BEEKEEPERS.ASN.AU

Amateur Beekeepers Australia

# THE AMATEUR BEEKEEPER

NEWSLETTER FOR MEMBERS
JUNE•JULY 2022

## WHAT SUGAR AND WHEN SUPPLEMENTARY FEEDING

BEEKEEPERS' GUIDE

## The Ultimate Problem with Plastics

## Learn the drone uncapping test

## GET YOUR FREE FORK!

## HOW TO BREED YOUR OWN QUEENS

PART ONE

## Bees and the nectar eating birds

# Amateur Beekeepers Australia

11

13

7



4



**The Amateur Beekeeper** is the journal of Amateur Beekeepers Australia (registered in NSW as The Amateur Beekeepers' Association of NSW Inc). It is distributed to members six times a year. Contents are presented for general information only: members should always seek advice tailored to their individual circumstances. The editor will consider adverts from businesses relevant to beekeepers to run free of charge where they contain a special offer to ABA members.

ABA NEWS

# President's letter

## How can the ABA serve you better?

That's the question we asked members recently. And the responses poured in. Hundreds of you took the time to offer up your opinions. Ideas for new resources and services ranged from the simple – more pages in the log book – to the complex – an app for identifying and reporting bee diseases. While we won't be able to put all requests into direct action ("Could you inspect my bees?"), the feedback helps us develop plans for the future. So, many thanks. And to everyone who answered 'just keep doing what you're doing': we appreciate the bouquets of support. For more on the survey, see the column opposite.

Recent weeks have seen a flurry of events in the Australian bee community – state apiarists' conferences, the 4th Australian Bee Congress and the third Australian Native Bee Conference. I helped organise and attended the Congress to represent the ABA and to speak with delegates visiting the Australian Honey Bee Industry Council's (AHBIC) booth. It was a fascinating few days of bee talks and bee talk.

The mood in the commercial industry is best described as bouyant after some devastating weather events in recent seasons. With many exciting research projects and tech innovations in the works, the sector is evolving rapidly. So whether your beekeeping is large scale or beginner/backyard, the future is coming, and it's bright!

At the ABA we've been working furiously to get everything ready for 2022/23 membership renewals. I've appreciated everyone's patience as we finalised insurances. Invitations will be sent out in the next few days. You should find it easy to update your details, renew, and opt for third party/product insurance if needed.

We are especially proud of the 2022/23 member packs. They've been months in the making and contain items that are smart and useful. You told us in our survey that member packs are a major benefit of belonging to the ABA, so we hope you'll agree that this year's is something special.

We look forward to your feedback at any time. While we may not be able to come out and look at those bees (perhaps your local club could advise), we can support your beekeeping in many other ways!

Sheila Stokes president@beekeepers.asn.au

# Member survey

## 727 members took part in our recent survey about ABA benefits

Thank you to everyone who shared their views about ABA membership. Your votes and comments will help *us* to help *you* get the most out of your hobby. Here are a few things you told us:

### GETTING AFB EMAIL ALERTS IS "ESSENTIAL" FOR 4 OUT OF 5 MEMBERS

***Belonging to a network that supports recreational beekeepers is a main motivation for membership***

**The ABA's support of local beekeeping clubs is highly regarded**

The membership pack and The Amateur Beekeeper journal are core benefits of membership for most people (61% and 53% respectively)

***When asked why you belong, the most frequent response was "to learn from as many sources as possible", followed by ' to participate in my local club" and "to support recreational beekeeping"***

### A RESOUNDING 98% OF RESPONDENTS TOLD US THEY WOULD DEFINITELY OR PROBABLY RENEW

**87% attend their local club meetings almost always, regularly or occasionally**

Around a half of members in the survey had 2 to 5 honeybee hives and 10% keep native bees.

- 72% of members have Langstroth hives
- 37% have Flow hives
- 5% keep bees in Warré systems
- 7% use Top Bar hives
- 5% have Long Langs (horizontal Langstroths)
- 3% keep bees in A-Z hives or modified hives

### AND OUR SURVEY WINNERS ARE . . .

Five entrants were picked at random to win a refund on their 2022/23 ABA membership fee:

Robert Ferguson, Ken Stevenson, Belinda Hales, John Voytas, Emma To

Congratulations to our winners, and thank you to everyone who shared their opinions

## ABA MEMBERSHIP

# 2022/23 year

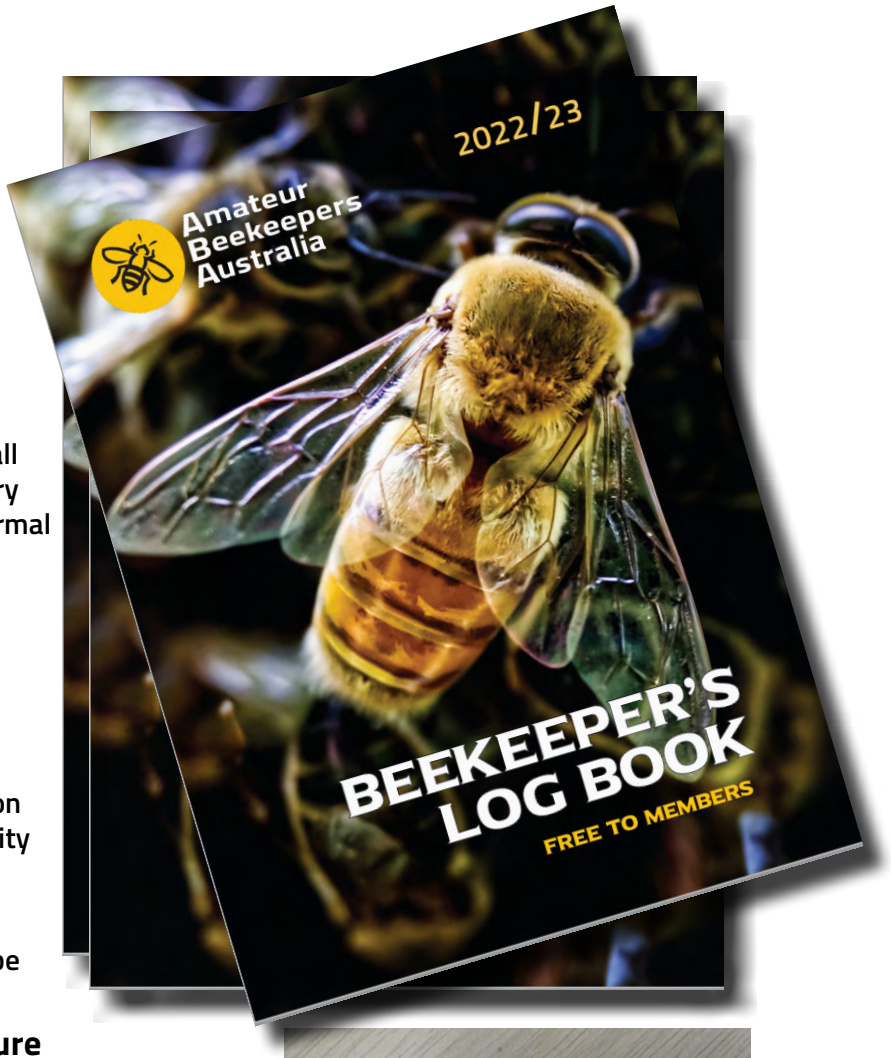
## It's time to renew your ABA membership. Look out for an email

