NMBKA
New Mexico Beekeepers Association

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# OUTGOING INTERIM PRESIDENT'S MESSAGE

*by Melanie Kirby. MSc.*

Another rotation around the sun and the days have begun to lengthen, the sun shine brighter, winds howl, and tumbleweeds roll along. And here we are anxiously awaiting the spring nectar and pollens to start flowing, for our bees to break cluster, and to begin expanding with new brood. With that comes new promise of our enchanted honeys and harvests.

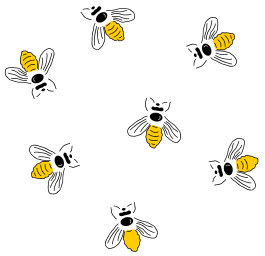
A new year and bee season brings aspirations and hopes for our state beekeeping association. Across our deserts, plains, mountains, and valleys, bees are buzzing and so is our organization. In my short tenure as interim president, I am pleased to share that we held a phenomenal virtual winter conference with over 130 attendees, advocated for a NM Pollinator Protection Plan Memorial through the state legislature, are supporting the development and expansion of bee clubs from south to north, and east to west, and are welcoming four new board members!

Although technically I have one year left to serve on the board, I will be stepping back as I have initiated a three-year grant-funded project to develop and lead a national coast-to-coast bee breeding network. I am also preparing to embark on a PhD degree studying bees, their keepers, and stewardship practices across continents and diverse cultures. I'll continue to volunteer on several committees and have no doubt that the new and continuing board members will be great!

I wish everyone a very sweet spring and summer and would like to leave everyone with encouraging words: it does indeed take a community to raise bees. And together we can nurture healthy habitat and community wellness by sharing the wonders of our bee-loved fuzzy and buzzy pollinators. Our Association only thrives when we participate and all are welcome to do so!

# THE MIND OF A BEE ~ LARS CHITTKA PROFESSOR OF SENSORY & BEHAVIOURAL ECOLOGY, QUEEN MARY UNIVERSITY OF LONDON

*Summarized by Rosy Link, NMBKA Board Member-at-Large*

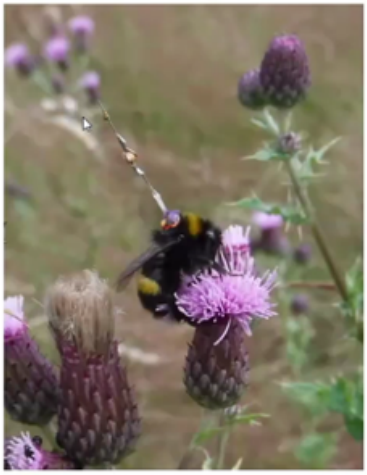
*[Looking into a bee hive] many people just see a crowd of interchangeable creepy crawlies... but I saw a city, a very ingenuously organized society with experts in all kind of things that need to be done in the hive with individuals that do different things which you recognize when you mark them individually. It is a kind of magic well, the deeper you dive into it and explore what goes on inside a bee colony and inside a bee's mind the more you yet discover and the more questions you have*. -Dr. Lars Chittka on 'What first drew him to study bees?'

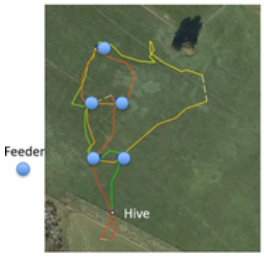
Doctor Lars Chittka is a behavioral biologist who studies sensory physiology, learning, and evolutionary ecology, using plant-pollinator interactions as a model system. His research explores how bees perceive the world around them, their intelligence, and how they develop relationships with other organisms and evolve together. On a personal level, I was thrilled when I heard that Dr. Chittka would be speaking at our conference, as he is a lead researcher in this area, and someone whose papers I cited in school, but had never had the opportunity to hear speak.

He did not disappoint. We know that in the wild, bees have an understanding of where things are in relation to their hive and can recognize patches of plants and even specific flowers. Dr. Chittka's work asks what is really going on inside bees' minds when they recognize flower patterns?

To study whether bees have mental images, Dr. Chittka's team used a "cross modal experimental design," wherein they trained bees to recognize simple shapes as rewarding in one sensory modality (sight) and tested whether they could transfer it to another (touch). Bees were presented with a setup of balls and cubes under glass, where the bees could see the shapes, but not touch them. They were then taught that landing near the ball shape led to a reward of sugar. When the bees were then put in darkness and presented with the same shapes but with the lid removed, the bees used touch to successfully locate the balls again. The team was able to reproduce these results when the experiment reversed, suggesting that the bees had a mental 'image' of the rewarding shape and could transfer it from one sense to another.

