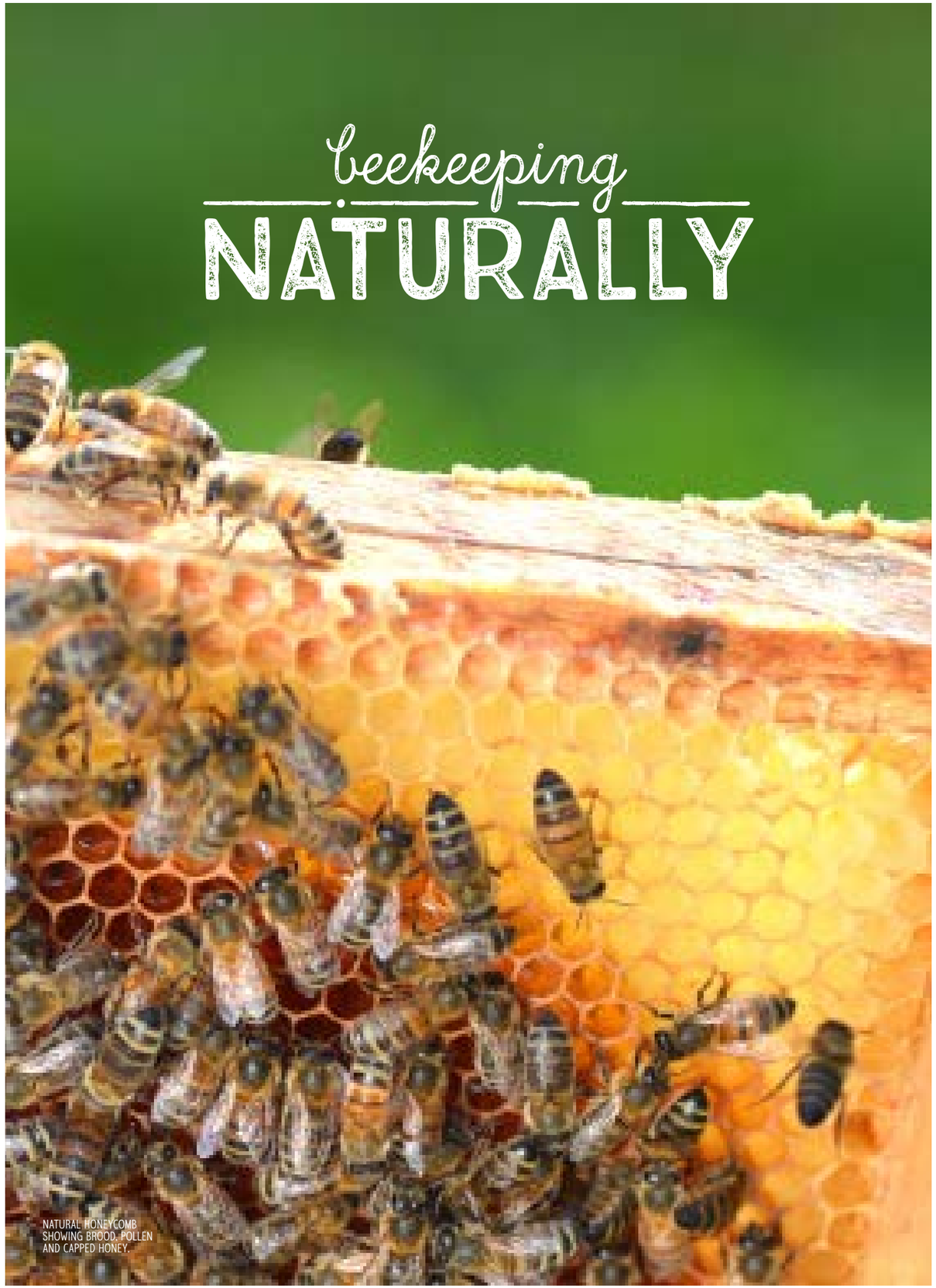
beekeeping NATURALLY



NATURAL HONEYCOMB SHOWING BROOD, POLLEN AND CAPPED HONEY.

