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April 2014 LCBA Newsletter

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Questions? Suggestions? Resources you'd like to share, stories you'd like to tell?

Please contact LCBA Secretary Susanne Weil: susanne.beekeeper@gmail.com or call 360 880 8130.

UPCOMING LCBA EVENTS:

April 1: WSDA Hive Registration Deadline

Register Your Hives with the Washington Department of Agriculture before April 1, 2014 to avoid late fees. *Hive registration fees benefit WSU's honey bee health research projects!* The 2014 form is available under the Upcoming Events link on our website and attached to this newsletter email.

April 5: Hive Assembly Workshop

When: noon to 4 p.m.

Where: Chehalis WA (for directions, please contact LCBA secretary; see above)

Tools, glue, screws, & refreshments provided; you bring woodenware. LCBA Mentors will be on hand to help put hive boxes together. See the Beekeeping Supplies link on our website for woodenware options. For questions/directions, email susanne.beekeeper@gmail.com or call 360 880 8130. Thanks to LCBA Past-President Bob for hosting us a second time this year!



Above, scenes from February's hive assembly workshop. Left, President Norm Switzler helps new member Lorna with those dovetails; above, mentor Kent Yates works with two more new beekeepers.

April 9: LCBA Monthly Meeting

When: 7 – 9 p.m.; Social Time 6:30 to 7

Where: 103 Washington Hall, Centralia College 701 W Walnut St, Centralia 98531

Topics: Spring Management Issues:

- *Preventing swarming by adding supers, making splits: VP Dave Gaston*
- *Spring management for Top Bar Hives – VP Dave Gaston*
- *How to hive package bees: “dry demo” by President Norm Switzler*
- *How to set up bait hives: Membership Coordinator Tomme Trikosko*
- *Swarm & Colony Removals by the Bee Team: Slideshow of 2013 removals & recruitment for 2014 team: President Norm*

Also: Business Meeting: Monthly Drawing, Updates, Beekeeping Q&A

April 11-12: National Pesticide Forum, University Place Hotel, Portland, Oregon

Want to learn more about pollinators & pesticides? This 2 day conference, “Advancing Sustainable Communities: People, Pollinators, & Practices,” is sponsored by Beyond Pesticides, Northwest Center for Alternatives to Pesticides (NCAP), and Portland State University's Institute for Sustainable Solutions.

Topics include “solutions to the decline of pollinators and other beneficials; strengthening organic agriculture; improving farmworker protection and agricultural justice; stopping contamination from genetically engineered crops and food labeling; and, creating healthy buildings, schools and homes.” Speakers include George Kimbrell, who leads litigation on neonicotinoids and honey bees as well as the deregulation of genetically engineered foods; environmental toxicologist and many others. For registration (\$25) & more information, visit www.beyondpesticides.org/forum, email forum@beyondpesticides.org, or call 202-543-5450.

April 12: The Great East County Hive Inspection Road Trip: Spring Management at Apiaries in Silver Creek, Randle, & Packwood

Weather-dependent. Please RSVP: susanne.beekeeper@gmail.com or 360 880 8130.

Topics (*depending on colonies*): reversing boxes, replacing foundation, assessing queen quality/brood pattern, & colony health, feeding & medication issues, & doing splits.

When & Where (for specific addresses & directions, please contact secretary; see above)

#1, 9:30 in Silver Creek

#2, noon in Randle

#3, 3:00 p.m. to 4:00 p.m. in Packwood

April 12 & 13: “Natural, Organic, & Treatment-Free Bee Guardianship Classes”

Where: Evergreen State College, Olympia

When: Beginning class, Saturday Apr 12, 10 a.m. to 2 p.m. (\$75);

Intermediate class, Sunday Apr 13, 10 a.m. to 2 p.m. (\$75)

Corwin Bell & Karen Sadenwater, organic beekeepers from Colorado specializing in top bar hives, will teach these classes. For details on the classes & registration information, visit Corwin Bell’s website at:

http://www.backyardhive.com/Natural_Beekeeping_Classes_Colorado/ New LCBA member Mel Crist highly recommends Corwin’s class & approach. If you’d like to ask Mel more about these classes, you’re welcome to email him at mrcrist@fairpoint.net.

April 19: Package Bee Pickup: Borst Park, Centralia Master Gardeners’ Demo Garden

Time: 12:30 – 3:30 p.m. Directions from Interstate 5: Take exit 82, go west on Harrison Ave, pass Safeway, then go left at light onto Johnson Rd; go 2 blocks on Johnson, pass Centralia Middle School, then take first right, then immediate left on unnamed road into park & playing field area. Follow road past playing fields to parking lot by old schoolhouse and demonstration gardens. Follow signs for the Borst Home.

~~ Nuc Bee Pickup Date: TBA ~~

You'll get an email or a call as soon as we know!

April 26: Hive Inspection Workshop: Spring Management: West County

When: 1 – 3 p.m.

Where: Mentorship Coordinator Gary Stelzner's apiary (for directions, please RSVP (see contact info on page 1)!

Topics: assessing queen quality/brood pattern, & colony health, feeding & medication issues, & (possibly) doing splits.

April 26: Earth Day Festival at Centralia College

When: 10 a.m. to 2 p.m.

Where: New Science Center Lobby

LCBA will have a booth: thanks to member Melanie Case for inviting us! Would you like to volunteer? Please contact Susanne.

May 3-4: Youth Fair at the SW Washington Fairgrounds.

LCBA will have a booth in the Expo Hall. Come on down! If you'd like to volunteer, or have materials to share for our display, please contact Susanne.

May 14: LCBA Monthly Meeting

When: 7 – 9 p.m.; Social Time 6:30 to 7

Where: 103 Washington Hall, Centralia College 701 W Walnut St, Centralia 98531

Topics: Bees in the Garden & On the Farm: Protecting Pollinators from Pesticides & Plantings Beneficial for Bees

Bill Wamsley, Lewis County Noxious Weed Control Board Coordinator, will discuss how to protect pollinators when applying pesticides, herbicides, & fungicides, as well as issues related to invasive / noxious plants and weeds; native cover crops & shrubs beneficial to bees.

