Powerful Pollinators

Creating essential habitat havens for bees and other pollinators has just become a whole lot easier thanks to a new range of planting guides developed by the Wheen Bee Foundation.

The Powerful Pollinator Planting Guides are created by botanists to help gardeners, farmers and land managers choose plants that attract pollinators to their properties, increasing the abundance and diversity of insect pollinators in urban and rural landscapes.

Each planting guide includes information on ways to attract pollinators to the local area, with tips on creating pollination reservoirs, constructing insect real estate, improving habitat connectivity and reducing chemical use.

So far 20 guides have been published across six states and territories, with links to all guides below. More guides are in development.

Download your free guide https://www.wheenbeefoundation.org.au/our-work/projects/powerful-pollinators/

Native Bee Workshops, events and seminars

Members of ANBA are invited to promote their events, services and products in the Cross-Pollinator.

Please send details to tim.heard@anba.org.au.

ANBA Native bee Workshops

ANBA holds two native bee workshops in collaboration with enthusiasts from the local branches. Attend to learn about native bees and how to propagate them. More information and to register, go here: https://www.anba.org.au/events/.

A Green Soul Native Bees

Ian Driver at A Green Soul Native Bees runs introductory native beekeeping workshops at Artisan in South Brisbane and Workshop in Paddington. Workshops include presentations on native stingless and solitary bees, hive splitting, and honey tasting. You get to build and take home your own bee hotel. To find and book the next workshops go to https://artisan.org.au/pages/upcoming-workshopshmntx or https://www.work-shop.com.au/events/grid/#brisbane

Workshops by Sugarbag Bees

Sugarbag Bees offer seminars and workshops presented by Dr Tim Heard. If you want to learn more generally about bees, especially stingless bees and beekeeping, come along workshops held in various venues in Qld and NSW. The workshops are a mix of photographic slideshows and practical sessions. See here for event list.

Hivecraft Native bee products

Steve Flavel has colonies, empty boxes, log cabins, out house boxes, observation boxes, roofs, bee hotels and books available at www.hivecraft.com.au

TrueBlue Bees products for sale

Visit www.truebluebees.com.au

Hockingsi wax $15/ 20g

Refined wax (not propolis)
Dark colour with pleasant resin odor

Native Bee Books $25

2022 edition contains new information on bee management!

Bulk Hockingsi Honey $200/ kg

Refrigerated
Subtle blend of bush flowers
Not sour or fermented

World Bee Day

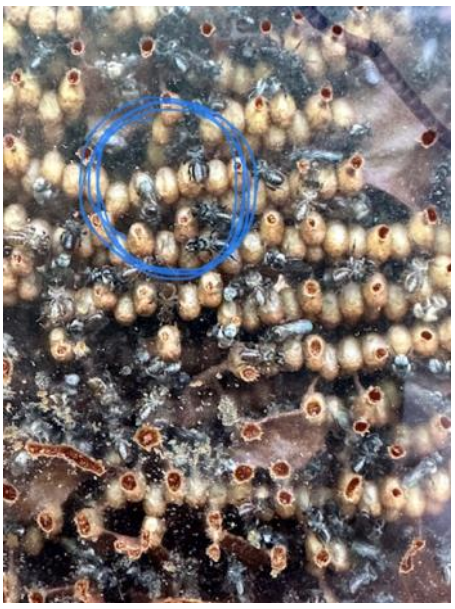
World Bee Day is held every year on 20 May and is a day dedicated to raising awareness of the vital role bees play in food security and ecosystem health. Events include pollinator picnics, bee-themed lectures and information sessions, and activities run by gardening groups, farmers' markets, beekeeping organisations, service clubs and more.

Register your World Bee Day events for free HERE.

My native bee Journey

By Tony Everett, A happy novice

A quick note on something I am very, very pleased with and photos to show my pleasure



After seeing Tim Heard's see-through/ display hive at a meeting I was keen to obtain one and see what I could do. After a few 'gentle hints' my wife and boys bought me one for my 70th birthday (2020) and away I went, trying an education to grow a hive….
2021…..
2022…..
And….2023. I checked on 26 February and found there was movement in the hive, lots of it, and just before I went for a walk in Tasmania so I couldn't keep annoying them.
When I returned on 26 March I found brood and I was over the moon (first brood photo). Being careful to not check too often I couldn't resist and did so about every ten days and began marking the perspex to see how they were going (second brood photo). Photos 3 and 4 were taken on the 23rd April. I am wondering if photo 3 shows the queen (circled in blue) while photo 4 is a close up of the brood.
I disconnected the hive on 15 April and have been watching since….and it looks strong and seems to be staying that way.