But does this show intelligence, or is it something bees are just programmed to do as a result of evolution and instinct? After all, being able to find food sources and remember the way back home is crucial for a bee's survival, as well as the survival of its hive, or offspring in the case of solitary bees. This led to the next question of instinct versus intelligence and learning.






To test this question, Dr. Chittka's team conducted a series of 'string pulling' experiments with bumblebees, based on similar experiments done on crows and primates. These tests were aimed at determining how flexible learning is in bees; can they learn 'new tasks' that "they have not faced before in their individual lives or evolutionary history?"

This was the set up: three "flowers" (plastic disks) were loaded with nectar but set out of reach under clear plexiglass. Bumblebees explored the area and learned to access the flowers by pulling them out using strings attached to the disks. Taking this to the next level, single 'inexperienced' bees who had never seen the set up before were trapped in a clear box and allowed to watch the others.

When released, these bees were able to successfully retrieve the nectar using the string without any training, showing their ability to learn a totally new task through observation. Dr. Chittka's team also studied the social spread of the knowledge of the string-pulling skill and mapped its spread through the colony as bees learned from observing the original innovator and subsequently from those secondhand learners even after the original bee died.

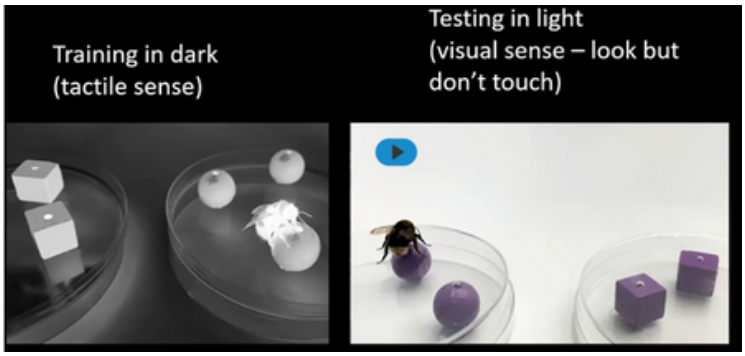
The team also studied bumblebees' ability to use other simple tools, including training bees to push a ball to a specific spot to receive a nectar reward, and again found that other bees could learn the skill just by watching. The team even found that observing bees could spontaneously improve on the technique, choosing to push closer and more efficient balls, thereby suggesting that the bees were not just copying the exact actions, but understood the goal and the intention, and could make improvements.

Drawing on all of these experiments, Dr. Chittka has concluded that his research shows that bees do have representations of "space, things in space, can learn from observation, and use simple tools in an intentional way." They have "flexible access to memory, an understanding of 'goal, intention, or desirable outcome they want' and choose among possible solutions to reach this, possibly showing an awareness of the outcomes of their own actions."

He has also recently written a book titled "In the Mind of a Bee" that discusses the surprising intelligence of bees.

To see the full presentation you can watch the video recording of Dr. Chittka on our website.

And click here to learn more about his lab and research.



# WHAT TO LOOK FOR:

## Bees Outside

Placing a tray with sides and a solid white bottom on the ground in front of a hive can be a useful tool for diagnosing honeybee diseases and other problems. This tray catches bees that have perished and are being taken out of the hive. Some things to look for include: the developmental stage of the bee, drone pupae, deformed wing virus, and Varroa mites on bees. This is also a good time to look for signs of pesticide exposure such as bees twitching and/or an extended proboscis.

## Bees Inside

When looking at brood pay attention to: pattern, are certain brood stages missing, is the dead brood at a specific stage of development? Spotty brood (due to various reasons) can lead to reduced queen and nurse bee efficiency, and poor thermoregulation. Queen evaluation is dependent on being able to look at brood patterning at the egg stage (to rule out disease). Dr. Wu-Smart will take a photo and blow it up to aid in this evaluation. Entombed pollen, or pollen covered in propolis, can be a sign of chemicalontamination or a sign that the pollen contains little nutritional value.

## Problematic Frames

Dr. Wu-Smart recognizes the value of a frame with drawn comb and resources. Instead of taking a problematic frame out of rotation, she recommends marking it. She places an 'x' on the top of the frame if it has a poor brood pattern or if disease or contamination is suspected. If that frame consistently shows signs of poor performance, she determines that the frame is no longer functional for that operation.