RENEWAL NOTICES will be emailed to all existing members shortly. We are sorry this is happening a little later than normal this year – we have been waiting on details of insurance premiums for members and clubs.

This year your ABA membership pack will include:

- Welcome letter
- 2022/23 Beekeeper's Log Book
- Drone uncapping fork and instructions on how to perform this important biosecurity test
- Membership card

Once paid, your 2022/23 membership will be valid until June 30, 2023.




**When you renew, please make sure your details are up-to-date and correct.** This information is what we use to print your membership card and post your pack. Our software extracts the details and prints cards and labels according to what you have typed. So *please* double check your typing and list a valid postal address.

**And the cost?** The ABA fee has been set at $25 for 2022/23. Your local club fee is set by the club (to take into account its local operating costs and other sources of income such as markets, courses, fundraising etc). Both fees are payable at the same time.

**Two fees and not one combined fee?** The club fee is passed directly to the club. The ABA retains the ABA fee to cover the costs incurred running the association, including the resources provided directly to members and the support we give to clubs. Where members choose to join multiple clubs, the extra cost to the ABA is negligible so these members pay the various club fees and one ABA fee. Some clubs – and in future, the ABA –will be registered for GST. (Yes, it's complicated!)

**Why is personal accident insurance included with membership and the public liability insurance charged as an extra?** We've found this is the fairest and most economical way to provide these benefits. All members are covered by a group policy providing cover for personal accidents incurred while involved in beekeeping activities. Members who opt to purchase the public liability insurance are listed on the policy and get a named certificate of currency they can show, for instance, when booking a stall at a local market.


**Can I pay my club direct?** Members must pay online through the centralised membership register. This is essential.

By all means talk to your club membership officer if you have a problem accessing the system. If they offer to log in on your behalf, do ask for a screenshot or printout to show your details and payment: you are responsible for ensuring your details are correctly recorded. If you're not in the system, you are not

entitled to club or ABA benefits.

**I don't want to use PayPal.** Good news! You can now pay by card (without using PayPal) or by direct debit. Simply click on your invitation to renew and follow the instructions. Card or bank details are not stored on our system.

**I want to change clubs or join multiple clubs.** We've made this easier. You'll see this option onscreen when you renew. If you opt to join a new club/s, the club/s will automatically receive an email advising that you wish to join. Once the club approves your application, the ABA can issue your membership card and mail it with your ABA 2022/23 membership pack. You may wish to tell your old club you are leaving.

**What if I don't want items sent in my membership pack?** If you receive something you can't use, please offer it to local club members, or repurpose/recycle it. Members in our recent survey voted the membership pack a major benefit of belonging to the ABA.

**How can I help?** Thank you for asking! You can help us right now in these important ways:

- RENEW using the link in the email you will receive shortly
- CHECK and double check the details you record
- PAY *both* your ABA and club fee/s. You will receive separate receipts
- CONTACT us if you can't resolve any issues, on web@beekeepers.asn.au We are busy during the renewal period but will get back to you as soon as we can. Alternatively, ask your club membership officer if they can assist.

Membership packs will be mailed from mid July.

# Member survey

## The top reason given for belonging to the ABA:

*'to learn from as many sources as possible'*

**closely followed by**

*'to support recreational beekeeping'*

**and**

*'for the latest news and advice.'*

MEMBER OFFER

# Commemorative honeybee coin


LAUNCH

Celebrating 200 years of honey bees

The Australian Mint has released a special $2 coin

A commemorative $2 coin released by the Mint in early April marks 200 years of European honey bees in Australia.

1822 is recognised as the year *Apis mellifera* was successfully introduced into Australia, after several colonies brought out from England on the ship Isabella thrived and reproduced in Sydney. (Some honey bees had been landed prior to this but there is no strong evidence to show they survived.)

The centre of the coin features a honeycomb sphere, highlighted in a vibrant golden yellow. Around the edge of the honeycomb are two European honey bees, and eucalypt branches, flowers and leaves.

The design is by Jodie Clark. The reverse is the familiar profile of the Queen, by Aleksandra Stokic. The Mint is releasing 60,000 of these coins. An uncirculated specimen mounted on a display card is available for $15 at ramint.gov.au

2 THE AMATEUR BEEKEEPER APRIL/MAY 2022

## Limited stocks available

In April the Royal Australian Mint released a special honey coloured $2 coin to commemorate 200 years of honeybees in Australia. Coins sold out in the Mint's online store within days and are now hot collectors' items.

The ABA has 200 of the uncirculated coins in presentation packs available for members to buy. We are selling them at the original RRP of $15 plus postage.

Limit of one per member, and until sold out.

Order at beekeepers.asn.au/shop

WINTERING BEES

# La Niña and the honeybee

## Elizabeth Frost explains why supplementary feeding can be critical

IN AUSTRALIA'S extreme conditions, honeybee hives may require nutritional management when quality nectar and pollen aren't readily available within a few kilometres of the hive.

La Niña conditions continue to prove challenging for humans and hives alike. Starvation can affect hives at any time of the season if nectar isn't available, and malnutrition can happen even if nectar is abundant but pollen is of poor quality or low in quantity. So, what's a beekeeper to do?

Many beekeepers in areas with intense and prolonged rainfall have had to consider supplemental feeding their hives in order to keep them healthy and prevent starvation.

Remember, if it's raining, honey bees are staying home and eating their reserves, taking care of the queen, developing bees, and regulating temperature and humidity in the hive. They are unable to go outside and forage for fresh nectar and pollen and replenish their food stores.

Nectar is their critical carbohydrate source which, when available in abundance, worker bees store and ripen into honey. Pollen provides most of the protein, amino acids, fats, vitamins and mineral requirements of a bee's diet.