Branch News

Cassowary Coast Branch

From: Liz Lang, Chair Cassowary Coast Branch

Next Cassowary Coast branch meeting — 7 May 2023

Sunday, May 7 at Innisfail State College, Innisfail at 2pm. We will be located in room H18 which is next to the admin car park.

General business will be addressed first. Jane is then going to be running us through Dr Tobias Smith's Citizen Science project where owners of hives, are collecting data to help ascertain how native social bees reproduce new colonies.

Jane is also going to show us how to use iNaturalist as a tool for identifying bee species.

Lastly, we'll be looking at the College's native plant, food garden and how pollination in the garden is assisted by native bees and other pollinators.

Please email or respond on our Facebook page if you can make it.

busylizzy.lang@gmail.com
https://www.facebook.com/groups/1703605019824793/?ref=share
Look forward to seeing everyone there.

Cairns branch news

Last month we held a joint information booth with the Cassowary Coast branch at the Innisfail Festival of the Senses. It was a really successful day with a steady stream of visitors eager to chat and learn more about native bees. A highlight was definitely the vertical hive stocked with Sapiens that people could view. The hive was blocked with mesh so they could be viewed but not escape to forage. The items supplied by the ANBA , the gazebo and tablecloth with ANBA signage were great and our library was well browsed.

A couple of months back there was a request on Facebook from Steve Madeley collecting stingless bees for research at The University of Sydney. The Uni is testing to see if there are any new varieties of stingless bees out there. He will send off samples from our boxes, but we are usually pretty sure about what we have got in those hives. He is really looking for wild bees, in houses or trees etc. He comes up about 3 times a year, and I would encourage everyone to consider having him come and collect some bees. Results take a few months to come back. We'll let everyone know when he is next up this way.

Cairns Council Sustainability Grant

The Half Moon Bay Golf Club in Cairns has agreed to partner our association in a submission for funds as part of the Cairns Council Sustainability Grant. It will be lodged in early June. The submission is for a working native bee hive and a park bench with appropriate signage to be placed in a public area on the course to raise awareness and help educate the public regarding native bees.

Cairns Branch bee audit

Only 10 members have participated in the survey. Results were interesting but too few to publish anything meaningful. It would help to know what species of bees are around us, particularly if we wish to purchase bees and want to be sure they will have the same species to be able to mate with down the track. I would encourage members to consider filling out the survey. It is private and no personal information would be published…just general type information….e.g. These are the suburbs in which members have Carb hives … and so on.

Future events for our Branch

Our next branch meeting will be held on 30th April at the home of Trevor and Annette Allwood on the Atherton Tablelands. We believe it's important to be an inclusive group and recognise that some members have a long drive for every meeting which is why we try to move the venues around. Being up on the tablelands gives us an opportunity to see our native bees in a very different environment to what we used to on the coast.

Wendy Forno will be speaking at our meeting on the methods, including the pros and cons, of splitting versus brood lifts of hives. Wendy is an entomologist and has a lot of experience over the years working with native bees. She worked with Tim Heard at the CSIRO for a number of years, and is a wealth of knowledge. This is a discussion members won't want to miss.

This meeting will conclude with Trevor and Annette taking us on a tour on their hives, followed by morning tea

Cairns branch of the ANBA has been invited to have a stall at the EcoFiesta on June 4, at the Munro Martin Parklands in the Cairns CBD. It is billed as Queensland's premier sustainability festival.

We are hoping to have members volunteer to man the stall at some time during the day. We will have our resources on show, plus a live hive (entrance closed but viewing panel clear). Please let us know if you can spend some time at the stall!

We will hold our AGM (Annual general meeting) in July or August. The main agenda item at that meeting will be the election of officers for the Cairns Branch of the ANBA. You must be a financial member of the ANBA to stand for a position, and to vote for someone. All positions are open. I encourage all members to consider standing for a position as Chair, Secretary, Treasurer, or a member of the Committee. All positions can be rewarding, and you'll get more out of the position depending on the amount of effort and enthusiasm you bring to the role. Soon, we'll put out an information sheet outlining what the roles entail, but feel free to speak to an executive member of the branch anytime for advice.

