



# The Bee Line

Newsletter of the Oregon State Beekeepers Association

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**Image above:** Soon the bees (and we) will emerge into days filled with the welcome light and warmth of the sun. May all bee schools, all learning, and all ongoing preparations for this year's bee season go well!

I like pulling on a baggy bee suit, forgetting myself and getting as close to the bees' lives as they will let me, remembering in the process that there is more to life than the merely human.

— Sue Hubbell, *A Book of Bees*

## USING FUNGI TO IMPROVE HONEY BEE HEALTH

Nicholas Naeger and Jennifer Han, Washington State University

The Washington State University bee research team has been developing new tools to help bees and beekeepers tackle the current disease issues. In addition to breeding honey bees well suited to the Pacific Northwest and continuing our honey bee disease and diagnostics work, the WSU team has been investigating novel uses of fungi for the improvement of bee health.

Fungi are perhaps the most hidden and overlooked group in the vast web of life that stretches across this planet. More closely related to animals than they are to plants or bacteria, fungi have been called the *unseen orchestrators of ecosystems*. Many fungi spend the vast majority of their lives hidden from view underground or inside plant material, and many other fungi like yeasts never grow large enough to be seen with the naked eye. They are vital decomposers allowing for faster recycling of nutrients back into the food web, and most land plants develop associations with symbiotic fungi in their roots. Microscopic fungi are used in commercial industry to make products as diverse as soft drinks, antibiotics, and blue jeans, and perhaps they will play a role in helping bees combat honey bee viruses and Varroa mites.

Two years ago WSU professors Steve Sheppard and Lori Carris formed a collaboration with mycologist Paul Stamets and his company Fungi Perfecti LLC of Olympia, Washington. Stamets is well known for using fungi in innovative and creative ways to tackle issues of environmental importance. After noticing honey bees foraging in his mushroom patches, Stamets wondered if the bees were deriving nutritional or medicinal value from mushrooms. Using bees brought into the laboratory and housed in small cages, WSU tested if feeding bees fungal extracts had any effects on their health. In particular, the experiments focused on species of long-lived wood decay fungi that are known to produce antimicrobial compounds and have a history of use in traditional Chinese



Undergraduate research assistant Rodrigo Guizar collects samples for virus analysis during the California almond bloom.



Jennifer Han and Nick Naeger, postdoctoral research associates, conducting research on fungi and honey bees.

medicine. The results showed that feeding bees extracts from the Fomes or Ganoderma groups of mushrooms lowered the levels of honey bee viruses. Fomes had the largest effect on Deformed Wing Virus (DWV), and Ganoderma had the largest effect on Lake Sinai Virus (LSV). In both cases, feeding bees fungal extract reduced virus levels to less than 1 percent of the levels found in untreated cages.

Similar results were found when the experiments

*Continued on page 3*

## MESSAGE FROM THE PRESIDENT



In 2021 the Oregon State Beekeepers Association will reach its 100-year anniversary. In the course of those 100 short years, Oregon beekeepers have enjoyed a strong voice speaking for pollinator protection, beekeepers, and the beekeeping industry. Our agricultural stakeholders growing pollinated crops have come to rely on the OSBA for support and collaboration on critical issues as they arise.

So, what have beekeepers been doing? They have been working very, very hard across the board. Oregon's regional associations, as they have formed along the way, have spent a tremendous amount of effort, resources, and time supporting beekeeping and beekeepers in their regions. Many of Oregon's very successful beekeepers received their basic training by attending a bee school in their region many years ago. Before they knew where all of the years went, they found themselves presenting a topic at their own local bee school.

No matter where you fit into Oregon's beekeeping landscape, if you're serious about bees, you have been working hard, and the OSBA has been working hard for you.

Don't you think it is time to celebrate all of our accomplishments and achievements in Oregon? Although 2021 seems like a log way off, as things go, it will be upon us before we know it. What would you envision for the OSBA 100-Year Anniversary Fall Conference 2021?

Let me share with you a few of my thoughts for the event, if I may.

I envision us holding the 100-year anniversary conference in a gigantic convention center such as the Salem Convention Center, capable of containing several hundred attendees. Leading up to the conference, we take out advertising in the national bee journals, *Mother Earth News*, and any and all other print and digital media outlets.

Along with interesting sidetracks, how about some contests and competitions for prizes?

How about if every regional association in Oregon has a booth to reach out to attendees throughout the state?

How much money could we raise with a dunk tank on the first evening? I want to volunteer to be the first one on the hot seat in the tank. I'll raise so much money for Ramesh, he won't know what to do with it all!

The 2021 100-year anniversary is right around the corner. It is time to begin the planning stage of this wonderful landmark conference. Please think about it and send your thoughts and wishes to our awesome OSBA secretary.

Meanwhile, work safe, be well, and have a great spring!