Hives must contain fresh nectar or stored honey, critical in cooler parts of the year as worker bees eat honey or nectar to give them the energy they need to generate heat to keep the hive warm. Ensure enough honey is left on the hive during any time of the season when flowering nectar sources are not available and especially in preparation for winter. This requirement will vary from location to location and is best determined through experience and with the help of local beekeepers.

Historically, NSW, VIC and SA temperate zone beekeepers would ensure their hives were prepared to survive through winter by having enough honey stores packed away in each hive by Anzac Day (25 April). This benchmark is earlier for cold temperate Tasmanian beekeeping and later for subtropical Northern NSW and QLD.

Like many things in beekeeping, this date is only a general rule, particularly in a country that at times has some Eucalyptus species flowering into winter like mugga ironbark (*Eucalyptus sideroxylon*) and grey box (*Eucalyptus macrocarpa*).

"When someone asks me if I feed my bees I ask, do you feed your dog?"

Regardless, autumn is a critical time of the season to assess hive food stores and whether they're sufficient to last through winter and yield a healthy and productive hive on the other side for pollination or honey production.

Supplemental feeding of sugar syrup has been proven highly effective at keeping colonies alive through challenging periods of nutritional deficiency.

Hive nutrition is often overlooked by new beekeepers at the peril of their hives' health. Some seasons I don't have to provide any supplemental feed to my production hives. However in others, such as the recent drought and 2019-2020 bushfires, supplemental feeding was the only thing preventing many beekeepers' hives from dying of starvation.

Pollen supplement can be sourced as irradiated, bee-collected pollen or pollen substitutes, fed within individual hives or open-fed as dry pollen supplements. White cane sugar (sucrose) is the most accessible sugar substitute for fresh nectar which bees can easily digest and can be fed dry or as syrup.

Large scale beekeeping requires efficient nutritional management where thick syrup is pumped into internal hive feeders to stimulate storage for winter packdown in cold temperate locations.

Open-feeding of protein supplement can be used in managing honey bee nutrition to keep hives in good condition when natural sources of quality pollen are scarce.

For small-scale winter feeding, dry white sugar may be placed on the inner hive mat above the brood frames and below the lid in hives that are too small in population to eat sugar syrup. For hives with larger populations, liquid syrup mixed at a ratio of 2 parts sugar to 1 part water (2:1 concentration of sugar and water by volume) can be fed internally. Syrup can be fed using a large number of feeder types such as: top feeder, frame feeder, Boardman feeder, division board feeder, or open bulk feeding.

***MORE INFORMATION ON SUPPLEMENTAL FEEDING IS AVAILABLE AT***

dpi.nsw.gov.au/animals-and-livestock/bees/management/nutrition2/supplementary-feeding

# But which sugar?

***ADAPTED FROM FEEDING SUGAR TO HONEY BEES, PRIMEFACT 1343 DOUG SOMERVILLE, TECHNICAL SPECIALIST HONEY BEES DPI***

A range of sugar products are available to feed bees, including honey, brown sugar, raw sugar, organic sugar, white sugar and waste sugar. But what effect do these have on the colony?

**Honey:** The first reaction by beekeepers is probably that this is the ideal food for colonies requiring supplementation. Here are the reasons why this is *not* a desirable food to feed back to colonies:

- Honey has the potential to be the vector of a range of microbial diseases including American Foulbrood (AFB), European Foulbrood, chalkbrood and nosema disease. AFB is fatal to a bee colony. The others have the potential, in some cases, to kill it.
- Nectar or sugar syrup will have a stimulating effect on a colony, promoting brood expansion. Honey has the opposite effect.
- Feeding honey back to bee colonies in some cases makes the colony more defensive and aggressive.
- Exposing honey in feeders will promote heightened robbing behaviour, putting weak colonies in jeopardy of being invaded by robbing bees from stronger colonies.
- A naturally occurring acid in honey, hydroxymethylfurfural (HMF), increases in concentration the older the honey. The HMF levels also increase faster when honey is exposed to heat. Levels of HMF above 30ppm are considered toxic to bees.
- Bees are twice as attracted to sugar syrup than they are to honey.
- Adult bees live longer on sucrose compared to honey.
- Economically it doesn't make sense to feed honey when sugar is a fraction of the cost.

**Organic sugar:** While chemically this is similar to white sugar, bees will have less digestive issues with the lower ash levels in the standard cane sugar product. The cost of organic sugar is likely to be substantially higher than refined cane sugar, making it cost prohibitive for beekeepers to consider.

**White sugar:** Sucrose is the dominant sugar in white sugar and in the nectar produced by flowering plants to attract pollinators. White sugar is the supplement that will provide the least risk to bees in the form of digestive complaints, usually manifested as dysentery in bees. White sugar is also economically attractive as a supplement for bees when compared to other sugars and honey.

**Raw sugar:** This is a sucrose based product with very small amounts of molasses added to give it a golden colour. The levels of additives are very small and unlikely to cause many problems to bees. It is likely to be more expensive than 100% white refined sugar (sucrose).

**Brown sugar:** Although essentially a sucrose product, brown sugar is produced by adding molasses to refined white sugar. Brown sugar may contain up to 10% molasses.

**Molasses:** This is a by-product of the refining of sugar cane into sugar. Although it is used as a stock feed, it is unsuitable to feed to bees.

**Waste sugar:** At times beekeepers have been able to obtain waste sugar from sweet factories or food manufacturers.

The problem with waste sugar is that additives in the sugar may be toxic to your bees. Salt and starch are poisonous to bees in increasing concentrations. It is unadvisable to feed waste sugar to bees unless you are aware of what else is in the waste sugar.

MITE TEST

# Drone uncapping

## Learn this simple method to check for exotic mites.

LAST ISSUE we explained the pros and cons of various checks to detect bee parasites (such as the dreaded *Varroa destructor).* Sugar Shake is heavily promoted in many states as an effective test. But it is not the only method.

Drone uncapping is often argued as the most effective. It involves uncapping and removing white drone larvae from brood comb. It will reveal the reddish brown Varroa mite bodies clearly against the pale larvae.

It is quick and needs minimal equipment.

No live bees are removed from the hive.

It can be done any time you spot drone brood in the hive. Although drone uncapping requires drone brood to be present, worker brood can also be tested.

## HOW TO DO

Open a hive and take a frame from near the centre of the brood box. Pick one with plenty of brood comb. Brood comb is much larger than worker comb. Cells are raised and have a bulbous cap.

Push the uncapping fork's prongs across the face of the drone comb to remove the bulbous cappings.