From: Stewart Clarke sclarkehk@gmail.com, Chair and Representative to ANBA
Cairns Native Bee Association Facebook group,
https://www.facebook.com/groups/1269746467098269/

Brisbane branch news

Report of the April Meeting

The Brisbane Branch enjoyed a presentation by Adli Wahid entitled "Photographing Bees around the House" at our April meeting. Adli works in IT, and hails originally from Malaysia, and over the past 5 years has developed a passion for photography, gardening and bees. He shared his journey as he developed all three of these mutually supporting hobbies in a light-hearted and entertaining way. Some highlights were his first photo shared on Social Media in 2018, a Blue Banded Bee, venturing into posting more photos on websites, acquiring equipment in an economical way and experimenting with lighting and magnification. A recording of the Zoom presentation can be found here, https://youtu.be/zQZZVKY9rys

From Greg Shea, Secretary, ANBA Brisbane Branch

For more info on branch activities, visit our Facebook page Brisbane Branch, Australian Native Bee Association, https://www.facebook.com/bnbeec.

Next meeting — 7th May 2023

A Walk in the Park, By Dean Haley

Brisbane ANBA branch shall have an outdoors session on Sunday 7th May. Club members are invited to visit club president Dean Haley's home suburb of Tarragindi and come for a walk in Toohey's forest from 1pm. I've studied the numbers and density of carbonaria bees in this urban forest environment from 2011 until 2017, putting in around 4 hours of searching each weekend. In that time, I learned quite a bit about the forest, the bees, and the trees they call home.

Scientific studies have also occurred in Toohey's forest over this time, such as the study described by Ros Gloag in this edition of the Cross-Pollinator.

I'd like to give club members the 'Royal Tour' of a place that feels like home. We will look at;

- The value of native bushland in urban areas
- Hollow formation in trees. How does this occur and how long does it take?
- How many stingless bees are out there? How many per hectare?
- How do I find bees?
- What is the turn-over rate of bees in natural areas? How many colonies die, and how many new ones appear?
- I will show you native bees living in their natural trees. It makes me feel good to see bees in the natural environment, and hopefully you feel good too!

We will meet in Salisbury at the entrance to the park at 1pm. This is very near to the intersection of Tarragindi Road and Sharon Street.

We will proceed from there along the track, and up about 120 steps to Peggs lookout for the first talk. Small walks will fan out from this location.

There are steps, rocks and some steep terrain. Most of the walk would classify as easy, and is less than 2km. There will be some small detours off the track for those that wish. There are no facilities. On the positive side, I love the variety of plants in this area, and the view from Peggs lookout is quite nice.

Gladstone branch news

Called in on Cheryll Gibson at Daisey Dell on the way home from a turtle adventure to check on her hive development, in particular the log hive that was being attacked by termites. Cheryll now has an eduction hive hooked up to it and appears to be going extremely well. Speaking with Cheryll and her husband Bruce and they reported that all their fruit trees were performing very well including their 30 year old guava which had never fruited before and they are suddenly getting buckets full of fruit off it which Bruce has been feeding to their neighbor's pigs. The put this down to the presence of their native bees.

Trap Hive – Last issue I reported a call to local Gladstone School to swarming bees and we set up a trap hive using a very small amount of brood from another hive split as bait in a new box. Immediately the swarming bees started entering to box and swarming ceased. With the onset of Easter school holidays, we were concerned that it may be subjected to vandalism so we made a decision to relocate it. Despite it only being there for 14 days, when we removed the lid, we were totally amazed by the development inside. The box has now been relocated and appears to be performing exceptionally well as a single stage box at the moment with the brood more than doubled in size.

On Thursday 30th March 3 of our members attended an information evening at the Boyne Island Environmental Education Centre. This was an inaugural Nature and Nibbles evening for members of the public to learn about the Centre and in particular one of their projects, Bee Sustainable Project – This project is supported by local business Boyne Smelters Limited and ANBA Gladstone Branch. We were invited to provide information to the public on the work of ANBA organisation. Principal Michael has offered support of resources at the Centre to our Branch and we look forward to continuing the relationship.