# HIVE NECROPSIES: WHAT DEAD COLONIES CAN TELL US, BY DR. WU-SMART

*Summarized by Amy Owen, NMBKA Board Member-at-Large*

Finding a dead colony can be disheartening; however, Dr. Judy Wu-Smart encourages us to take some time to look at dead colonies. Close inspection can help us determine what may have caused a hive to perish. As in life, these tough times enable us to learn more about our beekeeping practices, and what our bees may need from us to survive and thrive.

Dr. Wu-Smart's investigative strategies focus on the developmental stage that dead or dying bees are found in. This helps the beekeeper determine the point at which bees are becoming infected with a certain disease or parasite, or when they are exposed to pesticides. Most pesticide contamination comes from pollen.

Practically speaking, no remaining honey stores and bees in cells after winter is often a sign of starvation. Looking at bottom boards can help a beekeeper determine if the bees died from starvation or succumbed to a high mite load. In the case of starvation, bees are often found on one area of the bottom board, while bees are more evenly distributed if mite loads were too high.

The lack of brood food (royal jelly) at the bottom of brood cells may indicate nutritional deficiencies, or a low nurse been population. A beekeeper can assist their colony by supplementing the colony with capped brood, or by feeding the colony a pollen substitute if pollen stores are low.

# DR. CAMERON JACK - SEASONAL EFFICACY OF CURRENT VARROA TREATMENTS

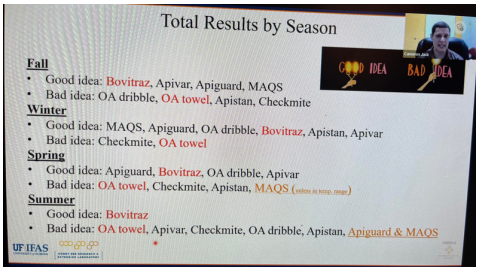
*Summarized by Courtney Bradley, NMBKA Treasurer*

Dr. Cameron Jack has roots in NM where his grandparents settled in Farmington, "NM has a special place in my heart." Dr. Jack's grandparents kept bees, and even though his parents don't keep bees, he got the bug and took it to the max. He teaches nine courses at the University of Florida about honeybees, and he is one busy man, having already done a hands-on bee demo earlier in the day before our conference. His focus is on honeybee toxicology and the control of pests in honeybee colonies.

Dr. Jack opened his presentation with a funny story about losing his pants while transporting bees and getting plenty of stings on his bum in the process. With this he gives us a laugh and gets us ready for his talk on treating Varroa mites in different seasons with different treatments. He recognizes that there are many problems with Varroa treatments, specifically resistance to these treatments.

Dr. Jack says we need to solve this problem via two routes. The first is to think of and find new active ingredients and the second is to improve on the chemical treatments that we already have. How do we improve and use the treatments we already have? He states that this is a region-by-region and season-by-season problem. He emphasizes that if you do not treat your bees for Varroa then your colonies will die. Dr. Jack recommends treating three times a year with a mite count check done before and after each treatment. He reviewed the different types of organic and synthetic chemical treatments for Varroa and further discussed which ones he put to the test in his experiment.

**Natural Chemical Control**
Apiguard (Thymol)
MAQS (Formic Acid)
Oxalic acid (dribble and shop towels)




Dr. Jack used one apiary with 10-16 colonies per treatment per season. His team observed each treatment until the mite population had dropped to an average of three mites per 100 bees within that group of colonies.

With a myriad of results for each treatment within each season you can imagine how overwhelming it is to take it all in and quite possibly why us beekeepers are left scratching our heads while pondering how to best treat for Varroa.

My favorite part of the presentation was when Dr. Jack broke it down into two simple concepts, Good Idea and Bad Idea. He listed the four seasons with each treatment listed within its "good" or "bad" idea section that made it easy to read and analyze what I may plan on this coming year. His studies were much more in depth than just a good or bad treatment. In the end he found that a lot of the treatments did not give a reliable, lengthy treatment but rather a short coverage of just one or two months. He talked about using other options such as hygienic stock or brood breaks.