PHOTO: ISTOCKPHOTO

KIRSTEN BRADLEY SHARES HER SWEET SECRETS OF SUCCESS FOR KEEPING BEES, NATURALLY.

Beekeeping is a great way to get a better understanding of the natural world around you, plus it offers the benefits of increased pollination and sweet home-produced honey. It can also be a fascinating and lifelong partnership between you and a honeybee colony.

We have been evolving side by side with honeybees for as long as we've been human – first as honey hunters and then, slowly, as beekeepers. The fact that our ancestors became keepers of bees should come as no surprise. After all, it's hard to compare the sweet energy density of honey, the 'magical' properties of mead and the proteins of pollen.

Each continent on Earth has a host of different native bees – some social (living in colonies) and some solitary – and each species is suited to its home biosphere and, with that, the nectar and pollen wealth of the region.

For the purposes of this article, we'll focus primarily on *Apis mellifera* – the honeybee found throughout Europe, Africa and the Middle East. It's the one you'll find in most beekeepers' hives in Australia, with the small exception of sugarbag bees (*Tetragonula*), which are a social, stingless, native Australian bee kept primarily for their pollination services and for nature observation and conservation rather than the tiny amount of honey their hives produce.

In recent years there have been terrible losses to honeybee populations around the world, but the good news is we can all help alleviate this problem by becoming natural beekeepers. Natural beekeeping focuses on being sensitive to what honeybees need to thrive by providing a healthy, low-stress environment.

In a good year a healthy colony of bees will have honey to spare and, perhaps more importantly, natural beekeeping gives us an insight to how we can change our farming, gardening and living practices to create a world where bees flourish. The principles below provide an overview about what bees need to maintain optimal colony health, while the box on 'Getting Started' (on page 42) outlines the basics of starting your bee journey.

The super-organism

Before you launch into natural beekeeping, it helps to think of the honeybee colony as what scientists have now defined as a "super-organism". This super-organism is made up of many female worker bees (who undertake different tasks throughout their lifespan), male drones, the mother queen, and the comb on which they all live.

A honeybee colony is also a warmth organism, which means it needs to maintain a core temperature to remain healthy and free of any diseases.

Natural comb

Allowing bees to build their own comb is central to natural beekeeping and helps create a healthy hive. The comb is made of a wax that the bees secrete from glands on the underside of their bodies. It also means the queen can lay each new generation of eggs into fresh virgin comb, and the bees can vary the cell size according to the needs of the colony. The

DID YOU KNOW?

Honeybees communicate the location of a new nectar source by dancing! Nobel laureate Karl von Frisch (1886–1982) made this discovery during a lifetime of research into honeybees.

TOP: BEES RETURNING TO THE HIVE. THE BEE FAR LEFT IS CARRYING POLLEN.

ABOVE: PRESSING A WARRÉ HONEYCOMB FOR HONEY.

comb is also used for vibration communication within the colony, and this works best on natural comb.

When harvesting from a natural beehive, you harvest the whole honeycomb, which helps flush the hive regularly of any potential disease and/or environmental toxin loading that bio-accumulates in the comb's wax. The empty comb, from which the honey has been extracted, does not go back into the hive, ensuring the ongoing health of the colony.

Reproduction and swarming

When a colony is large and healthy and the season is good, it will sometimes decide to split, which is reproduction on a super-organism scale. Naturally, bee colonies split by swarming – part of the colony takes off in search of a new home with the old queen, while the remainder of the colony stays in the hive and rears a new queen.

Allowing bees to swarm is crucial to the overall adaptation and vitality of honeybee health in your area. By swarming, honeybee colonies self-select for resilience to the conditions of that place, as well as gathering new genetics from new drones, which in turn leads to better health for the whole colony.

Minimal intervention

Not unlike a mammal, the honeybee colony needs to maintain a stable internal core temperature for the health of its brood and the rest of the colony. Each time you open the beehive, this thermo-regulation is disrupted. So minimal intervention is part of maintaining colony health and its ability to self-regulate.