*Harry Vanderpool*



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**Fungi**—Continued from page 1

were repeated outdoors using five-frame nuc colonies. Both fungi significantly reduced both viruses by at least 44x, and *Ganoderma* against LSV demonstrated a massive 45,000x reduction in virus levels. Following these very promising results, Fungi Perfecti then grew different strains of these fungi on different woods so WSU could test the best combinations for antiviral effects. Using over 500 colonies during California almond pollination, significant reductions in viral levels were once again found, but these results were largely obscured by a surprising discovery. Nobody before had ever measured virus levels repeatedly in the same colonies during the almond bloom, and the WSU research team found that it is not uncommon for virus levels to jump one millionfold up or down in only a two-week span of time. At this point it is unknown what factors made virus levels jump so wildly in those experiments. It could have been a result of the age and caste demographics of the hive in the spring; very old overwintering workers are being replaced with newborns, and the number of drones in the hive can vary greatly. It also cannot be ruled out that unknown environmental factors in the almond orchards are causing virus levels to fluctuate wildly. Washington State University and the USDA are currently analyzing experiments from last summer and fall, which will help inform best treatment practices with the fungal extracts against viruses as well as the basic epidemiology of honey bee viruses.

Washington State University has also made some exciting progress in the development of the fungus *Metarhizium* as a biological control agent against *Varroa*. Starting about 15 years ago, the USDA and a few other labs around the world experimented with using fungal pathogens to kill mites in the hive. Unlike chemical treatments, biological control agents like *Metarhizium* and other fungal pathogens typically have less impact on nontarget insects like bees, and harmful residues are not left behind in wax or honey. It could be very important in future years for beekeepers to have a nonchemical alternative as *Varroa* continues to evolve resistance against miticides. Although early research showed that *Metarhizium* could infect and kill mites, there were problems with getting the fungus to work consistently. It became clear that this fungus, like many others, did not grow or survive well in the relatively warm conditions inside bee hives. Washington State University undertook the laborious challenge of trying to breed *Metarhizium* for increased virulence against *Varroa* and increased survivorship under hive conditions.

The research team started the project by screening available commercial and experimental strains of *Metarhizium* for their ability to kill mites inside the hive. Treatment of hives with one particular strain of *Metarhizium brunneum* led to significantly

higher rates of mite death compared to other strains or controls. However, this increase in mite fall was rather short-lived with the treatment effect disappearing around 1–2 weeks. Using this strain as a starting



*Metarhizium* fungus growing out of *Varroa* mites collected from bottom board sticky cards.

*Metarhizium*. Dead mites from treated colonies are collected off of bottom board sticky cards and cultured in Petri dishes to look for fungal growth. Spores are then grown from these cultures and used to treat the next round of hives. To make use of the winter time when field trials are not possible, WSU developed *accelerated evolution* techniques in the laboratory for *Metarhizium*. Using spores from the most recent field trials, generations of the fungus were subjected to stressors while the temperature in the incubator was gradually ramped up to hive temperatures over months.

The following spring, first treatment of the hives with the fungus produced moderate results without improvement from the previous year. This was to be expected; most mutations are not beneficial to an organism, and selection is necessary to find and propagate individuals with advantageous mutations. Over the course of the year and four large rounds of treatment, WSU plated over 27,000 mites to look for the most highly infectious strains of fungus. By the fourth round of selection for the fungus, the number of mites killed per treatment had doubled. Perhaps most excitingly, the duration of the treatment appears to be extended in the new fungal strain. Rather than the fungus dying off within the first 9–13 days, the new strain continued to kill mites for over four weeks. Treatment and selection experiments will resume this spring. In addition to continuing the selection program for the fungus, experiments are planned to test methods of delivery such as strips, patties, or powders. 🐝

### VERY HARD TO SAY GOODBYE

*Jan Lohman*

This is my 27th year beekeeping and the first year to *not* go to California for almond pollination. Ahhh, retirement changes the way that you look at your day for sure . . . More choices, more relaxation, and more time for friends.

In February we lost a very good friend and major part of our beekeeping experience. Bob Morgan passed away. Bob was only 66 years old, and we had thought that there



would be so many more fun times and beekeeping stories to share together. He left us way too soon.

Bob and his wife Deb are two of the kindest people you could ever hope to meet. When I was new to beekeeping, they were two of the first beekeepers that I met. What I remember most is that, no matter how busy their schedule was, they were always willing to lend us a hand with working our bees or feeding us after a busy day in their own bee yard. Bob loved Mexican food, so after a hard day of their volunteer help in our bee yard, we knew that we could make him smile with dinner at a Mexican restaurant in California. To Bob, that was the *only* restaurant!

We feel fortunate that we were able to get to know their kids, Lance, Marcus, Nick, and Vincent, too. Most of their boys helped their folks with the bees and orchard when they had time; in fact, for several years Vincent took vacation from his *real job* and went to California with his parents to get the bees worked. Marcus helped his dad run the cherry orchard in The Dalles for years.

Bob and Deb met in Parkdale, Oregon, in the strawberry fields where Deb was picking strawberries and Bob was driving tractors (and also throwing strawberries her way now and then to get her attention). They began their beekeeping career by purchasing 35 honey bee colonies in 1977 from a neighbor, and later purchased a cherry orchard in The Dalles. They got their numbers up to 800 colonies.

They worked as a team. Bob would unload bees when they came in with his forklift, and Deb would help the trucker fold nets and get the ground work done. Sometimes in the spring in their stockpile, it was freezing cold and windy, but they would always have a smile for us, and Bob would let loose his three-legged dog Sweetie to come and greet us.



Bob Morgan with the bees.