Aug 2-3: Treatment Free Beekeeping Conference II: Medford, OR. Enrollment is limited to 75 people to allow for hands-on workshops and in depth discussions: this is only half of last year's available spaces, so those eager to attend should register soon. To learn more, visit: www.blisshoneybees.org/2014conference.html.

For information about what last year's treatment-free beekeeping conference was like, visit our website and go to Newsletters, 2013; there's a summary of Vice President Dave Gaston's description of the experience in the September 2013 newsletter.

LCBA MONTHLY MEETING NOTES: MARCH 12TH

Speakers: University of Washington “Zombie Fly” Research Team

LCBA welcomed Dr. Evan Sugden, instructor in Biology at the University of Washington, and his undergraduate research team, UW seniors Ashley Powell and Hannah Dayley, both majoring in biology with emphasis in ecology and conservation. Ashley and Hannah candidly acknowledged that they are new to beekeeping – in fact, Ashley commented that her first biological love is sharks. However, the level of expertise they showed during their talk suggests that both are swift learners. Will Peterman, insect photographer and bumblebee expert, came along to speak about the 2013 re-discovery of the Western bumblebee, thought extinct in the Pacific Northwest. First, though, Ashley and Hannah walked attendees through a slideshow of their research into zombie fly parasitism of honey bees.



Above, our March guest speakers, UW seniors in Biology, Hannah Dayley (left) and Ashley Powell (right)

“Zombie Fly” Taxonomy: The Zombie fly, *Apocephalus borealis*, is a North American native fly. In formal scientific company, the Zombie fly is called the North American parasitic phorid fly. However, their popular name comes from their “zombie-fying” effect on bee/wasp behavior (see below). The family *Phoridae* is comprised of 230 genera, and a total of 4000 species worldwide; 376 species in 50 genera reside in North America. Their greatest diversity of species is found in tropical climates.

Zombie Fly Anatomy: In size, phorid flies range from 0.5 mm to 6 mm: they resemble fruit flies, but have a distinctive (Igor-like?) humpback on their thorax. However, Zombie flies’ most relevant anatomical feature for beekeepers is their ovipositor, which they insert between segments of a honey bee’s abdomen for about 2 to 4 second, thereby laying eggs inside her. The female zombie flies follow and attack honey bees, just as they do bumblebees, attacking while the bees forage.

Zombie Fly Prey: Previously, phorid flies only parasitized native bumblebees and paper wasps: now, 60% of bumblebees in Alberta may be infected. The first case of honey bees parasitized by phorid flies was documented in 2008 by Dr. John Hafernik at San Francisco State University; his study was published in 2012 (<http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0029639>). Zombie flies also parasitize ants. Hannah and Ashley showed a dramatic video of a “zombie” fly parasitizing a wasp, which displayed how amazingly quick they are (not to mention brutal on the ant. To see a 6 minute video about John Hafernik’s discovery of the “zombie” fly, visit: <http://blogs.kqed.org/science/video/zombees-flight-of-the-living-dead/>).



Above left, zombie fly inserting ovipositor between segments of honey bee's thorax (photo, John Hafernik, San Francisco State University); right, female zombie fly (photo, Jessica Van Den Berg)

Zombie Fly Life Cycle: Hannah and Ashley gave us a guided tour of the life cycle of *Apocephalus borealis*. Adult female flies find a honey bee or wasp host: then, females lay eggs inside the abdomen of bee or wasp. Fly larvae mature and, in 7 to 14 days, maggots emerge where the head of the bee meets the thorax (see photo, below). The maggots pupate near a bee or wasp corpse. Adult fliers emerge from pupae in about 28 days, and the cycle repeats. During peak infestation, from July to November, there are from 1 to 13 mature larvae per infected bee.



Zombie fly maggot emerging from body of honey bee (photo, John Hafernik, San Francisco State University)

How Zombie Flies Change Bee Behavior: Ashley and Hannah explained how zombie fly larvae change the Circadian rhythm in bees, causing abnormal behavior. The bees' reaction to light changes: they come out at night and fly, attracted to lights. They show disorientation, walking in circles; they progress to lose equilibrium, appearing drunk, then becoming unable to stand. The bees become inactive during the day because they are being eaten from the inside out. When probed, infested bees won't sting. Finally, they lose their ability to walk. Really, the flies' name is a projection of the zombie-like behavior their infestation imposes on the bees.

Zombie Apocalypse Now? Are we on the brink of a Zom-Bee Apocalypse in the Pacific Northwest? Hannah and Ashley noted that our first case of zombie fly infestation was found in Kent, WA in September of 2012 by beekeeper Mark Hohn. At first, he was not concerned, but then contacted Dr. Steve Sheppard at Washington State University and John Hafernik at San Francisco State University, which manages the Zombee Watch program: www.zombeewatch.org. Over 80% of San Francisco Bay Area hives are infected (below, infestation map from *ZombeeWatch.org* – red tabs indicate sites where infected bees have been found. Note the concentration of red tabs in the Northwest).



Zombee Watch Project: SFSU’s team: 11 SFSU faculty and grad students, one professional beekeeper.....and you! The Zombee Watch program has 3 main goals – to locate infested bees, to conduct long term monitoring, and to contribute to honey bee understanding through citizen science. Evan Sugden noted that there is even zombie fly outreach at the airport in Honolulu, Hawaii: the Zombee Watch poster is displayed there, giving survey information with outreach to apiaries on the islands.

The University of Washington Zombee Watch project is an extension of San Francisco State U’s project: their goal is to explore the spread of the fly, with a focus on the greater Puget Sound region through word of mouth efforts and public outreach. They hope to inspire and help facilitate an active monitoring group. Ideally, they hope to survey for infested bees every single season.



