CENTRAL COAST BEEKEEPERS NEWSLETTER

July 2023

NEXT MEETING July 26, 2023

General Discussion at our July Meeting

Wednesday July 26 at 1:30

Join us on WENESDAY, July 26 from 1:30-3:30PM at the Newport Public Library.

Discussion topics will include the club's participation at the State Fair, future club membership fees, and the upcoming vote for club officers & board. We will also have plenty of time for Q & A.

See you there!

PRESIDENT'S MESSAGE

By Max Kuhn

Thank you, to all who helped with the club's booth at the recent Lincoln County Fair. And before that, the Waldport Public Library's "Pollinator day" held at the Joy Garden Park in Waldport. Both events were fun, exciting, and I feel, well worth participating in. Here's hope we can do them both again next year. Participating in these two events this year were club members: Steve N., Rick O., Becca, Max, Roland, Pat W., Patti J., Jon S., and Jacob M. Thanks again, you folks are the best!

Our next opportunity to be of service to the public and the beekeeping community is not far away, so listen up. The Oregon State Fair is August 25th through September 4th. We want as many club members as possible to participate by volunteering their time to work in the OSBA's Honey Bee booth at the fair. It is held at the fairgrounds in Salem, Oregon during the above dates. You can volunteer by going onto the OSBA's website and signing up for a specific shift. **Our club is promoting the day of Sunday the 27th of August.** We want as many members as possible to work a shift on that day. It would be great if we could get enough volunteers to work that day to claim the day as CCBA day! But regardless, we want to volunteer sometime during the fair, to help out. There are benefits for volunteers who are able to do a shift. Benefits include a free parking pass at the fair and free admittance to the fair on the day you work there. More information will be available at the next CCBA meeting. If you need a ride or want to share a ride with a fellow club member to and from the fair, make sure the details are worked out prior to your scheduled work day at the fair.

Hope you all have a great honey harvest, be it large or small. 😊

Monthly Beekeeping Tips

by Todd Balsiger - Oregon State Beekeepers Association

Month of July

Unless you're near a commercial crop or at higher elevations, the summer nectar dearth begins about mid-July (maybe August 1st this year). At this time we should be thinking about nest consolidation and honey harvest.

• In late summer we crowd the bees. We begin this in earnest in August along with mite treatments, but for now don't leave extra supers on colonies light on stores. Also, avoid having extra supers on colonies as the nectar flow tapers off as this leads to half-filled frames --an inconvenience at harvest time.

• As usual, keep an eye out for colony health. Any colony not keeping up with the others in the bee yard needs to be inspected to make sure the queen is laying and healthy.

• Requeen any colony with undesirable characteristics such as poor production, European foulbrood (not AFB), poor brood pattern, mean temper, etc.

• Queenless hives are a real problem and need to be either requeened with a nuc or retired. Typically, queenless hives have an abundance of pollen stored in multiple frames (no brood to feed). This condition typically is followed by the development of laying workers. Signs of laying workers are multiple eggs per cell, eggs on the side of cells (opposed to one egg centered on the bottom), and drone brood development in worker cells. If requeening, always place the nuc in the top brood box and to one side (easier to defend). You may want to reverse brood boxes first as there may be fewer bees in the lower box (again, easier to defend). If you retire the hive, shake the bees out and share the frames with other hives - the workers will perceive the eggs as foreign and unwanted and will eat them. After the drones hatch from the elongated worker cells, the workers will cut the cells back to their regular length.

• Keep on the lookout for American foulbrood as robbing season is imminent and AFB infected colonies make easy targets. AFB is highly infectious and early detection is important for disease control.

• Remove and extract supers. Honey removed in late July will have less moisture content than honey in June, so you do not have to be as judicious about making sure that all cells are capped. Moreover, in late season the nectar flow can end, and the bees will be unable to cap the honey cells even though they are ready (sufficiently dehydrated). As a general rule you can always check the moisture content and ripeness of honey in a given frame by shaking the horizontal frame hard, downward and seeing if nectar falls out. If a shower of nectar falls out, then that frame was not ready.

• Be prepared to do the most important treatments of the year for your hive in early August: Varroa mite management treatments and reducing hives down to winter configuration.