Our sympathies to Deb and the Morgan sons and families. We know how they all loved honey bees and their cherry orchard . . . Their bees pollinated almond crops in California, cherries and pears in The Dalles, and even helped us with melon pollination in Hermiston a few times. They also took their bees to North Dakota for years for a honey crop.

Beekeepers are vagabonds. We travel where the bees take us, but we also create some really great relationships along the way. The loss of Bob will remain with us for a long time.



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## BEE EVENTS

**May 5.** California Honey Festival. Downtown Woodland. *Information:* 530.668.8839; vendors@californiahoneyfestival.com or californiahoneyfestival.com.

**May 20.** Trifecta Bee Event (9:30 AM–4:30 PM). *Information:* www.brushymountainbeefarm.com/trifecta-beekeeping-event.

**May 20.** World Bee Day. *Information:* www.worldbeeday.org.

**June 9.** Linn-Benton Beekeepers Association Field Day. *Information:* www.lbba.us/2018-field-day.

**June 18–24.** National Pollinator Week. *Information:* pollinator.org/pollinator-week.

**August 3–5.** Western Apicultural Society Conference. Boise, Idaho. *Information:* www.westernapiculturalsociety.org.

**August 13–17.** Eastern Apiculture Society Conference. Hampton, Virginia. *Information:* www.easternapiculture.org.

**October 26–28:** OSBA Fall Conference. Salem Convention Center, Salem. *Information:* orsba.org.

**November 13–15.** 2018 CSBA Annual Convention. Harrah's Resort Southern California. *Information:* www.californiastatebeekeepers.com.

**January 8–12.** 2019 American Beekeeping Federation Conference & Tradeshow. Sheraton Myrtle Beach & The Myrtle Beach Convention Center, Myrtle Beach, South Carolina. *Information:* www.abfnet.org/?

## REGIONAL NEWS

**Note:** All associations invite and welcome visitors to join them at meetings! See page 15 for meeting time, website, and/or contact information. Many regional associations also offer additional opportunities for learning, which are posted on their websites as well as on orsba.org and under *Events*.

### Regional Representatives

#### North Coast

The news on the North and Central Coast has been the weather. Windy and wet as in four inches of rain in a 24-hour period in some areas and two days of sustained winds of 40 mph with gusts into the 60s where I live. More rain in the short-term forecast. Hopefully, the high winds this morning are the end of the wind. There have been some partial days allowing folks to check on their bees.

Thank you to Claire Moody and Rick Stelzig for all of your work to make the Tillamook Home and Garden Show happen and the volunteers for staffing the booth [see Tillamook County Beekeepers].

Central Coast Beekeepers hosted Carolyn Breece at our last meeting. Her presentation was centered on new beekeepers and was well received.

Tillamook County and Central Coast did a joint bee order again this year. This is one of my favorite times of year; I really enjoy picking up the bees and distributing them. Many thanks to our suppliers. It helps the smaller associations with building membership.

*Stan Scotton*

#### South Coast

“The Freeze” was hard on bees when March came in like a lion, pummeling the south coast with myriad versions of icy rain and arctic blasts, piling more than four inches of hail onto Hwy 101 at beach edge. One of the two colonies at the Educational Apiary of Oregon South Coast failed to survive. The top bar colony, supplied by Past President Jim Sorber, who has been doing well with TB hives here, succeeded. The empty hive, the Lang, was restocked with one of the group-ordered packages of bees in an instructional demonstration several days after March went out like a lamb.

Featured speaker for the educational presentation was Janet Brisson of Country Rubes Farms visiting from Grass Valley, California. At the annual conference, Oregon South Coast members enjoyed visiting with her at most meals and were eager to hear more details about how to manage mite control totally with powdered sugar and brood break. She says that her neighbor, Randy Oliver (scientificbeekeeping.com), inspires her to do her best to succeed in using nonchemical means of mite control and proving the efficacy. The line of beekeeping equipment that is developed and sold by Country Rubes is produced by Shastina Millworks.

Daniel Strom, the youngest member, now vice president, was very effective in “keeping things on time and on track” during the March meeting in the absence of the president. With President Harvey Young’s help and the OSU Extension Service, Daniel has succeeded in creating a beekeeping program for local 4-Hers and the local Curry County Fair has added a category for honey from Junior exhibitors.

Jesse Fletcher took on all the tasks of publicizing the meeting, delivering the agenda and the minutes, and announcing all of the most relevant beekeeping events of the immediate time and area: the Del Norte Bee School on May 5 at Lucky 7 Casino in Smith River, California; the World Bee Day on May 20; and the Southern Oregon Beekeepers Bee School that was on April 7. He noted the importance and benefits of membership in the state beekeeping group, OSBA, and announced that the local group will be presenting a major part of the pollinators exhibit at the Curry County Fair, July 25–28.

Secretary Shelley Potmeyer and this area rep went out gathering limbs from creosote bushes in the southern desert to do an Oregon test to see for ourselves whether creosote smoke will cause the highest mite drop we have ever seen in a matter of seconds, as per an article she found online.



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We also enjoyed seeing all the honey bees in the Palo Verde trees, the ones that have their entire covering of green, from the ground to the tips of the usually leafless limbs, except when they are filled with bountiful yellow blossoms. The size of the bees looked nearly half that of ours, and it seemed that they were most likely the feral Africanized bees. It was disconcerting to realize that the most-dangerous bees there are the swarms, the ones that we consider the least likely to be hostile and defensively aggressive. Here we see them as homeless, without brood and food to defend, but in the desert it is obvious that there is nothing more valuable to a colony of bees than the queen.