Above, screenshots from the very user-friendly tutorial on collecting ZomBee samples at ZombeeWatch.org.

Sampling Bees: The UW team has visited beekeeping association meetings to give sampling mailers and visited apiaries to sample bees. They've received mailers from all over the greater Puget Sound area. The mailer kit includes prepaid and addressed envelopes with 1 to 4 vials and a cotton stopper, as well as an instruction sheet on how to take a sample (the sample form is attached to this newsletter email).

Assessing the Samples: Once they receive samples, they place individual bees into labeled cell units and record the location of the sample, date, beekeepers' name, and any noted suspicious behavior. They then left the bees in their cells, periodically checking for larva pupa or flies each week. If any of these were present, they recorded it, noted on their map, and notified the beekeeper. The UW team set up a "light trap" at the UW apiary intended to attract parasitized bees. Ashley and Hannah showed photos of the light trap, set on the ground about 15 feet from hives once a week; the next morning, they collected samples. Every time they set the light trap, they got samples, but NO field larva emerging. They waited to see if there would be emergence, making do with ice trays and cell plates to store samples.

Results: From September to November 2013, the UW team received 21 individual samples from 14 survey locations. They had 4 confirmed samples from 3 locations: 4.2% of samples tested positive for *Apocephalus borealis* flies. So far, all samples have been from worker bees: no drones or queens.

How LCBA Can Participate: LCBA members who signed the UW team's contact list will be added to the registration list and contacted once the 2014 season is about to start, in early August, via email. They asked for snail-mailing addresses to supply members with their own sampling packets for the 2014 season – just follow instructions, sample your hives, mail samples back, and the UW group will process, monitor, & validate samples as positive or negative: you will get confirmation at season's end.

Questions: How many times can one fly lay eggs? The fly can in fact go on to parasitize other bees. They know how many larvae emerge from bees, but so far, not much research has been done on the phorid flies themselves. Flies are small and more likely to reproduce prolifically on the principle that some will survive. Could pheromone traps catch males or slow the growth of infestation? Answer: John Hafernik at SFSU said that while phorid fly species abroad are similar anatomically, they have different traits of ovipositing, so no means of eradicating them has been pinpointed yet. Could zombie fly infestation be another contributing factor in CCD? It's possible, though the infestation doesn't seem widespread enough yet to posit that. The flies began to be researched when they infested honey bees. Much work remains to be done, such as looking at sex ratios and numbers of flies that lay eggs. Tim Giese commented that Cohn's positive find in 2012 had no recurrence in 2013, so was this an isolated event? Hannah noted that this brings up the question of where the flies infect bees: primarily outside rather than inside hives, making an additional complication in tracking the infestation.

Light Trap Sampling



A commercially available light trap.

Using a light trap is the most effective method for finding ZomBees.



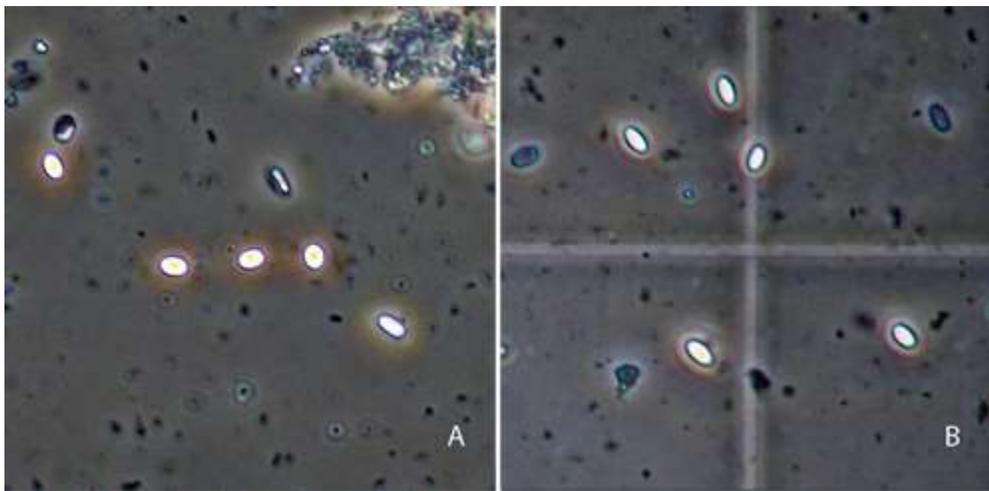
There are many inexpensive ways to build effective light traps from materials around your home. Next, we will show you three simple designs for light traps.



Above left, light traps on the ZombeeWatch.org site; right, Dr. Evan Sugden at UW Apiary (Daily UW)

Zombie flies & Nosema – any linkage? San Francisco State University’s study tested Zombie flies for *Nosema ceranae* and viruses that can be spread to bees. The flies do carry spores of Nosema, but spores were not affecting the flies, so flies could be vectors for both Nosema and viruses. This led the UW team to additional work on Nosema; they’ve done a class on how to find Nosema with the Puget Sound Beekeepers’ Association. Many readers of this newsletter are familiar with Nosema, so the background material is omitted here (if you’d like to learn more about Nosema, visit: http://www.extension.org/pages/31234/nosema-microsporidia:-friend-foe-and-intriguing-creatures#.UziH_v1OXIV for a user-friendly page by the national university Extension.).

Issues in Nosema Treatment: the antibiotic fumagillin (Fumadil-b) is routinely prescribed. Conventional fumagillin is derived from *aspergillus fumigatus*; eratogen (banned in the U.K. and E.U. because of concerns that it is leading to resistant strains of nosema). A “natural” approach, though variable in effectiveness, is Nozevit, an oak bark extract. The ideal is prevention: keep hives strong, well fed in winter; use clean hardware and comb; keep hives, dry and well ventilated.



