BEELINES

JULY 2013

EDITOR: CLARE MACQUEEN

NORTHWEST DISTRICT BEEKEEPERS ASSOCIATION

Our mission: to promote interest in honey bees and beekeeping throughout the northwest district of western Washington, and, in particular, Snohomish County.

Regularly scheduled meetings are held on the second Tuesday of each month at 7 PM at:

Christ the King Lutheran Church
1305 Pine Avenue
Snohomish, WA

All are welcome, from "newbees" to experts. Please drop by and join the conversation. Share your experience—and your questions!

Membership application forms

New members are welcome to mail the completed form, or simply bring it to the next meeting. We look forward to seeing you there!

OR VISIT US ONLINE: WWW.NWDBA.ORG

Our "big sister" organization, the Washington State Beekeepers Association (WSBA), is all about "Keeping the bee in business."

http://wasba.org

Be sure to check their **Events Calendar**:

http://wasba.org/events/

GOT IDEAS?

Please send suggestions and/or newsletter content (announcements, articles, humor, links, news, photos, reviews, etc.) to:

newsletter@nwdba.fatcow.com

DID YOU KNOW?

Informative discussions abound at the Washington State Beekeepers Forum. It's easy to register, or log in via one of several social networks (e.g., Facebook).

NEXT MEETING: 9 JULY

Beginner's session
(moderated by Dave Pearson)
starts promptly at 6 PM.

Regular meeting begins at 7 PM.

Panel will begin by 7:30 PM.

SCHEDULED TOPIC

"Stump the Beekeeper,"
an informal Q&A session.

Panelists will ponder questions previously submitted by members* and drawn randomly by the moderator, NWDBA President Gary Gibbons.

* You're invited to email your burning questions, the curious conundrums you've found no answers for in field or forum, to Clare MacQueen at: *newsletter@nwdba.fatcow.com*

PRESENTING THE PANELISTS

- **Chris Castro**, retired public school teacher and current member of the Snohomish County Fruit Society, enjoys staying home with her "chickens, ducks, bunnies and bees." She has been keeping bees in her backyard for three years, and also likes to "grow mushrooms, hang out with the grandkids, and play in the yard with concepts of perennial vegetables and permaculture."

- **Krista Conner**, President of Puget Sound Beekeepers Association and founder of Seattle Bee Works, became fascinated with beekeeping as a distraction from cancer treatments she received in 2006. Bees profoundly changed her life. Read more about her journey at: http://seattlebeeworks.com/about/

- **Dennis Morefield** has kept bees for 22 years and formerly maintained 100-300 colonies in Oregon, which means he has many good stories to tell. While he has experience with commercial operations such as pollination and making splits on a huge scale, he now keeps four hives in Everett and mentors "newbees."

- **Dave Pehling**, zoologist, entomologist, and instructor with WSU Extension for many years, has been keeping bees since the 1970s. His wide-ranging interests also include other pollinators, insect pest management, and arthropod parasites, especially mosquitos.

- **Jim Tunnell,** owner of The Beez Neez apiary supply store, says the honey bee is a "never-ending source of wonder and awe" and that beekeeping is "one of the greatest, all-time obsessive-compulsive hobbies." Amen to that! Hear more of Jim's thoughts in this video clip: http://tinyurl.com/mrmzola

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Our Yellow Hive survived the winter so successfully we had to do a split on 9 May to fool the bees into staying in our back yard. Of course, they soon geared up again—and seven weeks later did their own split for the wild blue yonder.

Our awesome Yellow Queen is in this watermelon-size swarm, ~70 feet up a tree behind our house. Bye-bye, girls, and best of luck! We'll miss you. —Clare

Photo by Gary Gibbons, 06-30-2013

9 JULY: PLEASE SIGN UP FOR BEE BOOTH

A round of applause to all those who have already signed up as Bee Booth Volunteers for the Evergreen State Fair in Monroe! Thanks very much for supporting NWDBA's outreach efforts.

For those who have not yet made the commitment, please consider doing so very soon. *The club needs your help.*

If we do not have enough volunteers to keep the booth open, then we may lose our space at the fair entirely. Our booth gives us an excellent opportunity to educate the public in an informal and fun atmosphere, with the goal of sparking interest in honey bees and beekeeping. Volunteers answer questions, hand out brochures and honey sticks, even give live demos in the bee tent. (Demos are entirely optional, and protective gear is provided.)