Flowers pollinated by honeybees make lower-quality seeds

A new study emphasizes the importance of conserving wild, native insects too

In San Diego County, honeybees are the main visitors of the native white sage plant (shown). The bees visit many flowers on the same plant, depositing more of its pollen back on itself and possibly lowering seed quality. D. Travis

By Jude Coleman

JUNE 27, 2023

Flowers pollinated by honeybees make fewer and lower-quality seeds than flowers visited by other pollinators.

That could be because honeybees spend more time buzzing between flowers of the same plant than other pollinators do. As a result, more of the plant's own pollen is deposited back on itself, leading to more inbred seeds, researchers report June 28 in *Proceedings of the Royal Society B*.

Honeybees command a lot of attention in insect conservation circles, in part because they are important for pollinating our food supply. But the findings emphasize the importance of prioritizing pollinators like wild, native bees, moths and butterflies in conservation efforts too, the researchers say.

For the study, ecologists Joshua Kohn and Dillon Travis, both of the University of California, San Diego, painstakingly tracked the pollination of flowers from three native plant species — white sage (*Salvia apiana*), black sage (*Salvia mellifera*) and *Phacelia distans* — in San Diego County.

Often Travis sat for hours waiting for a single pollinator, honeybee, or wild bee or otherwise, to come and go from a flower. Then he put a mesh bag on the flower and came back later to collect its seeds. He also collected the seeds of flowers he had cross- or self-pollinated by hand — also covered with a bag to prevent any new visitors.

Despite boasting over 650 native bee species, San Diego County's most frequent flower visitor is the western honeybee (*Apis mellifera*), which isn't native, the researchers say. "Whatever native plants [are] blooming abundantly, they're just dripping with honeybees," Kohn says.

Back in the greenhouse, the team grew the seeds, analyzing characteristics that reflected their quality, such as how many seeds germinated and survived and how many leaves or flowers seedlings grew.

The white sage and *P. distans* plants produced roughly half the amount of seeds from flowers pollinated by honeybees compared with other pollinators, mostly native insects. And *P. distans* seeds from honeybee-pollinated plants grew into seedlings with fewer flowers. The black sage plants didn't get enough non-honeybee visitors for comparison but did produce fewer seeds when pollinated by honeybees compared with cross-pollination by hand.

The researchers also found that honeybees visited about twice as many flowers on one plant before moving to the next than the average of other pollinators. That suggests the fewer, lower-quality seeds may arise because honeybees transfer more pollen between flowers of the same plant, resulting in more inbred seeds. Other pollinators more often flitted between different plants, probably transferring more diverse pollen.

The new finding is concerning, Travis says. Because of honeybees' methodical pollination habit, it's likely the results are relevant to other plants. But it's difficult to know how things will play out in the long term.

One potential consequence could be that native plant populations decline as subsequent generations become more inbred, reducing biodiversity. It would be illuminating to see how inbred plants fare after several generations, says Maria van Dyke, a pollinator ecologist at Cornell University.

For now, this study is an example of why more conservation focus should be on native bees and other pollinators, which are vital to ecosystems and agriculture, in addition to honeybees, van Dyke says. (*SN: 8/4/20*). Honeybees, wild bees and many other insects are threatened by pesticide use and climate change (*SN: 10/5/17*).

“It is time to actually shift our dependence for pollination from largely honeybees to … native species as well,” says Jaya Sravanthi Mokkapati, an entomologist at Penn State University. Growing native flowers is one way to support native pollinators, she says, as is adding nesting habitat — like twigs and decaying wood — to yards.

‘Polyester bees’ brew beer-scented baby food in plastic cribs

Solitary moms set up an unusual microbrewery for each egg

A kind of cellophane bee, *Ptiloglossa arizonensis,* collects pollen from a silverleaf nightshade flower. She will mix the pollen with nectar in homemade plastic cribs to create runny beer-scented baby food for her young.
TOBIN HAMMER

By Susan Milius

JUNE 14, 2023

Female *Ptiloglossa* bees are single moms with a lot to do and little time. Fortunately, they can use a feathery tongue to make infant-care plastics and then brew up batches of baby food.