Above, Nosema spores flash brightly under the light of a microscope (photo, W.F. Huang)

However, a 2013 study found that colonies treated with nosema showed severe rebound to levels worse than untreated hives displayed, leading to calls for reevaluation of fumagillin treatment protocols (visit <http://www.plospathogens.org/article/info%3Adoi%2F10.1371%2Fjournal.ppat.1003185> to read the study). Dr. Sugden noted that in their UW studies, they started playing around with dosage because of Randy Oliver’s articles; they upped the dosage by 50%, which is 4x the recommended amount. 2 cups sugar: 2 cups water is the usual feed in which fumagillin is infused: however, they recommend dosage per gallon and do not specify the amount of sugar. Gary Stelzner noted that he doubled the recommended dose and has not had problems this winter. Replacing old comb is one of best things a beekeeper can do to support bees.

Tim Giese asked whether this means one must treat every year. The UW team noted that most hives have some degree of nosema, so to keep colonies alive, beekeepers must try to manage to minimize the problem. Evan noted that the best defense is a strong hive that cleans out spores well. This is how it is for just about all bee diseases. Renzy Davenport commented that he has talked to Erin O’Rourke at the WSU apiary laboratory: she comments that spores are in most samples, but there are acceptable levels: WSU can let you know the level of your sample, which will help you make the treatment decision. Summertime is a good time to sample the colony; Evan suggests that fall is the best time for prophylactic treatment. One member asked about used frames: how long to use the same frames in deeps or supers - 3 to 5 years is what he’s heard, but is there a recommendation about this in regard to nosema? Evan

suggests retiring brood frames after 5 years at most, and with proven nosema, you would want to replace more frequently. You can clean up woodenware using a bleach solution or flaming with a propane torch.

LCBA members gave Hannah and Ashley a warm round of applause and best wishes for their continued studies and research.

Will Peterman: Re-Discovering the Western Bumblebee

After a brief break – during which we enjoyed a spectacular slideshow of Will Peterman’s insect photography – Will took the stage to tell us about his work on the Western bumblebee. Will studied cognitive neuroscience at the University of California – San Diego and works in both nature photography and software development. He directed us to beesearch.org, the Western Bumblebee Project. By 2000, most Western bumblebees were dead, after having been the most important native pollinators on the west coast: they were then rediscovered in 2013 (see “Bees in the News” on our website: http://www.lewiscountybeekeepers.org/bees_in_the_news/miscellaneous__odd_news). This is a case of a species that went to the brink of extinction, then came back – most unusual – and now we have a chance to find out what happened.



Above, Will Peterman’s famous photo of the Western Bumblebee, printed in the July 14 2013 Seattle Times

Will started with the story of the Western bumblebee, *Bombus occidentalis*. Twenty years ago, if you ate a tomato pollinated west of the Rockies, there was a better than 50% chance that it had been pollinated by a Western bumblebee. Agriculturalists decided to raise these bees for use in greenhouses to keep perennial populations and not have to hand-pollinate indoor tomato plants. A group in Europe had started doing this with related European bumblebee species. An American group shipped some *Bombus occidentalis* queens to Europe; later the bees were shipped back. Speculation: could the bumblebees have picked up a strain of Nosema? *Nosema bombi*, a different sub-species from that which infects honey bees, attacks bumblebees, has different strains in different areas. It is possible that the strain that had evolved to attack sister species in Europe came back to the U.S. with the imported queens, go out, and then *Bombus occidentalis* crashed.

The first inkling of this came some years back, when a research group called one of Evan Sugden's former professors at U.C. Davis – Professor Thorpe thought, “Let’s check on outside bees in wild,” looked for them, but could find none. Their survey covered more than a dozen old field sites, but the Western bumblebee was found only at one site: the next year, that site crashed, too. Some kind of pathogen that caused a 95% population decline per year, and which spread at several hundred miles per year, seemed to be implicated: speculation ran that the locus point must be on the flowers, such that the next hive catches the nosema strain through foraging. The Western bumblebee basically became extinct across almost all of its historical range. The best survey data suggest that the bees really were dead in the lowlands. . . .

However, as Mark Twain said, “how empty is theory in the presence of fact”: last July, Will heard a rumor that someone had seen foraging worker Western bumblebees north of Seattle. This had happened before, with survivors from Canada, but the sightings could not be established. Then, Will found this population, which had been spotted in a Seattle park the preceding year (2012) and successfully overwintered, now bulking up their population. Seattle is not a biologically isolated area, so, logically, the Nosema strain would still be there: something has changed, but researchers don’t know what. Will told the UW team that he had found a nest, on July 14, 2013, the *Seattle Times* wrote about it (to read the article, visit <http://seattletimes.nwsourc.com/html/localnews/2021395297>) – and then “everyone who thought they’d seen a white butt bee” called Will. Will would like to emphasize that *Bombus occidentalis* is NOT the yellow faced bumblebee, *Bombus vosnesenskii*, nor one of its mimics: the critical identifying sign for them is a yellow band with a black tip. He does not need to hear about these: however, “if you see a bumblebee that looks like its butt got dipped in white-out,” please email him! (You can reach Will at his project page: <http://www.beesearch.org/index.php/contact-us> .)



Above left, another of Will’s lovely Western Bumble photos (Beesearch.org); right, a Facebook shot shows that “white butt” contrast.

The next step is to collect cell samples: this may reveal what is going on. If this bee is developing resistance to its Nosema strain, maybe we can learn something helpful for honey bees. Norm asked whether there can be transition of honey bee diseases to bumblebees. Will thought not much, since the strains are genus specific – or this was the thought – it is evolving, and we are getting unpleasant surprises (see “Bees in the News,” below, for new evidence of transmission of honey bee diseases to wild bumblebee populations through spores, bacteria, or virus particles left on flowers and picked up by foraging bees). Ashley saw Western bumblebees at Mount Rainier. Will noted that the Western bumblebee has two populations – one in the Rockies that was not as badly affected and so is hanging on on the eastern slopes of the Rockies, from Mexico up though to Alaska. The population that died hard was the west coast population, now found in an arc spanning the northern Sierras in California, along the Cascade Crest to the Canadian border, and into the middle of Montana.