At a special Management Committee meeting on Sunday 2nd April, we had a lot of discussion around our Gladstone Regional Council water meter rescue program and planning of more regular events / meetings for our Branch to keep members informed and interested. Nanette and John are in the process of drafting up a management procedure for our rescue hives.

On Sat 15th April we held a meet and greet day for members at the residence of Nanette Collingwood to provide feedback from our Management Committee meeting and discuss bees in general over morning tea.

From Ian Anderson

Future events for our Branch include:

Sat 27th May 9am – 12 noon at residence of John Starr

Sun 4th Jun – Ecofest at Tondoon Botanic Gardens

Fri 8th Sept – Native Bee talk at Quoin Island Turtle Rehab Centre with CU University year 4 students of GWSS and year 4 Indigenous students from Calliope SS

11th Nov – National Pollination week at Tondoon Botanic Gardens Ian Anderson

For more info on branch activities, visit our Facebook page ***ANBA Gladstone Branch***, https://www.facebook.com/groups/480678232538075

Cheryll's eduction hive

Trap Hive after 14 days

Nanette

Wide Bay branch news

On Saturday, 15th April 2023, the Wide Bay Branch of the ANBA held its monthly meeting. There was a great turnout for this meeting with varying Australian Native Bee issues being covered. Our Chairman, Trevor, discussed a visit he and some members made to a home in Wallaville (a rural township to the north of Bundaberg) to view the Blue Banded bees that relocated in the owner's garden.

An in-depth discussion was held on "Understanding the Highly Social Bees" - a section of Tim Heard's book – with all members contributing to the discussion. Several possible pest specimens were brought to the meeting for identification, and an informative and interesting discussion resulted.

To top the meeting off, a log-transfer was undertaken. (This log and bee nest had been cut into sections for firewood by a local timber cutter who fortunately recognised the presence of the bees). The log was donated to the Wide Bay Branch of the ANBA by Tony and Sharon Harvey of Wide Bay Stingless Bees, and we sincerely thank them for their kind donation. The transfer was necessary as the log had been cut into sections and went exceptionally well, with the brood and bees making their new home in a new hive box. This hive will be tended by members of the Branch and when ready, will be used to create more hives, with the ultimate goal being the ability to place hives in local kindergartens, schools, etc. for the education of the importance of bees for the environment being instilled in upcoming generations.

From Stephen Curran, Secretary, Wide Bay Branch

Visit our Facebook page, https://www.facebook.com/Australian-native-bee-association-Wide-bay-branch-112512193439742

Mid North Coast branch news

Enjoy this photo of a Great Carpenter bee visiting *Salvia waverly* in March.

After our exciting workshop with Tim Heard in early March (thank you so much Tim!), we look forward to our next meeting with much anticipation and renewed enthusiasm. Last year we decided a couple of changes for our regular get-togethers. They will now be held every two months and on a Saturday (unless a special event is organised). The venue will also vary to make it more attractive for members and add interest too.

So - our next branch meeting will be on Saturday 6th May and it will be a Garden Party!!

Come along after 11am for an enjoyable social before our official meeting starts at 1pm.

Please bring your camera, lunch (or plate to share), a chair and a cup/mug. Throw in a rug – if the weather is nice there is plenty of soft grass to find a spot.

And here's another little sweetener: - there are lots of flowering salvias in the garden from which cuttings can easily be snipped and shared to those with greenish-thumbs. And loads of native bees are also there now – *Tetragonula carbonaria*, Teddy Bear and Blue Banded – busy and happy visiting blooms and just waiting to smile for your snap.

The venue is a private property so for more details and directions please call or text Diane (chair) on 0422 639 336. Come along and have a relaxing day with fellow meliponists and gardeners – we look forward to seeing you there.

From Diane Norris

Coffs Harbour branch

The Coffs Harbour branch met on Sunday 19th March at John's property in Korora. We were able to enjoy the beauty of the location and explore the wide variety of trees and plants which had been planted by the previous owner, a botanist.