A lot more research is needed to come up with a better answer but for now we have to determine the best way to efficiently use what we currently have. Dr. Jack strongly recommends using Honey Bee Health Coalition to help with Varroa management and to try incorporating non-chemical treatments with your chemical treatments as well. Good luck with Varroa this year and if you would like to learn more about Dr. Jack's research, members can find his talk on our website.

**Synthetic Chemical Control**
Apistan (fluvalinate-pyrethroid)
Checkmite (coumaphos-organophosphate)
Apivar (Amitraz-formamidine)
Other Amitraz treatments

# DR. JULIANA RANGEL: NUTRITIONAL ECOLOGY OF HONEY BEES IN A CHANGING LANDSCAPE

*Summarized by Melanie Kirby, NMBKA Board-Member-at-Large*

I had the pleasure of first meeting Dr. Juliana Rangel back in 2013 while sipping vodka in Kiev, Ukraine when I was attending my first Apimondia World Beekeeping Congress. I remember that we laughed a bunch and I felt I had made an instant friend. The following spring, with support from a New Mexico Department of Ag grant, I invited Dr. Rangel to visit NM to conduct several presentations and to sample bees across the state for mitochondrial genetic analysis. Ever since, I have followed Dr. Rangel's research through her role as an Associate Professor at Texas A&M and have come to know her as a friend, colleague, and an inspiration. I'm honored to share a review of her presentation from our 2023 NMBKA Virtual Winter Conference.

Dr. Rangel's presentation, "Nutritional Ecology Of Honey Bees In A Changing Landscape," focused on several factors that impact bee health and productivity, which are of paramount importance to beekeepers as we encounter environmental challenges and struggle to mitigate and adapt to extreme weather. Dr. Rangel began by sharing introductory information about the building blocks of honeybee nutrition, and then about her own and her graduate students' research using the geometric framework for nutritional ecology. She finished by sharing the results from testing on the preferred macronutrient ratio by bees when colonies are infected with a virus (through a type of social immunity).

Born in Colombia, Dr. Rangel obtained a B.S. in Ecology, Behavior, and Evolution in 2004 from the University of California, San Diego.

In 2010 she obtained a PhD in Neurobiology and Behavior from Cornell University under tadvisorship of acclaimed neurobiologist Dr. Thomas Seeley. She was a National Science Foundation Postdoctoral Research Fellow at North Carolina State University and then became first Assistant Professor and then Associate Professor of Apiculture in the Department of Entomology at Texas A&M University. Dr. Rangel's research focuses on the biological and environmental factors that affect the reproductive quality of honeybee queens and drones, the behavioral ecology and population genetics of unmanaged honeybees, and the quality and diversity of honeybee nutrition. She is an active member of the Texas Beekeepers Association and has spoken to dozens of beekeeping associations across the USA and internationally, including New Mexico.

In 2014, she sampled bees from 65 colonies across New Mexico to analyze mitochondrial genetics. Dr. Rangel is hoping to return with a graduate student to follow up on this research as it will help NM beekeepers learn what kinds of bees we have and how that plays into their behavior and rate of survival. You can follow the Texas A&M Bee Lab on Instagram.

# USING FUNGI TO AID BEE HEALTH
# DR. NICK NAEGER, DEPARTMENT OF ENTOMOLOGY, WASHINGTON STATE UNIVERSITY

*Summarized by Kurt B. Ferreira, NMBKA Vice President*

"Great queens, dead mites and good nutrition!" This is the chant of many beekeepers in the modern era. At the 2023 NMBKA winter conference Dr. Nick Naeger shared his groups' thoughts and research on using fungi to address two legs of this successful beekeeping tripod.

Dr. Naeger is an assistant professor in the Department of Entomology at Washington State University. His research focuses on understanding the interactions between honeybee nutrition, diseases, and the bee immune system. More specifically, he and his collaborators are developing


fungus-based products that they believe can help control Varroa destructor mites and be an effective nutritional supplement.

Honeybees and fungus are not strangers. Bees have a long evolutionary history with fungi. As cavity dwellers, feral honeybee colonies have long called hollowed-out trees home. These wood cavities are typically created by fungus, consuming the dead wood slowly over time.

Additionally, honeybees have long been observed to drink the exudate (or sweat) from fungus in the environment. This fact has puzzled researchers as exudate is not sweet like the nectar sources bees typically forage. However, it has been speculated that these exudates may contain anti-viral properties and certain nutritional compounds that can have a positive impact on colony health.

To address these questions Dr. Naeger and his team tested the impacts of fungi on bee nutrition by feeding extracts derived from fungal mycelium placed in sugar syrup and compared them to feeding bees the syrup on its own and honey.