Will was asked what impact the reduction in Western bumblebee population is having on tomatoes: Will noted that yellow-faced bumblebees took over. The tongue structure of the *occidentalis* is short for a bumblebee, so there may have been an effect on the distribution of wildflowers, but there has

not been any immediate agricultural effect except that none of the other bumblebees had been domesticated for greenhouse use. Will was thanked for sharing his very informative presentation and spectacular photographs.

Monthly Business Meeting:

Youth Scholarship Program: Membership Coordinator Tomme Trikosko reported that both Jovanie and Mason have their woodenware and other gear and are eagerly awaiting bees!

Treasurer's Report: Treasurer Jon Wade reported on our balance as of this meeting, and reminded us that membership dues are due. The 2014 membership form is up on our website under the "Join Us" link (http://www.lewiscountybeekeepers.org/join_us).

Beekeeping Q&A: One member asked about yellowjackets and ways to prevent the typical summer onslaught. One answer: put out traps now! If you can capture queens while they are foraging, then you can literally "kill them before they multiply." Even if you miss the queen window, you can still put out traps early and keep your local numbers down. For more information on yellowjackets, see our February newsletter for coverage of Professor Carl Roush's informative talk. Also visit our website – his PowerPoint is available under monthly meetings, and his business card – Carl removes yellow jacket, wasp, and hornet nests - is available under swarm & colony removals.

President Norm Switzler asked who lost bees. As of this meeting, many had not yet been able to inspect. Norm noted the need to check on bees' food supplies. If it is too cold to inspect, try lifting up one end of the hive body to see if it feels very light: if it's light, that is a clue that it's time to feed your bees. A top bucket feeder is a good way to give bees food without having to open up and insert anything into the hive. When you inspect - as soon as temperature permits – if you see dead bees with "their butts sticking out of the comb, they probably starved, and that could have been prevented."

POLLEN – CORRELATING COLOR & FORAGE SOURCE

Thanks to Kevin & Jeanne Reichert for passing along Wikipedia's very interesting page about pollen that includes charts detailing what forage sources show up as what colors in our bees' pollen baskets: separate charts for trees and flowers, with actual color bars showing the precise shade to look for. For more, visit: http://en.wikipedia.org/wiki/Pollen_source .



Above left, bees with bright orange pollen climbing on Boardman feeder in Gary Stelzner's apiary (photo, Susanne Weil); right, pollen packed into cells (photo, MissApisMellifera's blog)

BEES IN THE NEWS

Thanks to Steve Norton, Marcelle Stenzig, Norm Switzler, Tomme Trikosko, & Sherri Underhill for sending news this month. Next month: special feature on Honey In the News. . . .



“A Raw Look Inside the Life Of a Nepalese Honey Hunter”: 03/11/2014, Huffington Post.com

Photographer Andrew Newey spent 2 weeks with documenting the Nepalese Gurung people's ancient honey collection methods – which go back as far as 11,000 BCE. Newey describes his sojourn, noting that “the three day autumn honey hunt . . . was 6 weeks later than normal due to a changing climate and reduced bee population. The Himalayan cliff bee is essential for the pollination of high altitude plants and their rapidly decreasing population . . . threaten[s] the food base for the entire region.” *To read more – & see Newey’s spectacular photo gallery – visit: http://www.huffingtonpost.com/2014/03/11/honey-hunters-nepal_n_4937079.html. For more details on how Nepal’s honey hunters harvest honey from wild bees, visit: http://lens.blogs.nytimes.com/2014/03/17/hunting-honey-trying-to-hide/?_php=true&_type=blogs&emc=edit_ee_20140318&nl=todaysheadlines&nid=3479749&r=0.*



“Slovenian Government Adopts Resolution on Carniolan Bee”: 18 Feb 2014, *Catch the Buzz* E-zine

Fans of Carniolan bees will be happy to hear that Slovenia’s parliament is considering special measures “to protect [their] native bee from foreign species and preserve the purity of the breed.” The resolution seeks to promote 150,000 Carniolan colonies “through good exploitation of bee pasture, measures to reduce the loss of colonies to disease, sustainable health care and monitoring of the state of colonies and by encouraging people to keep bees.” According to Dejan Židan, Slovenia’s Minister of Agriculture and Environment, Carniolans comprise “a third of all bees in the EU”; he comments that “the Carniolan bee is the most sensitive bee species and as such also serves as an indicator of the state of the environment.” The Slovenian Beekeepers’ Association hailed the resolution. To read more, visit: <http://home.ezezone.com/1636/1636-2014.02.18.10.38.archive.html>



Above left, characteristically dark Carniolans on a frame of brood & honey; right, Carniolan queen (images from Wikimedia Commons)

“USDA spending \$3M to feed honeybees in Midwest,” 25 Feb 2014, Associated Press

Bees in Wisconsin, Minnesota, Michigan, and the Dakotas will get a \$3 million care package from the USDA: funds to help ranchers, dairy farmers, and commercial planters of corn and soybeans to “reseed pastures with alfalfa, clover” and other cover crops beneficial to bees as well as livestock. Farmers can also seek funds to protect the newly seeded pastureland from wear and tear by installing new fencing and water tanks; they’ll not only help bees, but benefit by lowering soil erosion and incursion of invasive species.

More diverse forage will help bees trucked to the Upper Midwest each summer after their busy season pollinating “everything from almonds to apples to avocados.” According to the USDA, “65 percent of the nation’s estimated 30,000 commercial beekeepers bring hives” to the midwest for summer pasturage.