In a naturally managed hive, with the bees building their own comb and swarming, the growth of the colony is slower and takes more time than in a conventionally managed hive. Therefore it's possible to get away with only opening a natural beehive three to four times a year to check colony health and harvest honeycomb (in a good season).

By committing to opening the hive as little as possible, you will need to increase your observation skills so you can maintain an understanding of your colony's health each season. To do this, you need to pay attention to bee behaviour at the hive entrance to see how strongly they are flying, how heavy with nectar they are on their return, and what pollen is being collected. In the process you will also increase your understanding of the biology and environment around you as you observe the weather more closely and what plants are flowering and when.

A conventionally managed hive is generally focused on speed of honey production, is more management intensive, and is often opened fortnightly or monthly, which creates more opportunity for heat loss and disease.

Healthy food supply

There's a reason bees gather nectar and pollen from miles around, deposit it into specially crafted wax cells, reduce its water content and cap it for later... it's their one and only food source! So let your bees eat their honey, and nothing else.

PHOTOS: MILKWOOD PERMACULTURE

PHOTOS: TOP RIGHT: MALFROY'S GOLD/EMMA MALFROY / RIGHT: MILKWOOD PERMACULTURE

Honey is an almost magical substance that is both food and medicine to bees, and to humans as well. It is full of energy, but it also has antibacterial and antiseptic properties, which help keep the colony healthy throughout winter, and all year round for that matter.

Unless there's some sort of disaster in the hive or the surrounding environment, part of a natural beekeeper's job is to ensure that the colony always has enough honey stores to ensure their ongoing health and feeding needs.

In a crisis, some natural beekeepers choose to feed a colony with honeycomb from another hive (but first ensuring it is disease-free). Feeding your bees sugar water should only be a last resort as it contains none of the medicinal properties of honey and far less of the bees' preferred energy sources.

CHEMICAL-FREE HIVES

Though it might seem obvious that bees and pesticides don't mix, conventional beekeeping often involves the use of pesticides inside the hive to try to control disease. Given that there's a growing number of studies on sub-lethal toxins and their adverse affects on honeybee colony health, a natural approach to hive management is important. And most bee diseases can be prevented, or at least managed, effectively without the use of chemicals.

Bees are also exposed to whatever is on the flowers they visit to gather pollen and nectar, so if those plants are sprayed with toxic compounds, those toxins come home to the hive. You can help prevent this by not using chemicals on your garden and encouraging your community to do the same (this includes your council's weed management team).

Like many aspects of human and honeybee wellbeing, disease prevention via healthy practices is key. The less stressed and healthier the honeybee colony, the greater its ability to resist and deal with diseases and toxins in the hive.

BEE ON A BORAGE FLOWER.

TIM MALFROY WITH NATURAL COMB FROM A WARRÉ HIVE.

LIFE WITH BEES

KIRSTEN BRADLEY TALKS TO FULL-TIME NATURAL BEEKEEPER TIM MALFROY.

Q: *What led you to become a natural beekeeper?*

A: I spent the first few years of my life in the bee shed, while Dad and Mum were building the house. Dad was a full-time beekeeper when I was born, with around 800 hives, so I quite literally grew up surrounded by bees and honey.

Q: *While bee populations have been declining there has also been a huge upswell in natural beekeeping in Australia during the past decade. Where do you think this will lead?*

A: The problems that bees face are entirely of human construct. We need to change our practices on a number of different fronts if we genuinely want to save the bees. That's why natural beekeeping is such an exciting prospect for people. It's an enlightening and tactile craft that allows people to view the world in a different light, with the bee's perspective in mind.

Q: *What inspires you to keep going?*

A: It's not hard to get inspired when you're working with bees in the Australian forests, producing this magical honeycomb. It can be tough at times, but sometimes the toughness of it is a good thing as well.

Getting Started

Getting started in beekeeping requires some upfront costs, including time spent researching and learning. But the long-term benefits are many.

For example, to get started with a pre-made Warré hive, bees and all the kit you'll need will cost about $600-$800. The time you will need to spend will be about 10 minutes a week (observing bee behaviour at the entrance) and two to three hive openings a year, which take about 15 minutes plus the setup and pack down.