- If you're a novice beekeeper, no worries — you already know much more about honey bees than the average person does! Most fair-goers ask fairly basic questions, such as "Do you ever get stung?" and "I live in town; do I really have enough space to set up a hive?"
- And if you're an introvert like me, you may be pleasantly surprised at how much you actually enjoy talking about bees with folks you don't know.

Bee Booth Volunteers receive two tickets for free admission to the fair, along with free parking. Each five-hour shift should have at least two volunteers, so that one can stay at the booth when the other needs to take a break for whatever reason.

Dave Pearson plans to bring the sign-up sheet to the club meeting this month. If you cannot attend, then you can find the sign-up sheet at The Beez Neez store in Snohomish. Gary and I will also look into how we might post it online.

Questions? Ask Dave at: *colonialhoneyfarm@yahoo.com*

13–14 JULY: QUEEN REARING IN THE PAC NW

A weekend class offered in Silverdale, Washington, by the West Sound Beekeeping Association: www.westsoundbees.org

Download the details and registration form: http://tinyurl.com/pwo76nr

26–28 JULY: PACIFIC NW TREATMENT-FREE BEEKEEPING CONFERENCE

To be held at Pacific University in Forest Grove, Oregon. Speakers include Dr. Tom Seeley (Honeybee Democracy), Les Crowder (For the Love of Bees), among others.

Complete details about venue, schedule, and speakers at: http://www.blisshoneybees.org/Events.html

1 SEPT. 2013: SUBMISSION DEADLINE FOR BEEKEEPER OF THE YEAR AWARD

Commentary from Clare:

Unless a fellow NWDBA member wants to volunteer—and please don't hesitate to do so!—I would be happy to prepare the materials for our club candidate (based on Criteria below).

The deadline is fast approaching, of course; so if you would like to recommend someone for the award, please contact me soon:

newsletter@nwdba.fatcow.com

Details from the WSBA website:

Beginning in 1987, the Washington State Beekeepers Association wanted to recognize the importance of Washington State beekeepers who make a significant impact on the industry.

Each year Local Associations are asked to submit a candidate of their choice to receive the WSBA Beekeeper of the Year Award, to be voted on by the WSBA Executive Board prior to the annual meeting. The selections are to be described in writing, not to exceed one page.

Criteria:

- Which beekeeper has done the most to promote and demonstrate good beekeeping,
- Which has done the most to improve the public image of the industry, and/or
- Show how this member has volunteered for civic and other projects.
- The candidate must be a current member of WSBA.

"WSU STARTS SPERM BANK FOR HONEYBEES"

Nicholas K. Geranios reports in *The Seattle Times*, 6-16-13:

"Washington State University scientists [Steve Sheppard, Susan Cobey, and Brandon Hopkins] are creating the first sperm bank for honeybees [sic] as a way to strengthen bee colonies and preserve threatened species."

Read more at: http://tinyurl.com/mz89upw

For the story straight from the bee's proboscis, so to speak, see also Bob Hoffman's article in *WSUNews*, "WSU Researchers Preparing Bee Semen Bank." Article includes a 4-minute video of Sheppard and Cobey discussing honey-bee stressors such as Varroa, and the WSU program to expand the US honey-bee gene pool:

http://tinyurl.com/mzuszvt

Be sure to check out the article's image links to documents and additional photos that describe the sperm-collection process.

NEONIC USAGE CONTINUES IN WA

The Washington State Department of Agriculture will not limit the use of neonicotinoid insecticides on ornamental plants. The Washington State Beekeepers Association has the report: http://tinyurl.com/kv2tvuy

In response to the Thurston County Commissioners' request to restrict such use, the WSDA sent the following letter: http://tinyurl.com/mnopz8o

From paragraph 3 of the letter, here's a sentence that epitomizes for me the crux of the matter: "The potential adverse effects of sub-lethal exposure to neonicotinoid insecticides on colony health are very complex and not fully understood…."

The irony takes my breath away. If we do not fully understand the potential effects on honey bees, which are the most studied insects on the planet, then why in the world are we using such products?! Perhaps our philosophy should be far more conservative—perhaps we would be most prudent to view these products as "guilty until proven innocent."