Pull a large patch of pupae out at once. Pink eyed drone (see image below) are the easiest to examine: they will pull out of the comb intact . The reddish brown mites are easy to spot against the white body of the drone. Younger drone may not be firm enough to extract whole, and drone that have already coloured up are more difficult to examine.

Shake upcapped cells over a piece of white card to dislodge any material remaining in the cell. Examine this matter and the bottom of the cells for any mites.

Aim to uncap 100 drone on at least three frames picked from random hives in your apiary.

If mites are suspected, save the material in a jar with methylated spirits, take photos and call the Exotic Plant Pest Hotline **1800 084 881 immediately.**

## MORE INFORMATION

WATCH youtube.com/watch?v=3bSgyUSj-CQ

READ beeaware.org.au/wp-content/uploads/2014/03/Drone-uncapping.pdf

READ beeaware.org.au/archive-pest/varroa-mites

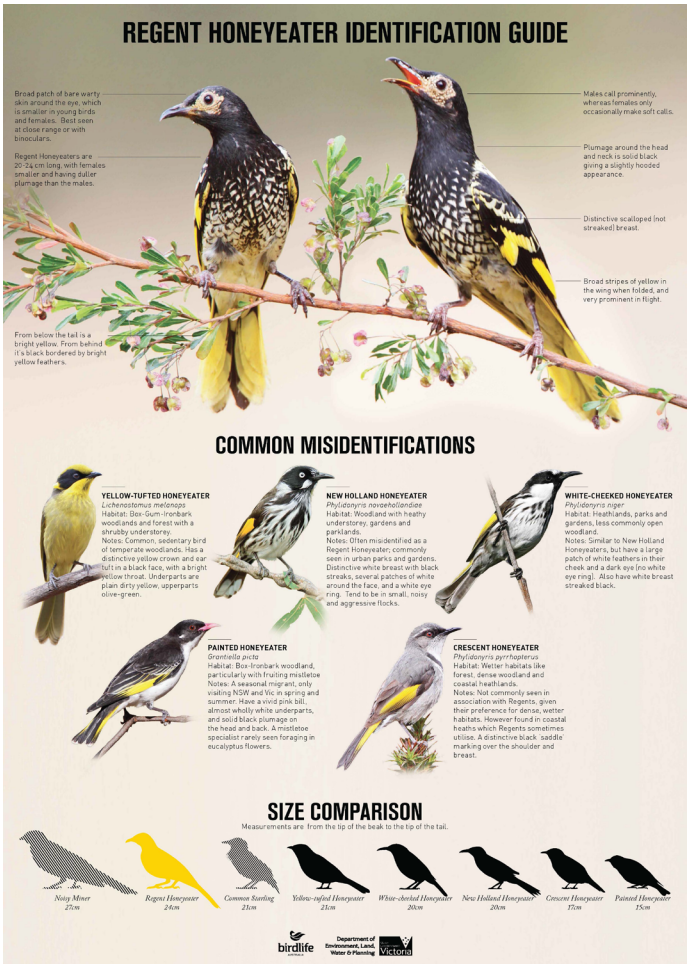
## WHY DRONE BROOD?

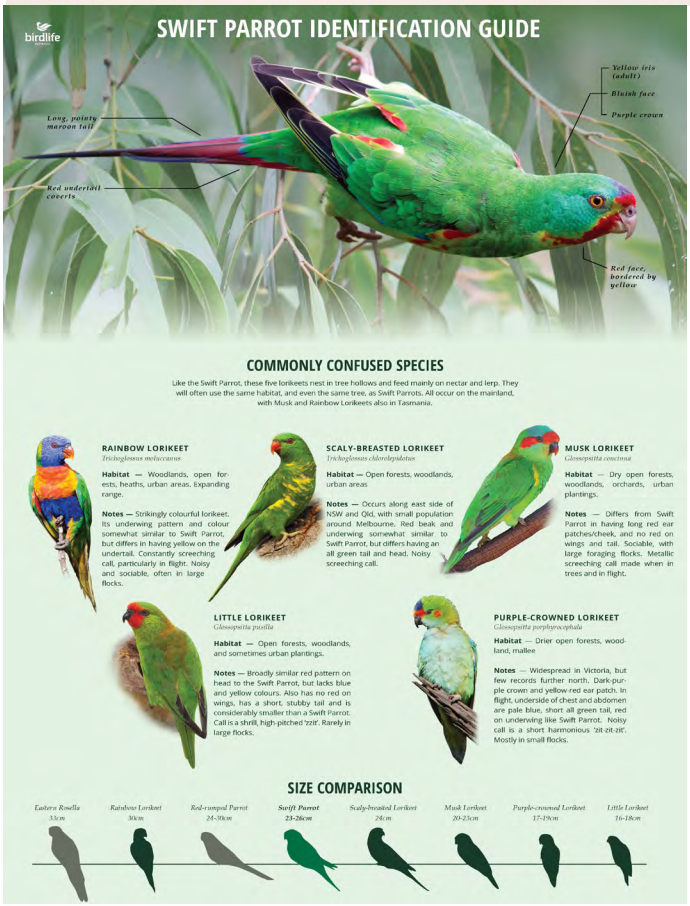
Varroa live, feed and move through the environment on adult bees, but they reproduce in capped brood cells. The female mite enters a cell just before it is due to be capped to lay her eggs. A male and then the female eggs hatch and mate within the cell, feeding off the developing bee.

85% of varroa mites in a hive will be found in capped brood cells. Drone brood is capped for longer than worker brood, so on average, more female varroa mites are able to mature on drone brood. Loads are highest during Spring.

If no drone brood is present in a hive, you can uncap worker brood, but testing drone brood is preferable.

**The Biosecurity Code of Practice for Beekeepers states that you must perform inspections for mites at least twice a year and at least four months apart**




Click to listen to Regent Honeyeater

Click to listen to Swift Parrot

CITIZEN SCIENCE

# Bees and the birds

## Beekeepers are being asked to keep watch for these endangered birds

**Several of Australia's most threatened bird species share important nectar resources with honeybees. That means beekeepers have a unique opportunity to help with the birds' conservation.**

The Regent Honeyeater has a patchy distribution across New South Wales, with three key breeding areas: the Capertee Valley (and other parts of the Blue Mountains such as the Burragorang Valley), the Upper/Lower Hunter Valley and the Bundarra-Barraba region.

They are known as 'rich-patch nomads', as they will move large distances in search of flowering events in key tree species. ID Guide here.

The Swift Parrot breeds in Tasmania and flies across Bass Strait to forage on flowering eucalypts in open box-ironbark forests of the Australian mainland. On the mainland, they may spend weeks or months at some sites and only a few hours at others, depending on the supply of nectar and other food sources, such as lerp. ID Guide here.