American Beekeeping Federation president Tim Tucker urged farmers and ranchers to apply: the deadline was March 21. Tucker’s 400-500 colonies summer in Texas and Kansas, but this year, he’s thinking of taking his bees to South Dakota: “the fields around his farm near Niotaze, Kan., no longer provide much food for them.” Tucker said, “There used to be a lot of small farms in our area that had clover and a variety of crops, whereas in the last 20 years it’s really been corn, soybean and cotton and a little bit of canola,” Tucker said. “But those crops don’t provide a lot of good nectar and pollen for bees.” Tucker’s “last ‘really good’ year was 1999”: he harvested over 100 pounds of honey per hive, as opposed to “42 pounds per hive” in 2013. To read more, visit:

http://www.apnewsarchive.com/2014/USDA_spending_%243M_to_feed_honeybees_in_Midwest/id-d003e1d8761a4a72a590296fda4529b8



Above, images from AP News Archives

Also covering this story, *American Bee Journal's* ezine reported on how our tax dollars go to work protecting bees: “The Agricultural Research Service (ARS) maintains four laboratories across the country conducting research into all aspects of bee genetics, breeding, biology and physiology, with special focus on bee nutrition, control of pathogens and parasites, the effects of pesticide exposure and the interactions between each of these factors. The National Institute of Food and Agriculture (NIFA) supports bee research efforts in Land Grant Universities. The Animal Plant Health Inspection Service (APHIS) conducts national honey bee pest and disease surveys and provides border inspections to prevent new invasive bee pests from entering the U.S. The Farm Service Agency (FSA) and NRCS work on improved forage and habitat for bees through programs such as the Conservation Reserve Program (CRP) and EQIP. Additionally, the Economic Research Service (ERS) is currently examining the direct economic costs of the pollinator problem and the associated indirect economic impacts, and the National Agricultural Statistics Service (NASS) conducts limited surveys of honey production, number of colonies, price, and value of production which provide some data essential for research by the other agencies.”

Visit <http://us1.campaign-archive1.com/?u=5fd2b1aa990e63193af2a573d&id=f04ab4e2e6&e=e9ff21e0bb>.

EPA: “Beekeepers Must Move Bees” if neonicotinoids are to be used in their area: 20 March 2014, *Catch the Buzz E-zine*

Late in 2013, the Pollinator Stewardship Council and the National Honey Bee Advisory Board asked the EPA to clarify ambiguities in the new pesticide label to be used in application of major neonicotinoid pesticides. First, the “new label will only be required for foliar applications of clothianidin, dinotefuran, imidacloprid, thiamethoxam, and the two new products tolfenpyrad and cyantraniliprole.” Second, the EPA’s answer clarifies five conditions that “supersede the ‘do not apply’ statement”:

“The application is made to the target site after sunset.

“The application is made to the target site when the temperature is below 55 degrees F.

“The application is made in accordance with a government-initiated public health response.

“The application is made in accordance with an active state-administered apiary registry program where beekeepers are notified no less than 48 hours prior to the time of planned application so that the bees can be removed, covered or otherwise protected prior to spraying.

“The application is made due to an imminent threat of significant crop loss, and a documented determination consistent with an IPM plan or predetermined economic threshold is met. Every effort should be made to notify the beekeepers no less than 48-hours prior to the time of the planned application so that the bees can be removed, covered or otherwise protected prior to spraying.”

The PSC comments: “The bee industry has its answer . . . Beekeepers must move their bees. No clarification was provided by EPA on what constitutes notifying a beekeeper to move their bees, if a State has a voluntary apiary registry program, or for the loss of a honey crop or crop pollination if bees are to be moved. The cost of time, labor, and loss of honey crop will be shouldered by the beekeeper.”

To read more, visit: <http://home.ezezone.com/1636/1636-2014.03.20.09.39.archive.html>

“Study Reveals that Costs Outweigh Benefits of Toxic Insecticides Implicated in Bee Kills”: 24 March 2014, *Catch the Buzz* E-zine

The Center for Food Safety has released a review - based on 19 peer-reviewed studies – which “reveals that neonicotinoid insecticide seed treatments offer little benefit, do not increase crop yields, and cause widespread environmental and economic damage.” The study looks at the connection between treating plants with neonicotinoids and crop yields. 8 studies found no significant yield increase; 11 found “inconsistent benefits.” CFS “cites the Environmental Protection Agency (EPA) for failure to conduct a thorough cost-benefit analysis and calls on EPA to suspend seed treatment product registrations.” Neonicotinoids are used to treat virtually all U.S. corn seed and half of soybeans. To read more, visit: <http://home.ezezone.com/1636/1636-2014.03.24.15.11.archive.html> . To read the complete report, visit: <http://www.centerforfoodsafety.org/issues/304/pollinators-and-pesticides/reports/2999/heavy-costs-weighing-the-value-of-neonicotinoid-insecticides-in-agriculture#> .



(Don Hankins, Flickr.com; accessed Greenfudge.org)

“Eugene, Oregon Passes Resolution Banning Neonicotinoids”: 05 Mar 2014; eNews Park Forest

In March, Eugene, Oregon banned neonicotinoid pesticides from use on city property. Eugene is the first city in the U.S. to take this step, one week following the Oregon State Legislature’s passage of a pollinator protection bill from which anti-neonic provisions were removed. Eugene’s resolution also requires integrated pest management practices. This is the latest in a series of steps that Eugene has taken

to protect pollinators and responds in part to the Wilsonville, OR bumblebee kills in summer 2013, when dinotefuran was improperly applied to linden trees, but applicators were fined just 6 cents per dead bee.