“We jokingly call them polyester bees,” says pollination ecologist Stephen Buchmann of the University of Arizona in Tucson.

Chemically, the bee-made plastic is a cousin of human-made polyesters. A big gland on a female’s abdomen secretes Tinkertoy-like molecules of repeating lactone compounds, each with its “ester” structural bit that gives polyester its name.

The stuff makes the finishing touch for little urn-shaped nursery chambers that mother bees dig underground. They use their paintbrush tongues to lick up the gland secretion and slather it on nursery walls.

The plastic layer is transparent, tough and “can be kind of crunchy,” Buchmann says. It’s “thought to keep the brood chamber area nice and cozy, high-humidity and also to keep out the bad guys.”

These moms are doomsday preppers. In the *P. arizonensis* Buchmann studies in Arizona, females have only a few weeks to fill plastic retreats with all the food each youngster needs for much of a year underground before its own, brief reproductive frenzy in sunlight. Each generation of big, fast-flying bees grows up floating in, and feeding on, nothing but mom’s limited-edition brew of nectar and pollen — which smells like beer.

Many other bee species mix their baby food of pollen and nectar to “a kind of Play-Doh consistency,” Buchmann says. “Poke it and it dents.” Food stored in a cellophane bee nest, however, is different.

Open and tilt a nursery of baby *Ptiloglossa* bees “and all this stuff would run out it’s so watery,” Buchmann says. That’s probably because of the unusually watery nectar these polyester bees collect. Much of it comes from the candelabra-shaped bloom spikes of agave plants, runny enough for easy slurping by bats in southeastern Arizona and Sonora, Mexico.

To see what’s in the beer-scented brew, bee microbiome researcher Tobin Hammer of the University of California, Irvine, recruited Buchmann to collect several plastic-making *P. arizonensis* bees as well as relatives in the larger group called cellophane bees. Collecting the bees, their brood cells, food gatherings and source flowers took several years, mostly of waiting. Bees fly aboveground only a few weeks a year, and then for only about two hours around dawn.

“Quite shocking,” is Buchmann’s summary of what he found. Despite the beery smell of the food that *P. arizonensis* puts in the plastic vats, he says, “lo and behold, no yeast!”

These bees’ microbial fermenters didn’t evolve anywhere in the vast fungal kingdom. Instead, the fermenters are mostly lactic acid bacteria, Hammer, Buchmann and colleagues reported April 5 in *Frontiers in Microbiology.* The bees’ baby food glop is not yeasty beer but, Hammer says, closer to yogurt or sauerkraut.

An Argentinian cellophane bee, *Ptiloglossa matutina* (a relative of the Arizona one), also makes plastic cribs and fills them with baby food. A closeup look inside one of these nursery chambers shows the plump white bee larva against the yellow fermenting food its mother stowed away and the plastic lining (piece is pulled aside, right).L.C. SARVETTI *ET AL/JOURNAL OF HYMENOPTERA RESEARCH* 2013

Buchmann doubts that young bees take moms' bacterial culture along when they leave home. Youngsters go through much of their early growth without pooping as far as bee science knows. Then they defecate "all at once," Buchmann says. This clears the gut of the microbes, and the ejected wastes get separated from the youngster as it wraps itself in silk for its next stage of life.

The aboveground world that youngsters eventually join offers plenty of replacement bacteria. It flourishes in flowers — or "plant genitals," as Buchmann calls them in his new book *What a Bee Knows*. Somehow the variety

of microbes bees encounter gets winnowed down for baby food, lab analyses suggest. Just how is still an open question.

What the great coming-of-age poop does resolve for human sensibilities is the thought of how bee larvae without diapers can feed month after month on food they're floating in.

CITATIONS

T.J. Hammer *et al*. Bee breweries: The unusually fermentative, lactobacilli-dominated brood cell microbiomes of cellophane bees. *Frontiers in Microbiology*. Vol. 14, April 5, 2023. doi: 10.3389/fmicb.2023.1114849.

S. Buchmann. *What a Bee Knows; Exploring the Thoughts, Memories, and Personalities of Bees.* Island Press, March 2023.

Are Birds and Honey Badgers Teaming Up to Steal from the Bees?