BirdLife Australia is working with North West Local Land Services to monitor and support Australia's most threatened birds.

North West Local Land Services Senior Land Services Officer, Leonie Coleman explains that beekeepers have an extensive understanding of the relationship between our flowering eucalypts and the animals that depend on these flowering resources. "In fact, beekeeper knowledge has been essential is helping us decide where and when to do releases of zoo-bred Regent Honeyeaters, our most endangered woodland bird, which happens to rely heavily on eucalypt blossom to survive."

"Given the relationship between the birds and the bees, beekeepers may be able to contribute to our knowledge of the distribution and breeding of these highly endangered species," says Birdlife Australia's Candice Larkin.

To report a Regent Honeyeater or Swift Parrot sighting, can call BirdLife Australia at 03 9347 0757 or email woodlandbirds@birdlife.org.au

For information contact candice.larkin@birdlife.org.au or click here.

This project is supported by North West Local Land Services, with funding from the federal government's National Landcare Program.

TAX TIME

# Do you know your deductions?

## Earn an income from beekeeping? It pays to know the expenses you can claim against tax

TAX TIME is coming up. If you fall into the category where the Australian Tax Office considers you are running a business rather than a hobby, you need to understand tax deductions. Check out ato.gov.au/agriculture

To help understand when you can make a claim, the Tax Office has developed a range of online resources. To start, read ato.gov.au/uploadedFiles/Content/IAI/Downloads/Toolkits/TaxTimeToolkit_Agricultureindustry.pdf

The ATO also has a MyDeductions App to help you keep track of expenses and store records throughout the year.


Not sure if your activities count as business or a hobby? This can be difficult to decide and, as individual circumstance vary, it is important to get professional advice. To get you started, have a look at ato.gov.au/Business/Starting-your-own-business/Before-you-get-started/Are-you-in-business-/

ENVIRONMENT

# The ultimate problem with plastic

## Australia's National Plastics Plan aims to reduce the environmental impact of plastic materials that currently end up in landfill

PLASTIC HAS BEEN a revolutionary material in many industries, including beekeeping. Manufacturers use it to mass-produce lightweight products and packaging cheaply. Plastic products can be more durable than their wooden equivalents. But what happens to this plastic once it is no longer useful?

Australia's National Plastics Plan outlines actions we can all take to reduce the effects of plastics on our environment. The plan includes phasing out the most problematic plastics, legislation to ensure Australia takes responsibility for its plastic waste, research to find new recycling technologies, and alternatives to the plastics we don't need.

Facts about plastics

- 84% of plastic is sent to landfill and only 13% is recycled
- One million tonnes of Australia's annual plastic consumption is single-use plastic
- Every year in Australia approximately 130,000 tonnes of plastic leaks into the marine environment
- Our use of plastic is increasing and across the world will double by 2040
- By 2050, it is estimated that plastic in the oceans will outweigh fish

For more information about tackling Australia's plastics problem, go to:
awe.gov.au/environment/protection/waste/plastics-and-packaging/national-plastics-plan

EDUCATION

# Home learning

**READ all about ways to support our native bee populations in this free 78-page download courtesy of City of Gold Coast council. While some of the info is local, there's a wealth of good tips and a great illustrated section on bee friendly plants goldcoast.qld.gov.au/files/sharedassets/public/pdfs/environment/backyard-biodiversity-our-nature-native-bees.pdf**


**LOOK** The Australian Honeybee Industry Council, the peak body for all things relating to honeybees in Australia, has a new and brighter website. Check out the many online resources and sign up for its industry-newsletter at honeybee.org.au

**CRAFT** Now may be the right time to do something with all that rendered beeswax you have collected. But before you launch into making candles, learn about getting the wick size right. If you don't your candles will flood, flicker or underperform. beeculture.com/the-right-size-wick/

**LISTEN** Audio books are a great way to catch up on reading when you are on the move, taking some relaxation time or simply don't want to stare at pages. Audible has lots of fiction and nonfiction titles relating to bees and beekeeping. Start at audible.com.au and seach on keywords such as bee. Audible has free trials for new users.

**CATCH UP** Winter is the natural time for beekeepers to catch up on hive maintenance tasks, clean up gear and tidy up around the apiary site. And thanks to YouTube, you've lost the excuse that you don't know how. What are you waiting for?

DO YOU have a recommendation for this column? We welcome suggestions.. Contact editor@beekeepers.asn.au

CITIZEN SCIENCE

# Eye on stingless bees

Australian stingless bees: are similar to European honey bees in that they both nest in large cavities; make and store honey; and live in a eusocial collection with a queen, her worker daughters and some male drones. In the wild,they build comb in tree hollows or in urban areas this can be in wall cavities, underground boxes or artificial cavities.

Yet researchers know relatively very little about the science of Australian stingless bees and how their colonies reproduce.

Now researchers at the University of Queensland are looking for volunteers to gather information about how stingless bee colonies reproduce,

Participants are being asked to observe stingless bee colonies in their backyard – for as little as three minutes a day on sunny days, and record the various behaviours they see.

To find out more about this project and how to register, go to biological-sciences.uq.edu.au/engagement/native-bee-citizen-science-project

## WEB STORE

# Shop online and support the ABA

**For all your ABA merchandise, essential biosecurity equipment and more, go to [beekeepers.asn.au/shop](beekeepers.asn.au/shop)**


***Beekeeper's Log Book 2021/22 $5***

*Want one for each hive? Grab some spare copies now We have limited stocks -- when they're gone, they're gone. A5 size. 60 pages plus cover.*

***2020/21 edition: last copies available. Special price $2***

***Enamel and metal keyring $10***

*Featuring the ABA's distinctive bee, framed by the outline of NSW. On the back, there's room for you to add your ID -- perhaps your beekeeping registration number or a trusty contact.. 40mm across*

***Our popular warning signs suit backyard beekeepers. 200mm by 265mm. Made from lightweight UV-stable material similar to that used for real estate signs. With eyelets for easy fixing to a wall, a tree, a post or gate.***

***Text reads:*** *CAUTION. THIS AREA HAS BEEHIVES. THERE ARE MANY BEES ABOUT. BEES CAN CAUSE A PAINFUL STING. IF YOU ARE ALLERGIC TO BEE STINGS YOU MUST NOT APPROACH THE HIVES AS A BEE STING CAN BE FATAL* ***SIGNS $10 EACH***