Paragraph 3 goes on to say, "According to WSU staff, researchers have shown in laboratory experiments that neonicotinoid insecticides can have adverse effects that are lethal or sub-lethal to bees, depending on the level of exposure. The sub-lethal adverse effects of neonicotinoids include impaired learning behavior, short and long term memory loss, reduced fecundity, altered foraging behavior, and motor activity of the bees…"

If we were talking about such effects on humans or mammals—or even songbirds, as below—I wonder how the tenor of the discussion might change…

IF YOU FEED SONGBIRDS, TAKE HEED OF THE SEED

From the article, "Conservation Group Seeks Assurance that Wild Bird Seed Products Are Pesticide Free"

http://tinyurl.com/n7sdn7b

"ABC [American Bird Conservancy] recently released a 100-page scientific report on the effects of neonicotinoid insecticides on birds, *The Impact of the Nation's Most Widely Used Insecticides on Birds*. These chemicals are applied as seed treatments in agricultural and horticultural seed products. For some crops such as corn, close to 100 percent of seed on the market is treated. ABC reviewed 200 studies on neonicotinoids, including industry research obtained through the U.S. Freedom of Information Act.

"The ABC report found that a single corn kernel coated with a neonicotinoid can kill a songbird. Even a tiny grain of wheat or canola treated with the oldest neonicotinoid, imidacloprid, can fatally poison a bird. And as little as one-tenth of a neonicotinoid-coated corn seed per day during egg-laying season is all that is needed to affect reproduction. Low-level exposure to [neonics] is associated with a range of potentially debilitating effects such as egg-shell thinning and loss of muscle coordination."

Anyone remember DDT and the Peregrine Falcon?

CONTROL OF NOXIOUS WEEDS IN SNOHOMISH COUNTY

A Report by Gary Gibbons

Recently, NWDBA Vice President Jeff Thompson forwarded to me a link to a *HeraldNet* story, dated 24 June 2013:

County aims to snuff out knotweed in waterways

This article describes a program starting soon in Snohomish County which will identify and control knotweed, considered a class "B" weed by WSDA, the Washington State Department of Agriculture. The 2013 Washington State Noxious Weed List defines Class B Weeds this way:

> "Non-native species presently limited to portions of the State. Species are **designated** for control in regions where they are not yet widespread. Preventing new infestations in these areas is a high priority. In regions where a Class B species is already abundant, control is decided at the local level, with containment as the primary goal…"

The story in *HeraldNet* goes on to explain a bit about the program and its areas of focus, particularly around Pilchuck River from near Spada Lake to Snohomish River. This year's program targets knotweed in particular within these areas.

After reading the article, I contacted Snohomish County Noxious Weed Inspector, Janice Martin, with my concerns about potential impacts on honey bees as well as on local beekeepers, local honey production, and on the survival of bees. I asked whether she could explain the method of knotweed eradication and if she would disclose the nature of any chemicals being used.

Sonny Gohrman, Noxious Weed Program Coordinator with Snohomish County, responded in an email message to me:

> "Our approach is upstream down and working with willing cooperators. Our method of control for the most part is a foliar application to the leaves of the plant. Our guidance is the State integrated vegetation management plan for knotweed control. The management plan for knotweed is part of the Integrated Pest Management Plan for Freshwater Emergent Noxious and Quarantine Listed Weeds."

This means that the county is now, or will be in the near future, spraying chemicals in the form of herbicides onto areas of knotweed within a stream corridor—and knotweed is a preferred forage plant for honey bees.

One of the first questions that comes to mind is this: what is the "foliar" being used?

In his email, Mr. Gohrman included this discussion:

> "Aquaneat [sic] is the herbicide used the most, both aquatic and upland sites. Polaris is used some, but usually more roadside or upland sites. Competitor is the surfactant we use. The Blazon and Hi-Light are blue dye markers. Staff members are licensed applicators or are working under someone with a license. An aquatic permit to apply herbicides around water is obtained from the Washington State Department of Agriculture and areas sprayed are posted before the application. Applications are usually made in late summer and fall up to the first hard frost."

Mr. Gohrman also attached Product Labels and Manufacturer Safety Data Sheets (MSDS) to his message, which I will post to the NWDBA website soon for everyone's review.