Interestingly, the fungus-infused syrups increased survivability. Surprisingly, the survivability of cohorts fed mycelium extract exceeded those feed only honey. Exactly why fungus-fed bees lived longer is likely due to a multitude of factors. First, fungus-fed bees had lower incidence of virus, for example deformed wing virus. This is believed to be due to the aforementioned anti-viral properties of many fungi. Second, as the fungi used in these tests consume plant material, the fungal extracts have mineral profiles similar to that found in plants, including pollen and nectar.

Therefore, the nutrition the bees received seemed to mimic what they would get from natural forage. Finally, the fungal extracts were shown to be high in sterols and polyphenols. These sterols and polyphenols are, respectively, used by insects to control life-stage transitions (pupation, etc.) and have been shown to be important for insect immune health.

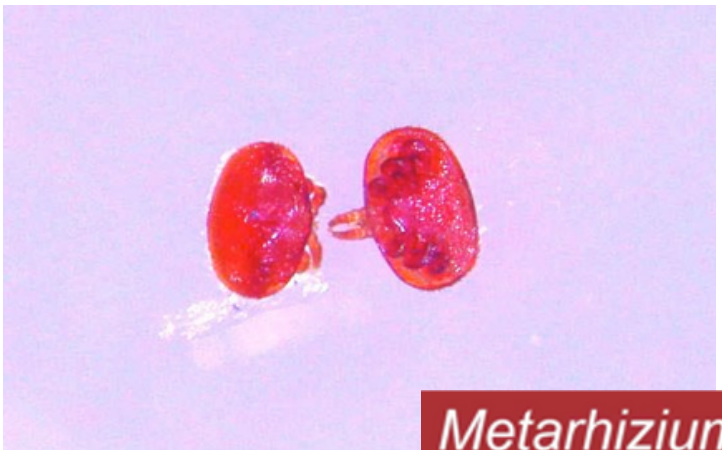
Dr. Naeger's team is also investigating using fungi as a possible miticide. Varroa is a key contributor to colony decline and death. The idea here is to generate a fungus that will target Varroa but not harm honeybees. There are many known fungi that are classified as pathogens for arthropods. For example, the Metarhizium fungus being tested in this work to control Varroa mites is currently used to control locust populations in portions of Africa.

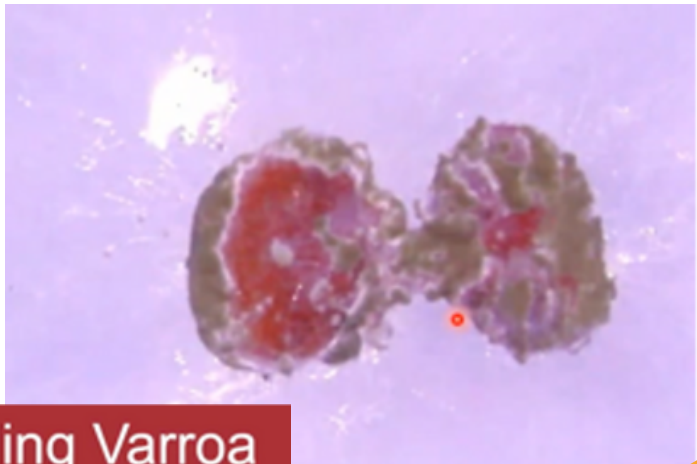
The key challenge with using fungi for Varroa control is heat. Varroa reproduces in capped brood and therefore typically stays close to a colonies' brood nest. Brood nest temperatures in honeybee colonies exceed 90°F, which is an environment in which most fungus cannot effectively survive and propagate. Therefore, a fungus needed to be evolved that could both be fatal to Varroa and not honeybees while also being capable of surviving and propagating at bee brood nest temperatures.

This direct evolution was an arduous process for Dr. Naeger and his group involving evaluation and selection of fungi strains over many generations.

Comparison of Metarhizium against oxalic acid vaporization (OAV) has shown the fungi to be a promising miticide. The fungus exceeded OAV performance at keeping mite numbers low throughout the season. However, it is important to note that while the fungus was an effective Varroa control for hives with already low mite counts, it was not an effective "knock-down" method for hives with high mite counts. This suggests it might not be the only tool in a beekeeper's arsenal against Varroa but could be a valuable method once commercialized.