***Sugar Shake Kit $15***

**Contains all you need to perform a sugar shake test to check your bees for mites. Includes jar, mesh lid, scoop, sugar, instruction sheet and link to demonstration video**

**Enamel lapel pin $7**
**Featuring the ABA bee. Pin with butterfly clip**


**ABA Bucket Hat $15**

Enzyme-washed cotton bucket hat. In navy with a contrasting sand coloured trim/underbrim, and embroidered logo in yellow. Or sand with a navy trim/underbrim and embroidered logo in black. Available in two sizes


***Canvas tote $15***

*Quality cotton canvas tote with logo on one side, plain on the reverse. Reinforced shoulder straps. 420mm x 420mm.*


**AFB brood sampling kit $4**

**Make sure you have a brood sampling kit at the ready every time you open your hives for inspection.**

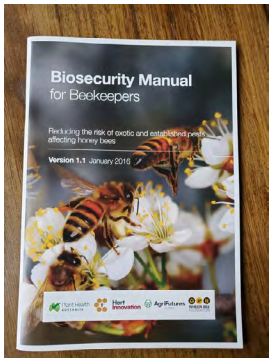
**Contains instructions, glass slides, mailers and a laboratory form – all you need to send suspect brood samples off for scientific diagnosis. Versions for NSW/NT and QLD. (The laboratory forms are different for each state.)**

**Please note: laboratory testing fees are payable. However if you suspect AFB and are a registered beekeeper in NSW, NT or QLD, your state veterinary laboratory will not charge for this service.**


**Classic Enamel Pin $6**

***Biosecurity Manual for Beekeepers $3.50***

*This is your essential guide to local pests and diseases, produced by Plant Health Australia. Available through our shop at cost price. 64-page A4 printed manual.*



Amateur Beekeepers Australia

SPECIAL SUPPLEMENT

# Learn to Breed QUEEN BEES

PART ONE

SPECIAL SUPPLEMENT

# Breeding Your Own Queen Bees

## Kevin Tracy presents the first in a four-part series

A MAJOR TASK for us, as beekeepers, is monitoring and replacing our queen bees. In fact, one of the pillars of good beekeeping is: *"Replace queen as necessary"*. The reasons for replacing a queen are many and varied. But where do you get your new queen? Do you want to be dependent on someone else for your queen bee/s? Or do you want to take control and produce your own, selected from *your* stock, for where *you* are and when *you* need them?

**You can rear your own honey bee queens. No magic or knowledge from on high is required. All you need is some guidance and perseverance and you've done it.**

**Guidance is in this series of articles. Perseverance is in your hands.**

KEVIN TRACY is a queen bee breeder and educator who is committed to helping Australians gain the skills and knowledge required for successful beekeeping.

Kevin lives in Queensland and is the owner/operator of BeeZone Apiaries. "It is a pleasure for me to be able to keep learning and a privilege to share that knowledge and experience with others." Kevin joined the ABA executive earlier this year. kevin.tracy@beekeepers.asn.au

## WHAT THIS SERIES WILL COVER

### Part 1 In This Issue

- Benefits and reasons
- What you'll need to get started
- Age-appropriate larvae
- The schedule
- Biosecurity
- Glossary

### Part 2 Released in August

- Basic anatomy of worker, drone, queen
- Drone Congregation Areas (DCAs)
- Races of queens
- Selecting your "breeder" queen
- Conditions. Different methods
- Choices. Decisions. Actions

**Kevin will hold an live online class for members in August (details next issue)**

### PARTS 3 & 4 released in October

### Part 3

- The Cell Builder (CB) Starter/Finisher
- Cloake method
- Equipment and setup
- Records to keep
- Queen rearing methods explained
- Grafting tools and technique

### Part 4

- Mating nucs
- Handling queen cells
- Catching, caging, and banking queens
- Marketing tips

# TO GET STARTED

## The basics

You will need

- bees, or have a friend who has bees and is willing to let you use them
- at the very least, some kind of beekeeping training with a club and/or mentor
- we recommend you have at least one full season/year of beekeeping experience
- the skills to manipulate brood frames confidently and carefully
- to be able to identify the stages of honeybee development, including eggs and larvae
- to be able to identify a queen bee in a colony
- to have a working knowledge of biosecurity requirements for record keeping, inspections, registration and, especially, identification/ management of pests and diseases of honey bees
- A familiarity with the language found in the glossary on page19

## The time

- Time management is key to successful queen rearing. In the early stages, more time is spent in setting up colonies for producing queens. Practice and experience help improve your time management
- If bees raise their own queen, the timeframe from egg to mating will be around five weeks
- How to prepare colonies, and the setup for producing queens, rearing and mating queen bees, will be presented through these articles
- It will help if you know when Spring occurs in your area, the floral conditions and when drones are produced.

## The gear

Different methods covered in this series require different equipment. For our immediate purposes to get you started, you need:

- A disease-free honeybee colony with a laying queen ("queen right")
- Sufficient bee numbers and brood to make a strong nucleus colony without a queen ("queenless")
- A reliable way to maintain efficient records – whether it's a notebook and pen, a notes app, or a basic computer

## Q & A Kevin explains why this queen is light and gentle

*Q "Are you able to identify the race of bee that we have in one of our hives? Courtesy of a swarm, we have the calmest bees I've experienced thus far in my short journey into beekeeping.*

*They are very light coloured. I wouldn't say the queen is as active as others. However the colony is holding its own."*

*–JL, Hawkesbury*

The photos show a lovely looking, yellow Italian bee, (*Apis mellifera ligustica*). Italian bees are by far the most popular honeybees. They are relatively gentle, overwinter well and build up quickly in spring.

Coming from a swarm would suggest she is possibly an older queen. Her origins are difficult to determine without some genetic testing or a receipt of purchase. Could be Kangaroo Island, Western Australian, even Queensland. The best queen is, from my point of view, as local as possible.

With possible open mating or "throwback," some bees are regaining stripes. It will be hard to retain the colour due to the role of polyandry in Drone Congregation Areas.

If your queen makes it through winter, I suggest you have a go at raising a couple of daughter queens and then you can check/select for colour. Learning to breed queens gives you, as the beekeeper, far more say over future generations of your bees.

## The support

After Part 2, we'll invite you to join a live online event where Kevin will run through what you need to know as you start to breed your own queens.

It'll help you to revise what you've learned so far and you can ask questions. Look out for details in the next issue, released in August.

ADVANTAGES

# Benefits of rearing your own queens

HAVING the queen bee, of your choice, and producing queens when you want and need them is very liberating and empowering. No more needing to order queens in the hope you'll be able to get one. No needing to trust in the parcel delivery service or time that it can take to get the queen into a colony.