The benefit with Warré beekeeping is that most of the costs are upfront – once you have your hive, bees and kit, you're set. Harvesting honey within this system involves removing a comb and then either eating it as is, or crushing and sieving it for honey – no extra gear is required for this.

Yes, you may occasionally get stung by a bee during a hive opening, but the more you steward your bees in a bee-friendly way, the less chance of bee stings.

Joining a local beekeeper's association or other beekeeping group is highly recommended to help you acquire skills and confidence.

BEEKEEPING EQUIPMENT: You'll need a hive, either bought from a beekeeping supplier or DIY. A good beginner's kit includes a hive tool, bee suit or veil, smoker, and a whole lot of patience and reading.

ACQUIRING BEES: For natural beekeeping, this means either getting a package of bees from a supplier or purchasing a 'nuc' colony (a one-box hive) from a natural beekeeper. Another way to obtain a healthy colony is to try catching a swarm (do some reading and get expert advice on this first). Your local bee club will have someone experienced in re-homing swarms.

HIVE LOCATION: A north-east aspect is best, somewhere sheltered from cold winds. If you're in an urban area, make sure the flight path of your bees (the 4m in front of the entrance) isn't a high traffic area, or your neighbour's yard! Rooftops are also an option if you can find somewhere that won't be too hot for the bees (all day sun on an exposed rooftop is not ideal) and with good access for hive management.

BEE-FRIENDLY PLANTS: Lemon balm, salvia, grevillea, borage, lavender, clover, eucalypt.

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TOP: A WARRÉ HIVE OPEN FOR INSPECTION.
ABOVE: TIM MALFROY AT WORK IN A BEE VEIL.

PHOTOS: MILKWOOD PERMACULTURE

PHOTO: MALFROY'S GOLD/EMMA MALFROY

HIVE TYPES

NATURAL BEEKEEPING CAN BE PRACTICED IN A RANGE OF HIVE TYPES BECAUSE IT IS A PRINCIPLES-BASED APPROACH. HERE ARE SOME OPTIONS.

Warré

One of the best hives for natural beekeeping in Australia is the Warré hive, which aims to mimic a vertical tree hollow while allowing for ease of maintenance and harvest. Using a series of square boxes with top-and-side bar frames, the Warré is designed for minimal intervention and overall colony health.

As the colony moves down the hive cavity with each succession of brood, boxes can be added to the bottom of the hive to minimise disturbance, while excess honey is harvested from the top boxes with minimal interference to the colony. Extra insulation on top and a gabled roof for airflow ensures year-round comfort for the colony below, which is much appreciated in Australia's hot summers!

Kenyan Top Bar

While not suitable for all parts of Australia given our melliferous (nectar-producing) flora (the colony can quickly run out of room during a Eucalypt honeyflow, which can induce premature swarming), this hive design encourages a natural approach to beekeeping. However, the small space of the cavity means the Kenyan Top Bar hive can be a bit labour intensive, with more frequent hive openings necessary.

Langstroth

The Langstroth hive is the standard hive design used by conventional beekeepers. While designed for high-maintenance, fast-paced honey production with pre-made comb and a queen excluder, the Langstroth hive can still be retro-fitted by changing certain hive elements (and beekeeping attitudes!) to be managed naturally.

ABOVE: A WARRÉ HIVE.

RESOURCES

BOOKS:

- *Natural Beekeeping with the Warré Hive* by David Heaf
- *The People's Hive* by Emile Warré
- *The Buzz About Bees: Biology of a Superorganism* by Jurgen Tautz
- *Honeybee Democracy* by Thomas D. Seeley
- *The World History of Beekeeping and Honey Hunting* by Eva Crane
- *Australian Stingless Bees: A Guide to Sugarbag Beekeeping* by John Klumpp
- *The Incomparable Honeybee*, by Dr Reese Halter

WEBSITES:

- **warre.biobees.com**: A premier source of Warré beekeeping information.
- **naturalbeekeeping.com.au**: Great resources in an Australian context.

COURSES:

There are many courses advertised online under 'beekeeping courses' or 'natural beekeeping'. If you are not online, check in local papers.