I got acquainted with some of them by feeding them from the top of my honey bear jar. I had expected them to send more foragers by doing the waggle dance. They didn't. Territorial, unhoneybeelike, greedy about foraging. Cooperation is what our bees have taught us to expect. These bees are something else.

*Mureen Walker*

## Regional Associations

### Central Coast Beekeepers

So much for April showers! What a wet, windy start to the month. The good news is that there have been a few beautiful days scattered throughout, giving us time to admire the spring flowers and check on our hives, and giving the bees a chance to fly.

This month, many of our association members received their nucs and packages. Carolyn Breece from OSU spoke about what to expect and highlighted what we as beekeepers need to do during this time of the year. She also reviewed methods to hive a package. It helped ease a bit of the anxiety that some of our newer beekeepers are feeling as they anticipate hiving their first packages.

Mike Rodia, Agricultural Liaison for OSBA, will be speaking at our April meeting on "Residential Beekeeping Law and Best Practices." We look forward to better understanding this legislation and how it may impact us as beekeepers. We hope there will be time for Mike to share a few beekeeping tips he has gleaned over his many years of beekeeping.

*Patti Johnson*

### Central Oregon Beekeepers

As with the whole state, I imagine, it's been a tough spring in Central Oregon. We had a couple of teaser weeks in February and March with the nice warm temps, lots of pale and yellow pollen coming in, and expectations of an early spring with maybe some early splits. Then it turned cold (freezing) and rainy again. We're seeing several late-spring starvation events with the population buildups and no food coming in. Many of us have done our early spring mite treatments, and we look forward to see how they affected

the mite load and bee populations. Most of the new nucs and packages in Central Oregon are available late April and early May, so the beekeeping activity level should pick up dramatically toward the end of the month.

In March we had a wonderful talk about queen rearing for the hobbyist using the notched brood method from one of our Oregon Master Beekeeper Program students—as well as several methods of splitting. In addition to the program classes being taught in our area, we're appreciating Heike Williams of the Central Oregon Ag Research Center leading "Saturday in the Apiary" events with hands-on experiences adjusted for the local climate. Upcoming events include a discussion about Flow Hive usefulness in Central Oregon and package installation methods in April, and accuracy of mite sampling techniques in May. Additionally, we're planning on having several hive inspection demos during the spring.

*Allen Engle*

### Columbia Gorge Beekeepers

After a comparatively mild winter, the Columbia Gorge area is dragging its feet into spring. Bees are bringing in pollen—mostly from trees and early weeds—but I see them at the water bowl every day as they are not bringing in much, if any, nectar. I know the old adage, "April showers bring May flowers," but our concern is the April showers that tend to destroy April flowers. That must be why we created sugar syrup and pollen patties!?

It's been really nice to see new and potential beekeepers come to our first meetings of the year—the interest is still growing. Last month CGBA had a premeeting demonstration by Charlie Vanden Heuvel on installing a package, and Pat Case, Ramona Tamiyasu, and Zip Krummel gave a honey-tasting lesson with honey grading. We also had the pleasure of a presentation and question-answer session on mites and mite controls by John Edwards from Brushy Mountain Bee Farm. For April we have local Charlie Vanden Heuvel presenting on Varroa and a little of the history of mites in the US. Alive, active, and waiting for sunshine in the Columbia River Gorge.

*Zip Krummel*

### Douglas County Bees

Douglas County Bees is looking toward a busy swarm season this year. Our members are geared up and ready to respond to incoming notifications via phone and our website (we have a swarm-reporting feature on our website). In addition to our monthly meetings, our upcoming events include:

- Group Hive Inspections. Camas Valley. April 7. 10 AM
- Earth Day & Energy Fair. DC Fairgrounds. April 21. 10–4 PM
- Glide Wildflower Show. Glide Community Center. April 28–29. 9–5 PM
- Master Gardeners Plant & Garden Expo. DC Fairgrounds. May 5. 9–4 PM



• Umpqua Community Mother's Day Plant Sale. Umpqua Community Center. May 12–13

• Blooms & Butterflies. Elkton Community Center. June 23

We hope to have an observation hive at each event.

*Ivory Los Banos*

### **Klamath Basin Beekeepers**

Here in the Klamath Basin we're still dreaming of spring. For our March meeting, we held our annual board member elections, but our presenter, Dr. Ralph (Mike) Rodia, OSBA Agricultural Liaison, decided (wisely) that 6+ inches of snow in the passes was a bit too much to drive through. He will attempt to make our April meeting.

We had our annual Beginning Beekeeping Class on March 17, and it was a great success. Association members are eagerly awaiting their bees from A&D Bees in Lincoln, California, who is eagerly awaiting consistently good weather to ensure his queens are well mated.