Queen bee availability is a key to your colony performance from a temperament, production, survival, and success perspective.

You don't have to produce queens at a commercial level unless you choose to do so.

Small numbers or large, the power is in your hands.

There is a queen breeding method to suit your abilities and requirements.

There can be cost savings too, as you'll no longer need to purchase queens if you don't want to.

And, as the price of honey bee queens in Australia is well overdue for an increase, you can protect yourself against future cost rises.

Nucs, splits, and apiary increases are all much more positively and economically carried out when you have queen bees at the ready.

Your beekeeping knowledge, skills,and enjoyment can increase significantly when you learn and experience the process of queen production.

Did I mention the sheer delight in producing your own queen bee/s?

## Local vigour

You will be producing a queen that is acclimatised for your conditions. This may not happen overnight, but will, in time, be of great benefit to your bees and beekeeping.

This is to do with the ability for the Environmental Adaptation of Honeybees.

Scientists such as Ralph Büchler, have shown that importing stock from outside of an area has a negative impact on the local vigour of colonies. In other words, raising queens locally can lead to much more robust colonies.

You can always choose the best of your own stock for the best bee for your location and conditions.

What could be better?

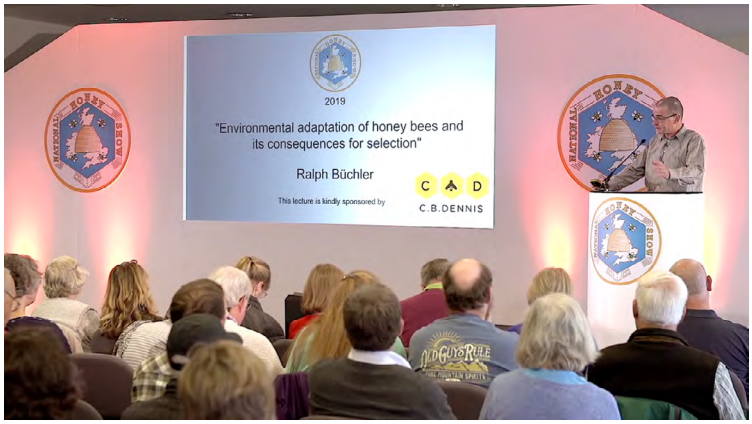
## 10 REASONS TO REQUEEN

- The existing queen is physically damaged
- Or dead. Or missing
- Her pheromones are failing
- The colony has laying workers
- She's producing cranky or unproductive offspring
- She's poorly mated – and laying drones or low numbers of eggs
- She's been exposed to temperatures above 40C or suffered during transport
- Her colony has or is trying to replace her (by supercedure) for other/unknown reasons
- She's gone with a swarm and the beekeeper does not want to rely on the bees raise a new queen
- She's more than two years old and the beekeeper wants to reduce the possibility her colony will swarm

## WATCH

A lecture given by Ralph Büchler at the UK National Honey Show: "Environmental Adaptation of Honey Bees and its Consequences for Selection

youtu.be/4DVm_L7Fkqc



START WITH THE BASICS

# Age-appropriate larvae

*A HONEY BEE UNDERGOES AN ENORMOUS TRANSFORMATION, HATCHING FROM AN EGG INTO A COMMA-SHAPED LARVA ON DAY THREE (ABOVE LEFT). ON DAY EIGHT THE LARVA IS CAPPED IN ITS CELL TO COMPLETE ITS DEVELOPMENT*

LET'S START with some basic honey bee biology.
Understanding exactly when and why you need to carry out the various steps we'll show you later will lead to greater success.

- Honey bee developmental stages vary for drone, worker and queen
- Drones are haploid (developing from unfertilised eggs) and females are diploid (from fertilised eggs)
- The egg stage lasts three days in all three castes: the drone, worker, and queen.


We will, for now, focus on the females (the workers and queen/s).

- Each egg (top row below) hatches after three days into a larva. At this point the larva can develop into either a worker or a queen.
- Queens and workers are genetically identical. What determines whether a female larva develops into a queen or a worker is the quality of food it receives.

- In the first 24 hours of the larval stage, all brood feed on royal jelly. From then on, the 'recipe' of the food changes to worker jelly or queen jelly. This means the older the female larva in a regular cell, the less it is meant to be a queen, even from Day Two.
- Superior quality queens come from larvae selected within 24 hours of hatching from the egg. This is known as age-appropriate grafting material or age-appropriate larvae (circled left).

Knowing the "age-appropriate" stage of 0 to 24 hours will help you realise why some queens may be better than others, unders-

tand more about supercedure of queen bees, and why you select well fed larvae.

Bees will raise their own queen, when possible, for one of three reasons:

### Emergency. Supercedure. Swarming

*You* will be choosing to create a situation for the bees to create queen cells from your selected larvae – by whatever method you choose and when you choose. (This will be discussed in future articles).

Be aware that the "easy" part of raising your own queen bees is "grafting". The tricky part can be . . .

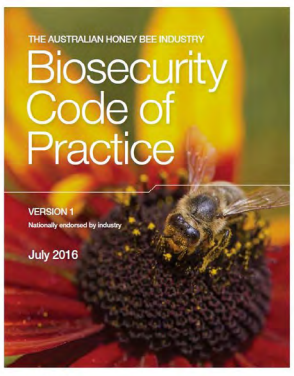
## The Schedule

THE "TIMETABLE" or "schedule" for queen rearing requires discipline to keep to it. There's little flexibility once you've locked in the date to start.

As timing is so critical, you'll do well to consider these factors before you begin:

- your available time
- local conditions
- commitments such as holidays
- the number of queens you want to produce
- and how frequently

Be aware that you will definitely need to keep your schedule and rearing results recorded  The records you keep for your queen production, at whatever level, are not the same as those required by the Biosecurity Code of Practice (a minimum of two inspections per annum for pests and diseases, etc).




Now may be the time to refresh your memory on all the requirements of The Code. It has been developed to incorporate fundamental biosecurity principles into the practices of all Australian beekeepers.