Mr. Gohrman says he understands the delicate balance regarding forage opportunities for honey bees, but cannot disregard the responsibility to manage what is considered a noxious weed. As he says, knotweed is capable of great damage in already strained ecosystems such as riparian corridors along streams and rivers, and in particular as related to salmon species and further loss of their supporting habitat.

As an aside to Mr. Gohrman's comments, I would like to point out that one could argue an indirect benefit to salmon species from honey bees in that bees support the riparian habitat through pollination. Conversely, though, foraging on knotweed supports that particular undesirable weed within the same habitat.

A complex quandary then, to say the least, and certainly one worth unraveling to a solution! It's worth it because, even though this particular weed can cause a good deal of harm, the solutions to control or eradicate it are sensitive to the environment only in limited ways. Chemicals designed to destroy an organism, whether on contact, application to the soil over the roots, or directly injected, potentially impact other organisms not targeted but within or adjacent to the areas treated. This includes honeybees and other pollinators, as well as other species such as waterfowl and fish.

Should we be concerned?

Of course we should! While a good deal of ongoing research is being brought to bear on the honey bee to understand various aspects of its biology and behavior, the continued stresses of chemical treatments can only have negative effects, whether

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through direct contact with the bee's body, or indirectly through pollen and nectar uptake from plants that have been treated systemically.

Along with hand removal as a way to control knotweed, the Snohomish County program uses foliar application, i.e., products sprayed directly onto the foliage. To avoid misting plants with these products, direct injection to the stems can also be done; however, this approach is labor intensive and may require several applications to be effective.

The MSDS's and Product Labels for AquaNeat®, Competitor, and Polaris® confirm their hazards and the care that should be taken during their use. The MSDS for the herbicide Polaris® even includes ecotoxicity for a constituent component, imazapyr, that indicates, "Honey Bee LD_{50} >100 mg/bee" –but one has to study the application method to understand how this level would be achieved.

The irony with knotweed and the honey bee, of course, is that we have two non-native species to this region, or to this country for that matter, with one providing preferred nutrition directly to the other–which benefits us in the form of surplus knotweed honey, when it can be had!

This type of benefit based on a relationship between non-native, invasive species (at least the knotweed) and humans complicates our relationship with honey bees, as we strive to protect them from as many stressors as possible. An uphill battle at best, considering *all* of the potential contributors to honey-bee mortality in the human environment.

It's unlikely that eradication of knotweed will occur, at least through current efforts, but only because planning and development, along with the work itself, require funding that doesn't appear to be available.

Herbicide Cocktail for Blackberries

A very similar association exists with Himalayan blackberry and honey bees. The Himalayan blackberry is a Class C Weed, which is defined by the Noxious Weed Control Board as:

> "Noxious weeds that are typically widespread in WA or are of special interest to the state's agricultural industry. The Class C status allows counties to require control if locally desired. Other counties may choose to provide education or technical consultation."

As such, Himalayan blackberry may face less scrutiny in Snohomish County than knotweed will, but WSDOT (the Washington State Department of Transportation) actively manages highway margins for Himalayan blackberry and other plants considered noxious. A local beekeeper has mentioned that he recently spoke with a crew applying spray to blackberries along the margins of a particular highway, and learned that they use a combination of materials to form a cocktail to spray on the plant.

Included in this particular story is a bureaucratic irony regarding protection of sensitive or environmentally critical areas. On the one hand, a state highway construction project perhaps didn't choose the most effective approach to a lane correction in an effort to avoid mitigation requirements for wetland intrusion; but, on the other hand, did spray an herbicide directly adjacent to a wetland. Mitigation efforts apparently aren't required when doing such work. So goes self-permitting by government agencies.

Dialogue Between the County and Beekeepers

At some point we have to trust that a sound protocol is established and followed, and *is* the mitigating element. For the most part, this information is available on various state and county websites and can be tracked down with some effort.

To return to the knotweed issue: I asked Mr. Gohrman if he would consider discussing his program with our group, and he agreed, saying the county is interested in doing outreach and discussing how their work may impact honey bees. The NWDBA Board will work together to choose a date for Mr. Gohrman to talk with the club.

In the meantime, he has scheduled a discussion for August 20th with the Stanwood Camano Beekeepers—please contact their group for details if you would like to attend.