At the last board meeting, board members approved an outlay of \$1,900 for the book that Katharina Davitt wrote, *Black and Fuzzy is so Lovely* ([www.tinyurl.com/BlackandFuzzy](http://www.tinyurl.com/BlackandFuzzy)). This final version comprises 44 pages and the association will have 1,500 copies printed. Katharina, supported by KBBA membership, is working on giving a class to all 3rd and 4th graders in the Klamath Basin on honey bees this year. Last year she taught 22 classes of school children, approximately 700 children. Every child in the Klamath Basin that takes the bee class at school will receive a free copy. *Paul Davitt*

### **Lane County Beekeepers**

Today is another rainy day here in the southern Willamette Valley. It is warm, however, so the bees are peeking out and flying between showers. The speaker for our May meeting will be Morris Ostrofsky sharing "Reading Frames." It is important for beekeepers to be knowledgeable of what is learned by these frame inspections. Morris is an experienced speaker, who is not only a well-educated beekeeper but also a person who shares information with humor. All are welcome to attend. The local community is well aware of how generous our association is with our volunteer time. We get calls frequently asking for someone to share their beekeeping stories with schools and community events. We will be hosting tables at the Save the Bee 5K Run, GloryBee Bee Weekend, Botanic Hop Festival in Veneta, the Wildflower Festival at Mt. Pisgah, and, of course, the event to celebrate National Pollinator Week at the Eugene Science Center on June 23. Phew, our calendars are filling up. By the time this newsletter is published, we will be in the final stages of planning our Field Day, June 2, at Jason Rowan's apiary in Creswell. The ability to have new beekeepers have an experienced hand go through a hive and point out important features is invaluable. After the hands-on learning, the group will gather under a beautiful old heritage tree to share their thoughts on the day. *Pam Leavitt*

### **Linn-Benton Beekeepers**

It is hard to believe that it is May already. Hopefully everyone survived swarm season without too much trouble. Bee joke for the month: What do you call a bee born in May? – A maybe!

This month LBBA is pleased to announce that Dr. Dewey Caron will be our featured speaker. Dr. Caron plans to bring diseased frames of brood for examination.

We are currently gearing up for our field day to be held on June 9 from 10:00 AM to 2:30 PM at Oregon State University's Apiary. If you are interested, signups are available on our website at: [www.lbba.us/2018-field-day](http://www.lbba.us/2018-field-day).

*Amber Reese*

### **Portland Metro Beekeepers**

Love the dueling weather patterns in the Pacific Northwest this winter/spring. Two days of lovely spring weather followed by winter again! Bees and people are left to manage by last-minute planning: If it's nice, get outside, maybe quickly and only for a short time! Otherwise, go back inside. Jim Barlean prepared a presentation on swarm control and queen rearing, and cancelled at the last minute after discovering the rain and wind left a deep swamp instead of a nice beeyard.

For our April meeting, Dewey Caron will cover winter losses and April beehive management, "What's your plan for April?" Tom Chester will cover his experiences with Africanized honey bees, which Arizona beekeepers apparently must contend with. One of the best features of our meetings is the library; it includes information at a university level as well as humor (such as *Confessions of a Bad Beekeeper*) to the medicinal benefits of honey (*Two Million Blossoms*). Susan Rodway, librarian, is always on hand for check out.

Our Bee Day planning is on target for April 28, a full day of instruction, including current research and hands-on hive inspections for beginning as well as experienced beekeepers. Part of the fun is a raffle for a variety of equipment and general supplies for keeping honey bees happy and healthy. Long-range weather forecast shows some sun, some clouds, just a chance of a shower. We are hopeful!

Other opportunities as a new season opens include the PMBA information table at the Master Gardeners Spring Fair on May 5 & 6 at the Canby Fairgrounds and the pollinators' weekend at the Oregon City Farmer's Market on May 19. This event attracted quite a number of youngsters at last year's farmers market. Happy Beekeeping! *Nancy Winston*

### **Portland Urban Beekeepers**

It has been a good winter and we expect a busy winter-spring transition, if we can get the weather to cooperate! We have several new board members and officers. The PUB apiary at Zenger Farm successfully overwintered 5 of 8 ten-frame Langstroths, but sadly, both top bars did not make it to November. Mites are suspected as the most likely cause of



the top bars' early demise.

Our March meeting, Rebekah Golden of Bee and Bloom walked us through the first spring inspections, dead-out autopsies, and what to do in March. Mandy Shaw reviewed swarm lures and capture techniques. In March, PUB also hosted its annual Bee Schools with over 40 new beekeepers in attendance.

Our April meeting speakers included Glen Andresen, who provided us with his monthly review of what is blooming. Dewey Caron reminded us of the importance of the PNW Honey Bee Survey 2018, reviewed the 2017 survey results and implications for 2018, and then reviewed what we should be doing in our hives for April. Robert Leger gave an excellent review of when and how to manage yellowjackets, with very helpful slides on what the queens look like and why this is the time to prepare for fall by setting queen traps now. Finally, Mike Rodia discussed the Best Practices in Beekeeping, why it is critical that we are all on the same sheet of music when answering our public officials regarding nuisance complaints from neighbors. We have a plan! We also announced Dewey's honorary lifetime PUB membership.

May speakers will include Glen Andresen who will discuss queen rearing, and Cheryl Wright, who will give a short presentation on the Oregon Master Beekeeper Program.

Upcoming events: PUB plans to participate in the Pollinator Week at the Oregon Zoo in June, as well as have a booth at the Multnomah County Fair in late May, in conjunction with the state 4-H. Additionally, we have invited Solomon Parker for an extended workshop on April 21, and Tom Seeley on September 15.