Other states are looking at legislation to regulate neonicotinoids more strictly. California beekeepers are promoting a bill that would require California to evaluate the impact of neonicotinoids now, instead of on the EPA's timetable: the EPA's review is not slated for conclusion until 2018. A Maryland bill would have restricted neonicotinoids, but was withdrawn before a vote; the New York and New Jersey legislatures are considering restrictions. At the federal level, H.R. 2692, the "Save America's Pollinator Act," remains in committee: the bill would "suspend the use of neonicotinoid pesticides until a full review of scientific evidence and a field study demonstrates no harmful impacts to pollinators." To read more, visit: <http://www.enewspf.com/latest-news/science/science-a-environmental/50703-eugene-oregon-passes-resolution-banning-neonicotinoids.html>

"Bumblebees infected with honeybee diseases": 19 Feb 2014 *BBC News*; 20 Feb *ABJ Ezine*

Bumblebees worldwide are suffering population crashes - attributed mainly to habitat loss and pesticide effects – but a new British study suggests that diseases transmitted by managed honey bees may be a contributing factor. Researchers have found evidence that honey bees are transmitting viral matter and spores to flowers that both kinds of bees pollinate. Although wild bumblebees are not hosts for *Varroa destructor* mites, 11% of bumblebees sampled from 26 sites in England, Scotland, and Wales had mite-transmitted deformed wing virus (compared with 35% of honey bees); 7% had *Nosema ceranae* (compared with 9% of bees).

The study showed "geographical patterning" that suggests wild bumblebees and managed honey bees are "sharing parasite strains," according to Professor Mark Brown, Royal Holloway University of London. But evidence goes beyond geographic coincidence: the study showed that deformed wing virus is "actually replicating inside" the wild bumblebees, so the bumbles are not simply carriers. Further, "genetic similarities" between the virus in the two types of pollinators make researchers think that honey bees are spreading the virus.

Neonicotinoids may also play a role: another recent study showed that these pesticides are harming honey bees' immune systems. Dr. Brown noted, "If bumblebees were exposed to neonicotinoids and had the same effect, you would expect the bumblebee viral load to be going through the roof." The researchers plan to explore this possibility. To read more, visit: <http://www.bbc.co.uk/news/science-environment-26242960> and <http://us1.campaign-archive1.com/?u=5fd2b1aa990e63193af2a573d&id=f4a5d69023&e=e9ff21e0bb> .



(Left, photo by M Furst, BBC News; right, bee covered in pollen - photo sent by Tim Weible)

Meanwhile, a University of Massachusetts study explores flowers as "common gathering places," "major hubs of plant-animal interactions" where all kinds of pollinators may spread disease. Noting 187 studies over the past 65 years that looked into "floral visitors . . . implicated in disease transmission," postdoc

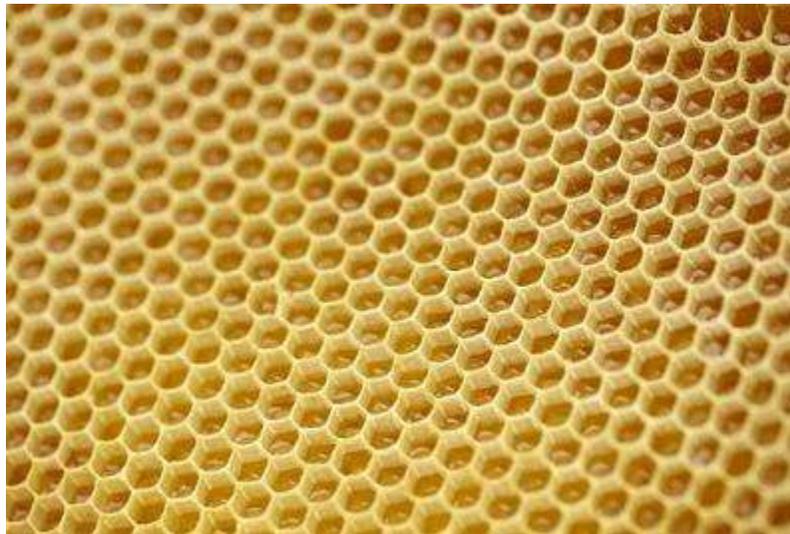
Scott McArt and Professor Lynn Adler “found eight major groups of animal pathogens that are potentially transmitted at flowers, including a trypanosomatid, fungi, bacteria and RNA viruses.”

At stake is not only pollinator health, but also “efforts to control economically devastating pollinator-vectorated plant pathogens such as fire blight, which affects rose family fruits such as apples and pears, and mummyberry disease, which attacks blueberries.” The researchers plan to investigate the role played by “chemical or physical traits,” as well as whether a pollinator’s simply visiting a plant necessarily means pathogens will be transmitted. To read more, visit the *American Bee Journal* Ezine: <http://us1.campaign-archive1.com/?u=5fd2b1aa990e63193af2a573d&id=6cf81ce8b2&e=e9ff21e0bb>. To read the complete study, "Arranging the bouquet of disease: Floral traits and the transmission of plant and animal pathogens," visit <http://onlinelibrary.wiley.com/doi/10.1111/ele.12257/abstract>.

“Secrets of bee honeycombs revealed”: 25 July, 2013; *Phys.org*

The astonishing mechanical perfection of honey bee comb has, literally for millennia, made people wonder whether bees need “uncanny ability - "forethought," according to Pappus of Alexandria in 4 AD – to perform mathematical calculations or the magical quality to measure lengths and angles.” The Cardiff University School of Engineering has found the mechanism by which bees make these characteristic shapes: “cells in a natural honeybee comb have a circular shape at "birth" but quickly transform into the familiar rounded hexagonal shape while the comb is being built.” The “heater” bees inside the hive make the wax “semi-molten”: at 45 degrees Centigrade, the wax begins “to flow slowly as an elastic liquid,” and “then gets pulled into hexagonal cells by surface tension at the junctions where three walls meet.” The engineers commented: "We cannot... ignore, nor can we not marvel at the role played by the bees in this process by heating, kneading and thinning the wax exactly where needed."

To read more, visit: <http://phys.org/news/2013-07-secrets-bee-honeycombs-revealed.html>. Photo below courtesy of *Phys.org*:



“Asian Hornet trap launched to Combat Latest European Honey Bee Pest” 5 Mar 2014, ABJ Ezine

The Asian Hornet, *Vespa velutina*, invaded Europe in 2004 via a pottery shipment from China to France: the spreading hornet population has since decimated honey bees in regions of France Belgium, Spain, Portugal, and Italy. First, hornets kill individual foragers as they return to their colony: the bees begin staying inside, then, weak from hunger, are invaded by a mass of hornets, which feed not only on bees,

but hive food supplies. The hornets' nests, high in trees, are hard to find until falling autumn leaves expose them, by which time they have already done their damage to bee colonies.