RELATED RESOURCES

- 6-12-13 article in *Tribune: Snohomish County News:* "Grant controls knotweed along Pilchuck River" http://tinyurl.com/lzgv7c7
- MSDS for AquaNeat® Aquatic Herbicide: http://www.cdms.net/LDat/mp5NE009.pdf
- MSDS for Nufarm Polaris® Herbicide: http://www.cdms.net/LDat/mp8KR000.pdf
- Thank you to Dave Pehling for the link to "Grow-Slow Potion: Pheromone keeps bee youngsters youthful," by Susan Milius, in *Science News Online*. This article describes "a compound produced by the senior workers in a honeybee colony that prolongs the time that teenage bees stay home babysitting."

  The compound? Ethyl oleate, a modified vegetable oil and chief chemical ingredient in the herbicide, Competitor, whose MSDS (PDF) can be found at: http://tinyurl.com/o9unn6t

BLACKBERRY: BLOOMING, BUT NO JUICE?!

Recently, I was surprised to learn that, despite early and rampant blooms, there may be no flow of blackberry nectar unless the temperature rises consistently above 72 degrees (Fahrenheit). In other words: no summer weather, no blackberry honey.

"I've seen nectar flows as short as one week here in the valley [Tualco]," veteran beekeeper/gardener Terry Johnson says. "Based on personal experience and discussions with other 'old timer' beekeepers, I believe there is a relationship between annual precipitation, temperature, humidity and honey flow."

Although specifics appear hard to come by, at least initially, I did manage to find data presented by Master Beekeeper Candidate, Franclyn Heinecke, which confirm the relationship.

Dry weather cuts short the nectar flow, while "Nectaries secrete more in **humid weather** (Lovell, 1926). Evaporation is checked and more water accumulates in the cells. This action increases the pressure within the cell walls, ultimately forcing more nectar from the plant. Flowers at **high altitude** produce brighter colors and secrete more nectar, probably due in great part to the **increased sunlight** they receive.

"Temperature, however, has a greater influence on nectar secretion than light, humidity or rainfall (Lovell, 1926)."

Heinecke continues this discussion of nectar production in her research paper, "Knowing the Neighborhood for Bees" (PDF).

"AMERICAN FOULBROOD: DECEPTIVE AND DEADLY"

Karen Bean, of Brookfield Farm Bee and Honey in Maple Valley, is a fan of the diagnostic services offered by the Bee Research Laboratory (BRL) in Maryland:

"Whenever I suspect something's wrong, I send a sample. Until this time it has always been varroa or nosema."

A couple of years ago, Ms. Bean detected an odd odor in one of her hives, which was identified as AFB by a beekeeper with 30 years of experience, yet the results of the testing by BRL showed otherwise—after she had already burned the hive!

Conversely, one of her other hives, which exhibited no odor or other signs of infection, tested positive.

Find the details at her website, which includes photos that help illustrate how easily AFB and Varroa can be misdiagnosed.

VARROA AND EPA PESTICIDE GUIDELINES AMONG TOPICS IN LATEST *UC DAVIS BEE NEWS*

Another very informative issue of Dr. Eric Mussen's apiculture newsletter appeared in my inbox recently, with interesting news:

- "Monsanto Ready to Go" includes a description of how double-stranded RNA can be "delivered to Varroa through the honey bee lifecycle chain." The implications are exciting, to say the least.

  Dr. Mussen explains the process in much more detail in the newsletter, where he concludes:

  "The tedious work now is to unscramble the genome of the varroa mite and find one or more bio-chemical pathways susceptible to being destroyed if a specific RNA is prevented from forming in the mite. Obviously, that pathway cannot be shared with honey bees. Once found, lab test, field tests, registration steps, and marketing need to be worked out before the product can become available to the beekeeping industry."

- Other hopeful news for us beekeepers:

  "USDA and EPA are holding another three-day honey bee/pesticide meeting in Virginia beginning Oct. 15, 2013. All attendees at the Summit were invited to attend. This is really good news. It demonstrates that beekeepers, and now the general public, are being taken seriously about their concerns over the health of honey bees and the possible contributions pesticides and pesticide residues may be playing in excessive honey bee colony losses. Those concerned with broader environmental issues also should consider this a step in the right direction."