## The Schedule

**WE WILL PROVIDE MORE DETAILS LATER IN THE COURSE BUT THIS LIST WILL GIVE YOU AN IDEA OF THE TYPE OF TASKS REQUIRED ON WHICH DAYS.**

**REMEMBER: DO NOT START THE SCHEDULE IF YOU CANNOT STICK TO IT.**

**I CAN'T STRESS THIS ENOUGH: TIMING IS CRITICAL FOR SUCCESSFUL QUEEN BREEDING**

**Feed sugar syrup to the breeder colony four full days before you start grafting, and isolate the queen to a frame for grafting material**

**Prepare cell builder/s including sugar syrup (as above) either the day before grafting or early in the morning if you're grafting in the late afternoon.**

**THEN FOLLOW THIS TIMETABLE, STARTING WITH DAY 1:**

**1 Get the frame of grafting material (age-appropriate larvae). Graft into prepared cell cups. Put grafts into cell builder, top up syrup, return brood frame to breeder colony.**

**2 (Next day) Reconfigure cell builder if required and top up syrup.**

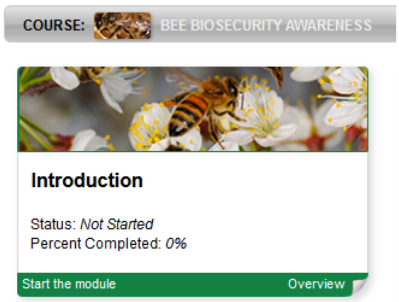
**3 (Two days after grafting) Check any frames for rogue queen cells (if you had any eggs or very young larvae in the cell builder) and knock them down. Gently lift and check cells for how many are successful/taken.**

**9 Six days later, catch queens from mating nucs so these nucs are ready to accept the cells.**

**10 Next day, you place the cells into the mating nucs.**

## Be Disease Aware

IF YOU'RE thinking of breeding queen bees, you'll want to make doubly sure your colonies are healthy and that you can spot any signs of trouble at the earliest possible moment. Otherwise, your efforts could all go to waste.




The good news: Biosecurity for Beekeepers Online Training (BOLT) is free for all Australian beekeepers.

The Biosecurity for Beekeepers course explains why biosecurity is important, describes the main pest threats to bees, and shows how to check hives for signs of pests and diseases.

It's designed for people with a basic understanding of beekeeping practices, but all beekeepers should find it helpful.

For more information about BOLT, click here. A printout with full instructions about enroling was sent to all ABA members in the 2021/22 membership pack, along with your membership card, log book and AFB diagnosis kit.

# Queen Production Glossary

**Age-appropriate larva/e** Larva/e within 24 hours of hatching from an egg

**AI or II queen** Artificially/instrumentally inseminated queen bee using selected drone stock

**Breeder queen** Queen bee selected with traits desired for breeding production queens

**Catch** When queens are removed from mating nucs and caged (minimum industry requirement is 2 weeks)

**Cell cup** Where an age-appropriate larva is placed as graft

**Cell bar** Wood/plastic bar to hold cell cups placed in hanger

**Cell builder** Queenless colony used to raise cells

**Cloake board** Divider to separate queen from cells

**Day 1** Day of graft

**Day 10** Day cells go into mating nucs

**Drone Congregation Area (DCA)** Where drones gather to mate with queens

**Drone Mother Colony** Colony manipulated to produce drones from chosen queen stock and used to populate a Drone Congregation Area

**Escorts/attendants** Nurse bees placed in cage to care for queen

**Graft** The removal of age-appropriate larva to make a queen

**Grafting tool** Instrument used for grafting

**Hanger** Frame on which cell bars with queen cups are placed

**Mating nuc** Small colony made queenless to receive cell and rear queen

**Mating/Nuptial flight** Time when queen goes to mate

**Mating yard** Apiary site for queen mating

**Miller method** A way to rear queen bees without grafting

**Open mating** Virgin queens mate in DCA

**Production queen** The progeny of the breeder queen (queens from graft)

**Queen bank** Colony prepared and used to hold either virgin or mated queens while waiting use

**Queen cage** Used for holding queen with attendants

**Records** A must do for sanity

**Royal jelly** Substance fed to larva designated to become a queen

**Starter/Finisher colony** Type of cell builder

**Schedule** Calendar of queen production dates

**Sugar syrup** 1-1 white sugar only (sugar:water) used to stimulate bees

**Ripe cell** Queen cell between10 days and emergence

**Virgin queen (VQ)** Unmated queen

## ABA CONTACTS

# MEET THE 2022 EXECUTIVE TEAM

### SHEILA STOKES

president@beekeepers.asn.au
web@beekeepers.asn.au

ABA president Sheila is a web development professional who builds, maintains and supports all ABA IT infrastructure.
She has been on the ABA executive since 2015. "Lobbying is the way to ensure recreational beekeepers' voices are heard."

### KATHY KNOX

secretary@beekeepers.asn.au

Kathy has been keeping European and Australian bees since 2013. She's a community leader with hobby beekeeping associations on the Gold Coast, and has run a series of successful education programmes for kids and adults in the area.

### KEVIN TRACY

kevin.tracy@beekeepers.asn.au

Kevin has a commercial beekeeping background and now trains beekeepers around Australia. He is a queen breeder and an experienced public speaker. "Well managed bees are kept by commercial and recreational beekeepers. Let's all work together for bees."

### DREW MAYWOLD

drew.maywold@beekeepers.asn.au

Drew is the secretary of Gold Coast Regional Beekeepers, and has a background in education and human resources. He's recently been working on an online resources hub for his local club to help members locate useful information.

### MIKE ALLERTON

mike.allerton@beekeepers.asn.au

Mike began his obsession with bees in 2016. Currently engaged in his Cert III Beekeeping at Tocal College and Master Beekeeper Program at University of Florida, Mike gives bee presentations to garden clubs, schools and anyone else interested in bees.

### SUE CARNEY

vicepresident@beekeepers.asn.au
editor@beekeepers.asn.au

Sue is a communications specialist with a lifelong fascination for bees. She started the Blue Mountains Beekeepers club and enjoys collecting books about bees and beekeeping. "Bees know it: cooperation and good commmunication are key."

### JACQUELINE LEA

treasurer@beekeepers.asn.au

Jacqueline commenced her beekeeping exploits in 2019 and has enjoyed her involvement with the ABA at club level. She is membership officer for Hawkesbury Beekeepers and is now putting her administrative skills to work as treasurer of the ABA.

## HOW THE ABA WORKS

The executive team is made up of volunteers who are elected at the AGM. They each take on a range of duties to represent members, provide services to affliated clubs and individual members, and keep the organisation running smoothly.

The executive meet regularly online or face-to-face to discuss projects, policy and current matters that affect recreational beekeepers and our network of affliated clubs.

The ABA is one of 10 members of the Australian Honey Bee Industry Council – the peak body for the sector in Australia. The ABA is also represented at such forums as the NSW Bee Industry Biosecurity Consultative Committee, and works with government and commercial organisations to promote and support recreational beekeeping.

The team is always keen to hear from members and clubs.

Please contact us on the emails provided.