*Cheryl Wright*

### **Southern Oregon Beekeepers**

Well, spring has sprung in Southern Oregon! We are getting reports of swarms, as bee season is upon us. The flowers are blooming, trees are flowering, and it is truly a beautiful sight here. We had our Beginner Bee Class, and I think everyone had a good time listening to Morris and Rita Ostrofsky, Jim Smith, AG Commissioner from Siskiyou County, and Risa Halpin. We had a smoker contest with prizes and raffled off a nuc, donated by Old Sol Apiaries, and a complete hive set up, donated by Shastina Millwork. For our next meeting, Ellen Topitzhofer will be our speaker. Take care and have fun with the bees!

*Cheryl Housden*

### **Tillamook County Beekeepers**

For Bee Day outreach this year, we decided to make use of the Home and Garden Show. It was a *huge* success. Between 4,000 and 5,000 people came, and our five booths made quite a hit. Of course, we had an observation hive with a marked queen. Everyone was fascinated and learned so much about bees! We had the usual displays and demos of parts of the hives and equipment, and had a sign-up sheet for folks who want to learn more. About eighty signed up for a class we'll have in May. When

people want to know how they can help the bees, one of the big ways is by planting bee-friendly forage. Planting shrubs and trees generate exponentially more flowers than annuals or perennials on the same size piece of ground. So we arranged for a bee-friendly shrub sale to be a part of our booth. It was a big success and, most importantly, people *got* it. It made sense to them that planting the right trees and shrubs would have a bigger impact. We also pushed summer- and fall-blooming plants. With all the rain we get at the coast, much of what is blooming now will never be used by the bees.



Bee-friendly shrub sale at the Show.

On a different subject, we had 58 people at our April meeting, with 17 visitors. That's a lot for little Tillamook. The main topic was doing splits, and we watched a 20-minute video from the University of Guelph that demonstrated three different ways to do splits. A robust discussion followed.

*Claire Moody*

### **Tualatin Valley Beekeepers**

April showers and a brisk wind did not deter TVBA members excited to set up their new nucs, install packages of bees, and start the swarm capture season. While last year's swarms were slow to appear, the swarms this year started in March and are going like gangbusters. The familiar poem: A swarm in May is worth a ton of hay, a swarm in June is worth a silver spoon, a swarm in July isn't worth a fly. What is a swarm in April worth? We are eager to find out.

Before we give thanks for the terrific bee year we are surely about to receive, we must pause and reflect on winter losses. Dr. Dewey Caron stopped by the monthly meeting to remind us of the Pacific Northwest Bee Loss Survey. This critical survey gives researchers the data they need to track the progression of nuisances like Varroa mites, effects of weather and dearth, and general trends across our regions. Last year TVBA losses were about 42 percent, as self-reported by members on the survey website. Members also recorded the number and type of hives they have as well as mite-treatment applications. Our speaker for April was Ellen Topitzhofer on the topic of Varroa mites. Hopefully education sessions like these with help us to reduce our losses for 2018.

In bloom now in the Tualatin Valley: filbert trees, pine trees, cherries, and apples. Dandelions and daffodils have leaves glistening with raindrops in the intermittent sun breaks. Gardens, fields, and ditches are showing color after winter hibernation. In the backyard apiaries, TVBA folks are assessing colonies, gear, and the weather. Some conduct hive autopsies

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before cleaning up the equipment and stocking up on new bees. Others are making splits. And commercial beekeepers are coming back from the almond fields, ready to place hives for local berry and fruit crops. No matter our motives for keeping bees, it's a good time to be in the game. *Eddie Frie*

## KEEPING BEES IN MAY

*Lynn Royce*

Beekeeping in the Pacific Northwest during the month of May has a lot to do with what happens in April. When colonies swarm in April, they have time (May and early June) to rebuild their workforce and be prepared to glean the best nectar flow to make stores for winter. There are swarms in May, and, if April is too cold and wet, May can be a major swarm month.

The old ditty—a swarm of bees in May is worth a load of hay, a swarm of bees in June is worth a silver spoon, a swarm of bees in July is not worth a fly—somehow does not and never did work for Oregon. If a colony swarms here in June, it is less likely to survive winter without help. May is still a month where it is critical to support your colonies and prevent swarming. If the colony does not swarm, it may be strong enough to not only get through winter but also make a surplus of honey for the beekeeper.

Swarming is the reproductive event for honey bees. Like any reproductive event, there is a lot of uncertainty. When a colony of bees swarm, the bees that stay in their old home must raise a queen, and she must successfully mate and return to lay fertile eggs for that colony to continue. Raising a queen from an egg to a laying queen is a time-consuming event. There must also be time for the new queen to produce enough progeny so that there will be the foragers to collect winter stores and raise the bees to become the overwintering workforce that will keep the queen warm and fed until flowers return in spring. The swarm must find a new home, find food in the new location, and construct comb, so that their queen can restart her egg laying that will produce the workforce to collect winter stores and raise the progeny that will be the winter bees. It is easy to imagine how one or both of these colonies might fail. Swarming becomes an issue because it increases the likelihood of losing the colony. Swarm prevention requires an understanding of honey bee biology, especially their individual life cycle and their colony life cycle. Remember, swarming is a strong instinct and to be late with any preventive manipulation will probably result in swarming and perhaps loss of the colony left behind.