- Dr. Mussen also discusses recent comprehensive guidelines from the EPA on pesticides and honey bees, which contain a level of detail in the final pages that he calls "overwhelming."

  "On May 9, 2013, the EPA Office of Enforcement and Compliance Assurance issued a guidance document to FIFRA Compliance and Enforcement Managers (Regions 1-10). The title of the 31-page document is 'Guidance for Inspecting Alleged Cases of Pesticide-Related Bee Incidents.'"

Read complete details in the newsletter:
UC Davis Bee News, May/June 2013

Check out archived issues, too, back to 1994;
page also includes a link to a comprehensive, topical index:
Index to UC Davis Apiculture Newsletter

Photos and article about Eric Mussen, by Kathy Keatley Garvey

JUNE MEETING MINUTES

By Savannah Clendenen

Beginners meeting:

- 33 people attended.
- Dave talked about if you don't have honey supers on by now, you might not get honey this year.
- Honey flows:
  - ◊ Mar - April → Maple
  - ◊ June → Blackberry
  - ◊ August → Knotweed
- To harvest honey, have at least 80% capped.
- When collecting pollen, you have to collect every day.
- Only collect pollen for about 3-4 days to get good amounts.
- Solar wax melters are simple to make and great to collect wax for candles and other uses.
- Watching for swarming: you have to be careful with good weather; but if queen cells are capped, leave them alone.

Main meeting:

- 62 people attended.
- Introduced 3 new members.
- Introduced Board members.
- Picnic date: Mainly votes for the 20th of July. You can still decide between the 13th and 20th. The 16th of July is the deadline. The picnic will be held just west of Marysville on the reservation.
- We have a library that you can check stuff out.
- Fair sign-up to help set up first two days; shifts are 10 AM to 3 PM and 3-8 PM. Go to Beez Neez for sign-up sheet.
- Treasurer's Report: We have $3,000 in savings and about 60 members. We have membership cards.
- Panel:
  - ◊ Connie Bueler (18 years, 50 hives, Snohomish, Master beekeeping classes)
  - ◊ Mike Miller (8 years, 50 hives, Lake Stevens)
  - ◊ Dennis Morefield (22 years, 4 hives, Everett, at max 300 hives in South Oregon for pollination)
  - ◊ Walt Polmueller (5 years, 30+ hives, Finn Hill area)
- Walt: Learn the pattern of the bees, and what works the best for you. Jim Tunnell can inform you about all the equipment and in case of any emergency. Plan ahead with your bees. Mentor was a commercial beekeeper and he learned a lot.

Continued in next column

June Meeting Minutes, continued

- Mike: Used jars at first then one-gallon paint cans on top. Also uses frame feeder, but there will be drowned bees.
- Connie: Have what you need with you. Also have a partner. Tim and her mentor were helpful. Have a nice suit that's easy to work in. Smoking is nice to keep the bees calm and kill less of them.
- Dennis: Where's the shade, and the wind; also drainage. Think about where you're taking the boxes. You want good access as well as security. Nectar source: do you have lots of nectar within two miles? Have at least one other bee yard in case you have to move bees in an emergency.
- Mike: Everyone's things might not work the way they want them to.
- Connie: About queens, you can choose from laying, to who they're from, to how late-breeding they are. Make sure she performs the way you want her to. If you have queen cells, you have to know why they are there. Look through the hive to see what's happening.
- Open: Swarm control right now is important, to keep control of problems. Put on the supers and leave them alone. Stay ahead of your bee population.

SPEAKERS ON TAP FOR NWDBA

- Aug: Susan Cobey: "Sex and the Honey Bee"
- Sept: Danny Najera, PhD entomologist
- Oct: Brandon Hopkins, PhD grad student who conducts research with Dr. Steve Sheppard

YOU KNOW YOU'RE A BEEKEEPER WHEN...

- The word "flow" does not mean the same thing to you that it does to your girlfriends.
  —KathyP, Oregon, 8-13-2011
  Beemaster.com Forum

- Your friends start avoiding you because all you ever talk about is stinging insects, flows, and dearths.
  —VolunteerK9, Tennessee, 8-12-2011
  Beemaster.com Forum

- You assure a friend you've not seen in ages that the stains on your fingertips are actually from *propolis*, not nicotine! (After all, *you* only smoke bees.)
  —Clare MacQueen, 7-1-2013

BELLY UP TO THE TROUGH: FEEDING HONEY TO BEES ON A SMALL SCALE

Because I felt such regret when rinsing honey residue from jars and lids—after all, a single drop of honey is precious and could feed numerous honey bees—I began putting dishes on the hive's inner cover to let "the girls" clean them up. This soon gave me an idea of what to do with the "brood juice" honey in the cupboard.