John showed us his log hive which he rescued from near the creek on his property several years earlier. He was fortunate enough to have the machinery to keep the log intact (it is a substantial size) and relocate it to a safe position. With the abundance of trees on his property John built a new hive from a log by cutting it in half, carving out a space on the inside (with a chainsaw) and hinging the 2 halves together. He has used this to set up an eduction from the existing log hive. During our meeting John opened the eduction hive to check on progress. While the bees have started building structures in the new hive, there was not any sign of brood. We look to forward to hearing of any progress next summer.

Monica gave us an update on news from the ANBA Management Committee, and we discussed possible locations for our next community hive placement.

Congratulations to all our lucky door prize winners. Thank you to Judith for donating native bee propolis. Many thanks to John who donated some fresh fish which he had caught that morning.

Our next meeting will be held on Sunday the 21st of May at the Botanic Gardens. Keep an eye open for details on the events page on the ANBA website or our Facebook page. https://www.facebook.com/groups/756068211719759.

From Elaine Bean

For more info on branch activities, visit our Facebook page ***ANBA Coffs Harbour Native Bees,*** *https://www.facebook.com/groups/756068211719759*

Branch Executives and Contacts

Brisbane branch

Chairperson: Dean Haley, *josephhale67@gmail.com*
Secretary: Greg Shea, gshea@bigpond.net.au
Treasurer: Peter Stone, treas@australiannativebee.org.au
Events coordinator: Tim Heard, tim.heard@anba.org.au
Committee Members: Jennifer Shea (jmshea@bigpond.com), Steve Brownlie (airchef1@bigpond.com), Nina Rodgers (nina.e.rodgers@gmail.com)
Representative to ANBA Management Committee: Dean Haley, josephhale67@gmail.com

Sydney branch

Co-Chairs: Michelle Carrick, michelleacarrick@gmail.com / Sam Higgins, sam.higgins@outlook.com.au
Secretary: Natalie Er natalieer@hotmail.com
Treasurer: Isaac Mayer, isaac@bushbees.com
Communications & Social Media: Zac Narker, zacnarker@icloud.com
Representative to ANBA Management Committee: Sam Higgins, sam.higgins@outlook.com.au

Mid North Coast NSW branch

Chair / Secretary: Diane Norris, 0422 639 336, 02 6559 4298, diane.beewild@gmail.com
Treasurer / Assistant Secretary: Joan Opbroek, eltonjoan2@gmail.com
Representative to ANBA Management Committee: Diane Norris, diane.beewild@gmail.com

Coffs Harbour branch

Chair / Secretary: Monica Rich, Monicarich00@gmail.com
Treasurer: Elaine Bean, elaine.bean77@gmail.com
Representative to ANBA Management Committee: Monica Rich, Monicarich00@gmail.com

Wide Bay branch

Chairperson: Trevor Galletly, trevorbundy8@gmail.com
Vice- Chairperson: Graeme Laing, Graeme.joy@westnet.com.au
Secretary: Stephan Curran, curran86@bigpond.net.au
Treasurer: Brendan Macpherson, 0404122243, brendan@brendio.com
Representative to ANBA Management Committee: Trevor Galletly, trevorbundy8@gmail.com

Rockhampton branch

Chairperson: Lloyd Younger, rockyyoungers@hotmail.com
Secretary / Treasurer: Marg Barry, margbee4703@gmail.com
Representative to ANBA Management Committee: Lloyd Younger, rockyyoungers@hotmail.com

Gladstone branch

Chairperson: Mark Larney, larneys@internode.on.net
Secretary / Treasurer: Ian Anderson, iganderson50@bigpond.com
Events Co-Ordinator: Nanette Collingwood, collingwoodn@dreamtilt.com.au and Karmen Coverdale, karmen_coverdale@hotmail.com
Representative to ANBA Management Committee: John Starr, jstarr@outlook.com.au

Cassowary Coast branch

Chairperson: Liz Lang, Email: busylizzy.lang@gmail.com
Secretary: Sandy Ferris, dsferris@bigpond.com
Treasurer: Deirdre Holmes, dee1holmes@gmail.com
Representative to ANBA Management Committee: Liz Lang, Email: busylizzy.lang@gmail.com

Cairns branch

Chair: Stewart Clarke sclarkehk@gmail.com
Secretary/Treasurer: Mandy Sapper sapmal30@gmail.com
Committee Members: Michael and Nadine Dunne, anba@familysnaps.net
Representative to ANBA Management Committee: Stewart Clarke sclarkehk@gmail.com