The queen in May is laying 1–2 thousand eggs every day, averaging 200,000 fertilized eggs plus a few unfertilized eggs during the laying season: March through October or November. The most-intense egg production occurs over spring and early

summer. She is fat and heavy, and cannot fly.

Because the bees maintain a constant temperature within the brood nest, development is very constant. When a colony is raising lots of drones, the colony is thinking of queen mating and swarming.



Lots of drones can also be the result of a laying worker. Look at the brood. There should be eggs, larvae, and pupae; drone brood should be separate, usually in the corners and top of the comb. Old frames can cause confusion, having larger cells or drone brood more randomly distributed over the frame if bees had to repair the comb. Laying workers often lay several (three or more) eggs per cell, and their abdomens are short, so most eggs are on the sides of a cell. This problem can only be turned around near the beginning of laying by a worker, and the only remedy that I have seen that works is the introduction of 1–2 brood frames with eggs and young larvae from a queenright colony.

Back to the swarm event. If the queen is to fly off with a swarm, she must first lose weight. So, when the colony decides that the time to swarm is near, they stop the queen from egg laying a week or so before they expect to depart. This means that in three days there will be no more eggs in the colony, and in six days all the larvae will be three days old or older. A larva at three days old can no longer become a queen. Before the queen is stopped from laying, the workers have been busy making queen cells (called *swarm cells*). The cells are usually placed along the lower edges of combs; for beekeepers, this is the bottom bar of a frame in standard Langstroth equipment. Eggs are laid in these queen cells over several days, so the larvae in these cells differ in age. There can be only a few of these cells or many. I have counted as many 50 in a single colony. The first queen to emerge from one of these cells will begin to kill the other queen pupae. Usually some are missed so multiple virgins may exist in a colony during this time. Some are killed during battles between virgin queens, but in my experience, never all.

Just before these queens begin to emerge, the colony will produce a “prime” swarm including about 20–30 percent of the workers. When conditions are right, the workers coax the old queen out of the colony. The colony is now left with mature queen cells, some older larvae, and capped worker and drone brood. When virgin queens emerge, they need 3–4 days’ development time (cuticle hardening and muscle development) to be able to make mating flights. A virgin queen may make 1–2 flights to mate. After mating, she needs



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another 5–7 days to get the sperm into her spermatheca and develop her ovaries. When she does start to lay, she will begin slowly. Her first laying pattern will only be a small areas of eggs. This colony, even with the newly mated queen, will not make excess honey and may need to be fed to have enough stores for winter.

“After swarms” may occur when several virgin queens have emerged a few days before the prime swarm leaves. When the prime swarm has left, one or two of the virgin queens can leave the colony with a small number of workers. The function of after swarms has never become clear to me. Sometimes when more than one colony swarms at the same time in the same apiary, the swarms merge into a larger entity and will contain more than one queen.

After the colony swarms, a virgin queen must go on mating flights and return. Mating flights are hazardous for these small insects. Weather in spring is unpredictable, and many predators (birds and other insects) are also flying, searching for prey. If the virgin is killed by bad weather or eaten, her colony will be queenless and without the resources (young open brood) to rear another queen. If the beekeeper has only the one colony, he or she is faced with starting over next year. Queens can be mail ordered. But it takes time and an already queenless, broodless colony does not have time. Currently, there are more local queen rearers, so the possibility may exist to get a mated queen quickly; generally though it can take at least a week or more for an ordered queen to arrive. Requeening in this situation is difficult because the colony has few young bees and no brood. Older worker bees are not likely to accept the new queen. Timing is also critical. A new queen needs 4–6 days in her introduction cage before she can be released. Longer is better because these are older bees and the probability of acceptance is already low.


If you have more than one colony, you can use open brood from a queenright colony to maintain the colony that swarmed. They can rear a queen from young brood if there are larvae less than three days old; however, time is against this being successful. So, how does one prevent swarming?

Swarm preparation begins when space in the colony is reduced and bees are crowded. Adding space can reduce the urge to swarm. One way to start before every cell is full of brood, honey, and pollen is a technique called *checker boarding*. This is taking empty frames and placing them between frames of honey and pollen. Start with empty frames on the outside edge of the box or super. If you remove frames, you will need a place to store these honey and pollen frames. Freezer space would be my recommended option. A second colony in need is another good option. It is a good idea to leave the brood nest alone. If the queen has no place to lay, an empty frame can be put into the brood nest for her to lay in. Another tactic to add space is to place a super with empty frames above the brood nest.

This is a good month to make new colonies or splits, basically artificial swarms, where frames of bees are transferred from a strong colony to another box making sure each box has some open brood. For the colony that bees and brood are transferred from, this would take the place of a swarm. The difference is that you supply the newly mated queen for the split.

Splits start by ordering or raising new queens. Two days before you expect new queens to arrive, make your split. You can use a nuc box (five deep frames is a standard nuc) or a single regular box. For a nuc, include two brood frames with lots of young bees if possible, an empty frame for the new queen to lay eggs in, and two food frames with both pollen and honey. Brood frames should be centrally placed together so you can place your caged queen between these two frames, empty frame next, and food on the outside. These bees should be held queenless for at least two days before introducing the caged queen. I have found the best success with queen acceptance happens if it takes the bees at least four days to release her. Make sure the candy plug is available to the bees in the nuc or single. Queen rearers generally put the correct amount of candy for a four-day release. Even though you expect the queen to be released after four days, leave the unit alone for at least six days, then just check by pulling up the cage to see if she is released. If she is not, check the plug making sure it is open or nearly open, then gently put the cage back. If she is released and cage is empty (sometimes a worker or two may be inside), remove the cage but leave the colony alone.