So, should you start throwing fungus into your colonies and hope for health increases? That's probably not a wise course of action. Remember, Chalkbrood (Ascosphaera apis) and Nosema are also classified as fungi, so not all fungus is good fungus for our bees.





*Metarhizium* killing Varroa

# PLANTING FOR POLLINATORS IN NEW MEXICO
# KAITLIN HAASE, SOUTHWEST POLLINATOR CONSERVATION SPECIALIST, XERCES SOCIETY

*Summarized by Christa Coggins, NMBKA Board Secretary*

At the February 2023 NMBKA Conference Kaitlin shared with us some tips for how to create pollinator-friendly yards and gardens here in New Mexico.

Kaitlin works for the Xerces Society, an international nonprofit dedicated to the conservation of invertebrates and their habitat. Xerces' main office is in Portland, OR with a focus on wild bees, butterflies, fireflies, dragonflies.

Xerces has programs dedicated to pollinators and agriculture biodiversity, endangered and aquatic species program, pesticide program to reduce pesticide use, and an urban conservation program. They use restoration, research, education, outreach and advocacy to further their mission of protecting invertebrates.

Kaitlin explained that native bees in New Mexico are extremely diverse with both 'generalists' and "specialists" in terms of the kinds of pollen they collect, and with a wide range of nesting habitats. Almost half of our native bee species (420) are pollen specialists.

Only 1% of native bees in New Mexico actually build a hive and have a colony. Most of our bumblebees will use abandoned rodent burrows, or holes under bunch grasses. These are important considerations when deciding what to plant and how to maintain a property for pollinator populations.

**Selecting plants:**

- Choose native plants that ensure highest diversity of wild pollinators.
- Trees, shrubs, perennials that provide some bloom in each season
- Avoid cultivars from nurseries

**Nesting and overwintering sites:**

- Leave the leaves, logs, branches, other plant litter
- Identify and protect existing sites/create new habitat

**Recognize and protect ground nests:**

- Bare patches in well-drained soils, can resemble ant nests

**Recognize above ground tunnel nests:**

- Hollow or pithy plant stems, brush piles, logs, trees, stems, etc.
- Leave pithy stalks intact over winter, prune to varying lengths
- No clean-up necessary – stems will break down

**Managing disease:**

- Cut out diseased parts of plants when you notice them
- Make sure plants have adequate airflow, water, nutrients
- Create a resilient and diverse ecosystem
- Most insects are beneficial
- Tolerate some plant damage!

If you have questions please contact Kaitlin Haase at kaitlin.haase@xerces.org and, for more specific recommendations and plant lists, visit Xerces Society Southwest Region.

# SILENT AUCTION SUCCESS!

*by Stephen Black, NMBKA Certified Beekeepers Coordinator*

As part of our 2023 Winter Conference, we held a virtual silent auction fundraiser for NMBKA. We had over forty items up for bids ranging from hive products, beekeeping equipment and books, bee-themed jewelry and crafts, professional beekeeper services, and even 2023 nucs and queens.

Thanks to the many fabulous and generous donors – both businesses and individuals – we were able to raise over $2800. Below are of two NMBKA members picking up their winning items from our storage facility in Albuquerque.



CLICK ON EACH NAME BELOW TO VISIT THEIR WEBSITE!

~ Sipapu Ski & Summer Resort ~ Los Poblanos ~ Hay's Honey & Apple Farm ~
~ A-Bee Honey ~ Wild Bird Unlimited ~ Desert Hives ~ Zia Queenbees ~
~ Papa Bear's Honey ~Bear Canyon Honey Co. ~ Warner Bros.~ Big R ~ Dadant ~

# ALBUQUERQUE BEEKEEPERS

*by Brett Rimer, ABQBeeks Treasurer*

Albuquerque Beekeepers ("ABQ Beeks") is an organization that advocates for pollinators and offers networking, mentorship, education, and resources to beekeepers in the Albuquerque area.

We meet monthly from March through September to learn about and share best beekeeping practices and to build community among beekeepers. We have recently reorganized to gear up for the coming season with a new board of directors: Matt Strong has taken the helm as the president, Steve Black as treasurer, Brett Rimer as secretary, and Susan Carter and Tara Cunnings as members-at-large. A new website is also in the works thanks to a grant from the NMBKA.