To control this threat, Vita Ltd. has released ApiShield, a non-chemical trap which capitalizes on the way these large, aggressive hornets attack hives. The ApiShield “lures hornets into a trap in the bottom of the beehive. The trap, which acts as a base for a hive, has a modified front entrance for the honey bees and decoy side entrances that attract the Asian hornet and other flying honey bee pests. The hornets try to enter the hive by the unguarded side entrances, but become trapped in the false bottom, and then dehydrate and die. The beekeeper simply removes the dead hornets as required.” To keep bees from entering the false bottom and side entrances, these are blocked when the trap base is set up. Once bees habituate to using the front entrance, the beekeeper can open the side entrances.

Not only Asian hornets, but also wasps and robber bees fall prey to this trap: they naturally avoid the honey bee-guarded front entrance and try to invade the “undefended decoy side entrances.” An additional advantage is that the false bottom can serve as a mite trap, as well. The trap has been tested in France and Greece and is now available “in hard-wearing pine wood; a polystyrene version is also planned for the near future.” To read more, visit: <http://us1.campaign-archive1.com/?u=5fd2b1aa990e63193af2a573d&id=98732b6ca1&e=e9ff21e0bb>

“A Queen Bee’s Secret, Pinpointed”: 20 Jan 2014, *The New York Times*

It’s not only bees whose queens suppress other females in their colonies – wasps and ants do this, too. A Belgian study has shown that “pheromones . . . specific to queen wasps, bumblebees and desert ants keep workers sterile while in their presence.” These pheromones stop worker insects from developing ovaries, and stop them from laying if they do manage to develop ovaries. The researchers found that queens “overproduced certain chemicals” which then were “administered . . . to workers in the absence of a queen. Those insects remained sterile, while workers separated from their queen and not given the chemicals regenerated their ability to reproduce.” To read more, visit:

<http://www.nytimes.com/2014/01/21/science/a-queen-bees-secret-pinpointed.html?emc=eta1>



Above, “Italian Queen” (AP Images)

“Molecular evolution of genetic sex-determination switch in honey bees: 5 amino acid differences separate males from females”: 12 Dec 2013, *American Bee Journal E-zine*

How did honey bees evolve their system of haplodiploid sex determination - by which the queen does not fertilize drone eggs? Studying 76 genotypes of honey bees, researchers found that in bees, there is just

one “gene locus responsible for sex determination,” and that bees recombine their genetic material in the course of reproduction more than other animals examined. In trying to determine which genetic alleles drove sex determination, they had to re-examine what alleles are, and how exactly alleles must match up when recombined. Just “five amino acid differences” drive the entire process of “creat[ing] femaleness through the complementary sex determiner (csd) gene – the control switch.” Further, the researchers learned that just “three amino acid differences spanned the balance between lethality and induced femaleness,” and that “incomplete penetrance may be the mechanism by which new molecular switches can gradually and adaptively evolve.” The original study, “Gradual molecular evolution of a sex determination switch in honeybees through incomplete penetrance of femaleness,” was published in the December issue of *Current Biology*. To read more, visit: <http://us1.campaign-archive2.com/?u=5fd2b1aa990e63193af2a573d&id=76c13cbb8b&e=e9ff21e0bb>

ANNOUNCEMENTS & HELP WANTED

From Kimo Thielges, recovering at home after bypass surgery:

“A belated THANK YOU to members of the Lewis County Beekeepers Association and the Lewis County Master Gardeners.

“This is the first time in 13-years that I was unable to promote Mason Bees at my annual public service project.

“Norm Switzler, Susanne Weil, Ted Saari, Bob Taylor and others graciously stepped in, and carried on, the Mason Bee presentation at the recent Gardening for Everyone, while I was hospitalized.

“Feedback from acquaintances state that the presenters learned much from “Gardening for Everyone” attendees asking questions about mason bees. I’ve discovered that to be true, too.

“Mason Bees are early spring “super pollinators.” Six (6) mason bees can pollinate one (1) fruit tree compared to 10,000 honeybees needed to pollinate the same tree.

“You may learn more about this “super pollinator” at the Lewis County Beekeepers Association website (www.lewiscountybeekeepers.org). Information on Mason Bees will be found under FAQs.

“Thanks again to members of the Lewis County Beekeepers Association and Lewis County Master Gardeners. You did a great job. I truly appreciate your combined efforts.

“Best wishes, Kimo.”

NEWS FLASH ~ LCBA IS ON FACEBOOK!

Yes, it’s true....thanks to Membership Coordinator Tomme Trikosko, we have another web presence. Take a look, post information, links, photos, or simply “Like” us on Facebook! This is a great opportunity to post questions and get (relatively) quick answers.

<https://www.facebook.com/LewisCountyBeekeepersAssociation?ref=hl>

Treatment Free Beekeeping Conference: August 2nd - 3rd in Medford, OR. Enrollment is limited to 75 people to allow for hands-on workshops and in depth discussions. To learn more, visit: www.blisshoneybees.org/2014conference.html

April Western Apicultural Society Newsletter: Visit http://groups.ucanr.org/WAS/WAS_Journal and click on the line in the paragraph on the right as directed. If you're still getting the old issue, click on "empty cache" in your browser or "refresh" or "reload" under VIEW in your menu bar.

April WSBA Newsletter: Pick up your copy from www.wasba.org: click on "Newsletters" under OUR SPONSORS on the lower right of the page. Then click "Current issue."

That's all for this month - take care, & bee happy!

~~ Susanne Weil, LCBA Secretary (Susanne.beekeeper@gmail.com; 360 880 8130)