Bees are very nervous when they are queenless even after



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a new queen is placed into the colony. Too much disturbance at this stage may cause the workers to kill her. Give them another week, and then check for eggs and young larvae. By now, these will belong to the new queen. When you are checking for eggs, you can reverse one of the frames that held the queen cage so the bees will correct the devits left by the cage. Sometimes if the devits are together the bees will build a bridge of comb between them connecting the frames.

You can also cage the queen to stop her laying and thus reduce population build up. I have never done this, as I do not like to cage a laying queen that is producing 1,000-plus eggs each day. I expect this tactic to be rather hard on the queen. I would never hold a laying queen longer than a few days.

May is a good time to requeen. Have your new queens ordered before you start this process. A new queen is less likely to swarm. Most seasoned beekeepers will say, find the old queen (that you are replacing) and kill her. However, I would use a nuc and hold the old queen until the colony has accepted the new queen. In my early days of beekeeping, my requeening acceptance rate was not 100

percent. If you only have one or two colonies and a new queen is not accepted but you have killed the old queen, do you have a backup plan?

As in April, feeding may be critical in May. The weather is still unpredictable, so watch your colonies closely. The bees are building population rapidly, and the colony may only be able to bring in just enough food to last a few days; if the weather prevents foraging, the colony will starve. It is always the biggest and best colonies that are lost when this happens. May is the time of year that can be good for collecting swarms. So, if you have nuc boxes, have them handy. The first person to the swarm usually gets the swarm. Keep in mind, early swarms will need full-size boxes soon. You must have equipment ready to transfer the swarm into, unless you want give the swarm away or sell the bees. Don't forget to feed the swarm.

May is the time of year when queen rearing in the Pacific Northwest can happen successfully. But it can also be cold, so I prefer to raise queens in a nuc box (five frame) to be sure there are enough bees to keep a new queen or queen cell warm.

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May is a good time to start checking for Varroa mites. There are several options for checking for mites and estimating their population. Probably the most-common

technique is the sugar shake. Use a pint jar with a screw-on ring and instead of solid top have a fitted screen (hardware cloth) with eight squares per inch. Roll a sample of bees off the comb into the jar by placing the jar upright near the top bar and pressing the lip of the jar gently against the bees and move the jar in this position down the comb. The bees will roll into the jar. Be sure you find your queen and remove her on the frame and set aside, preferably in a nuc box, before you take your sample. When you feel you have collected about 300 bees (1/2–3/4 cup of bees), place the screened lid on the jar. Add about a tablespoon of powdered sugar through the screen and shake the jar to coat the bees with the sugar. Then hold the jar upside down over a white or light colored tray or plastic container and shake to separate the mites from the bees through the screen. Water can be poured into the container to make the mites easier to see. If you have 3–6 mites in spring, the recommendation is to treat for mites; in fall, treatment is recommended if you count six or more for a 300-bee sample. There are several websites that will provide pictures and/or other methods of sampling. It is a good idea to follow your mite loads through the season whether or not you treat for mites. Mite populations are one more thing we need to understand to be better beekeepers.

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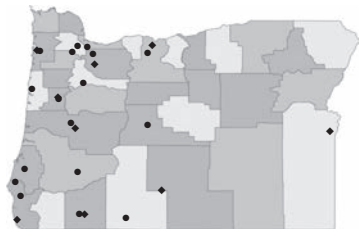
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Meets 6:00–7:30 PM, fourth Tuesday, Bend

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##### Columbia Gorge Beekeepers

Meets 6:15–8:15 PM, third Wednesday, Hood River

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##### Coos County Beekeepers

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President: Randy Sturgill—randys@rfpco.com

##### Douglas County Bees

Meets 7:00–8:30 PM, first Wednesday, Roseburg

President: Ivory Los Bonos—ivohart@gmail.com

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##### Klamath Basin Beekeepers

Meets 9:00 AM, last Saturday, Klamath Falls

President: Paul Davitt—president@klamathbeekeepers.org

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##### Lane County Beekeepers

Meets 7:30 PM, third Tuesday, Eugene

President: Pam Leavitt—pamseaver2000@yahoo.com

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##### Linn-Benton Beekeepers

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##### Oregon South Coast Beekeepers

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Meets 7:00 PM, second Thursday, Gladstone

President: Rex McIntire—remcintire\_5@msn.com

Website: portlandmetro.org

##### Portland Urban Beekeepers

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President: Mandy Shaw—president@portlandurbanbeekeepers.org

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##### Southern Oregon Beekeepers

Meets 6:30–8:00 PM, first Monday, Central Point

President: John Jacob—oldsolbees@gmail.com

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The next issue to be printed will be the June issue, 2018. The deadline for submitting copy is **May 10, 2018**. Please let me know if you find difficulties with the deadline so we can work out the space and timing for the material.

*Thank you!*

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