Matt Strong, ABQBeeks President

ABQBeeks Meeting

We offered two swarm catching classes (a prerequisite to be included on the ABQ Beeks swarm catching list) on February 18th and March 4th 2023 at the Los Ranchos Agri-Nature Center. The inaugural ABQ Beeks meeting of the 2023 beekeeping season was held on Thursday, March 16th, 2023, also at the Los Ranchos Agri-Nature Center. Come join us at future meetings!

www.ABQBeeks.org

# CERTIFIED BEEKEEPING PROGRAM

*by Stephen Black, NMBKA CBeeks Coordinator*

Final preparations are underway for the 2023 Certified Beekeeping Program ("CBeeks"). Each year we have seen increased interest in this NMBKA-sponsored education program. This year we have a full class for Level 1, and will likely have to turn students away, hoping they will join us in 2024.

*Students learning from Instructor TJ Carr*

*Students learning from Instructor Craig Noorlander*

The Level I course takes place over seven Saturdays spread throughout the beekeeping season at the Open Space Visitor Center in Albuquerque where we keep eight hives, both Langstroth and Top Bar.

A major part of the program is the hands-on experience we give to students with instructor/mentor-led hive inspections at most every class. As classes get larger each year, we are always looking for experienced beekeepers to help us with demonstrating hive inspections. The more mentors we have, the number of students around each hive is smaller, with time for every student to get the best experience.

If you are interested in finding out how you can support CBeeks with hive inspections, please contact Steve Black (steve1957@icloud.com).

# INTERVIEW WITH BEEKEEPER AMY OWEN - PART 1

*By Courtney Bradley, NMBKA Treasurer*

On January 19, 2023 I sat down with well-known local beekeeper Amy Owen to ask ten questions. I can tell you she is every bit as charming in person as she is on Zoom meetings and I'm dying to have breakfast with her again real soon!

## CB: Tell me where you were born and raised?

AO: I was born in Clovis New Mexico, because there wasn't an obstetrician where my parents lived (in Fort Sumner, New Mexico). But basically, I spent the first 12 years of my life in Fort Sumner, which has a population of 2000 or so. Then when I was 12 we moved to Clovis, so just small town New Mexico.

## CB: What's your number one favorite thing about beekeeping?

AO: Oh my gosh that's easy, actually! My number one favorite thing about beekeeping is its ability to just put me in the present moment and forget about everything else for hours.

*A Pensive Amy Owen at one of her apiaries*

## CB: When did you start beekeeping and why?

AO: It was 2015 and I started because it honestly wasn't a fascination with bees, it was just a fascination with social insects and I saw it as a way to intimately connect with social insects. In college I took an entomology class and fell in love with social insects, but ... I didn't understand how that could possibly be a career. I just didn't know what there was out there. In 2015 I had a mentor who did top bar beekeeping, and then I learned about the state certification program and then, of course I just fell in love, and became obsessed with bees.

## CB: What would Experienced Beekeeper Amy go back and tell New Beekeeper Amy?

AO: I would tell new beekeeper Amy that beekeeping itself isn't a natural thing for bees. We're taking a wild bug or species of insect and we're keeping it in a little box that we chose and put in a certain place. They didn't choose it and they don't build hives with frames. So I would tell new beekeeper Amy that it's OK to not push so hard for 'organic' or 'natural' beekeeping because you're gonna have to get a little more hands-on and scientific about your approach. You're doing something that's unnatural and so you're going to have to make certain adjustments along the way to keep them healthy.

*Amy and Courtney at Roots Farm Cafe, Tijeras NM*

## CB: How many hives do you have and in how many locations?

AO: This is always changing... but I usually have between 50 and 60 hives at seven different apiaries.

## CB: Tell me where all those apiaries are.

AO: There are three different apiaries near Cerrillos... There's also one in Frost Farms which is closer to Santa Fe so a little further north of Cerrillos so that's four and then of course my home apiary and in town [Albuquerque] I have an apiary at Chispas Farms and then at El Nito Farm which is close to Isleta Pueblo. And then I have an apiary at someone's house near the [West Side] petroglyphs. That's eight so I was wrong – and I take care of the bees at Albuquerque Open Space.

*Come back for the second half of my Amy Owen Interview in our Summer Newsletter in June 2023!*

# WELCOME OUR NEW BOARD MEMBERS-AT-LARGE

Lara Lovell-
Albuquerque, NM

Miranda Kirsten-
Los Lunas, NM

Ryan Miller-
Santa Fe, NM

Alicia Thompson-
Laguna Pueblo, NM