The feel-good tale of these two species cooperating has captivated naturalists for centuries. But is it true?

By Melissa Breyer Published June 29, 2023

A greater honeyguide feeding on beeswax in Niassa Special Reserve Mozambique. Dominic Cram

There is a bird that loves to eat beeswax but is unable to break open a bees' nest to get it. Known as a honeyguide, these birds have figured out that humans love honey and leave the wax behind—so the birds guide humans to hives.

This much is true. But like something straight from a Pixar screenplay, lore has it that honeyguides also lead honey badgers to nests, at which point the badger rips it open and together they revel in the honey-and-wax glory. But is this fact or fiction?

Now, a new study tackles the mystery of honeyguides collaborating with honey badgers.
“While researching honeyguides, we have been guided to bees’ nests by honeyguide birds thousands of times, but none of us have ever seen a bird and a badger interact to find honey,” says Dr Jessica van der Wal at the University of Cape Town, lead author of the study.

“It’s well-established that honeyguides lead humans to bees’ nests, but evidence for bird and badger cooperation in the literature is patchy," she adds. "It tends to be old, second-hand accounts of someone saying what their friend saw. So we decided to ask the experts directly.”

In what is being called the first large-scale search for evidence of the mixed-species collaboration, a team of researchers from nine African countries, led by researchers at the University of Cambridge and the University of Cape Town, conducted some 400 interviews with honey hunters in 11 communities across Africa.

The greater honeyguide bird has been used for generations to find bees’ nests. Wild honey is a high-energy food that can provide up to 20% of calorie intake, notes the University of Cambridge in a summary of the study, and the wax that hunters share or discard is a valuable food for the honeyguide.
“The honeyguides call to the humans, and the humans call back—it’s a kind of conversation as they move through the landscape towards the bees’

nests," says Dr. Claire Spottiswoode from the University of Cambridge's Department of Zoology and joint senior author of the study.

(Fun fact, the scientific name for the greater honeyguide bird is *Indicator indicator.* How apropos is that?)
Most of the honey hunters they interviewed did not confirm having observed honeyguide birds and honey badgers helping each other access honey—80% had never seen the two species interact.

But as explained by the University of Cambridge, "responses of three communities in Tanzania stood out, where many people said they'd seen honeyguide birds and honey badgers cooperating to get honey and beeswax from bees' nests. Sightings were most common amongst the Hadzabe honey-hunters, of which 61% said they had seen the interaction."

"Hadzabe hunter-gatherers quietly move through the landscape while hunting animals with bows and arrows, so are poised to observe badgers and honeyguides interacting without disturbing them. Over half of the hunters reported witnessing these interactions, on a few rare occasions," said Dr Brian Wood from the University of California, Los Angeles, who co-authored the study.

They say that it's possible that some Tanzanian populations of honey badgers have developed the skills and knowledge needed to cooperate with honeyguide birds, and they pass these skills down from one generation to the next.

It's also possible, they say, that the dynamic duo teams up in more places in Africa, but the interactions just haven't been seen.

"The interaction is difficult to observe because of the confounding effect of human presence: observers can't know for sure who the honeyguide bird is talking to—them or the badger," said Dr. Dominic Cram in the University of Cambridge's Department of Zoology, a senior author of the study.

“But we have to take these interviews at face value," he adds. "Three communities report to have seen honeyguide birds and honey badgers interacting, and it’s probably no coincidence that they’re all in Tanzania.”

Humans are helpful for honeyguides. We have tools to access the nests and smoke to subdue the bees. But as the researchers point out, honeyguide birds have been around far longer than modern humans with our fire and tools.

“Some have speculated that the guiding behavior of honeyguides might have evolved through interactions with honey badgers, but then the birds switched to working with humans when we came on the scene because of our superior skills in subduing bees and accessing bees’ nests. It’s an intriguing idea, but hard to test,” said Spottiswoode.

Regardless, we know that *Indicator indicator* is definitely indicating where the bees are for human honey hunters—and as it now appears likely, in Tanzania at least, for honey badgers as well. Pixar, eat your heart out. The study was published in the Journal of Zoology.

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Club Info

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