That honey has been languishing since last summer—I wouldn't dream of giving it to anyone for human consumption, yet I could not bear to waste it. Unsure about the best way to return honey to bees, I had fretted that diluting it in water and feeding via quart jars would risk fermentation, and lead to dysentery.

One idea led to another, and soon I was utterly entranced by this "experiment," watching our girls belly up to a feast of their favorite fare, undiluted and absolutely magnetic. It's downright eyebrow-raising how quickly the bees suck up every last smidgen.

I would enjoy hearing if anyone else has tried something similar. Please email me at: *newsletter@nwdba.fatcow.com*

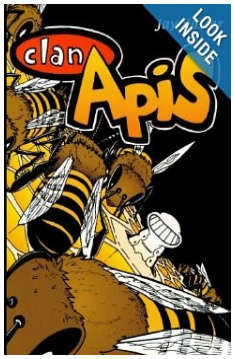
The flat lids are "repurposed" from hummus containers, etc. which have been thoroughly washed and rinsed. Lids are shallow enough to prevent bees from drowning, though they do get mired momentarily. But no worries—their sisters will quickly clean them up. BTW, check out Ms. Curious at lower left. →

Photos by Gary Gibbons, 2013

Photos by Gary Gibbons, 2013
(Funny how Gary's reflection in the honey pool reminds me of Dracula.)

CLAN APIS: A "COMIC BOOK" BY JAY HOSLER

Reviewed by Clare MacQueen



Biology professor, entomologist, and award-winning cartoonist, Dr. Jay Hosler, spins the story of a honey bee's life, from before her "birth" to beyond her death. Though a charming story, this is serious science—synthesized from works by leading researchers—and artfully disguised within goofy, bantering dialogue, playful puns, and bold, black-and-white drawings.

Despite my initial skepticism, I have to agree that this really *is* "the best comic book about bees you'll ever read."

Jake Swearingen's glowing review of this graphic novel back in May inspired me to track it down in the SnoCo Library System—yes, I prefer to take a test drive before plunking down plastic on a book. After all, space is limited on my bookshelves.

Besides, I am not one to buy a comic book, much less actually read one. After all, what would my literary colleagues think? Well, most of them have a sense of humor, thank goodness, and while *Clan Apis* may not pass muster as fine literature, it *is* well written.

And it's funny! LOL funny! And awesomely creative (takes some artistic chops to make a bee's face emote). This book is also informative and mind-stretching—as the author says, "an opportunity to peek into an alien world." It may even move you to tears a time or two.

Just a tip: The first few pages of this book may make scientific-minded folks wonder if they've picked up some sort of New Age fairy tale. But if you keep reading, I believe you'll be glad you did. *Clan Apis* is highly entertaining, definitely a worthwhile addition to anyone's bookshelf (including mine).

Details, reviews, and a sneak peek available at Amazon.com

EDITOR'S CHOICE: NOTEWORTHY LINKS AND QUOTATIONS

"*OUTSIDE* AT THE TORONTO FILM FESTIVAL: THE NOT-SO-SECRET LIFE OF BEES"

Mina Hochberg interviews Markus Imhoof, director of the "extreme close-up" documentary, *More Than Honey*:

http://tinyurl.com/k78lac2

The following video clip from this film offers fascinating footage of a drone comet and of bees mating in mid-flight. Note that the queen's wings are strong enough not only to support her weight, but also that of the drone dangling from her abdomen. His wings apparently stopped whirring before the moment of no return.

Also remarkable: While preparing queens for shipping, the Teutonic beekeeper puffs smoke from her cigar to cover the odor of paint on the queen. Close-up shots like those of the queen emerging from her cell earlier in the clip make it easier than ever to imagine life on the micro scale and to "think like a bee."

http://tinyurl.com/lrxyt5t

FULL OF WHAT DID YOU SAY?

Honey bees can hold their excrement, aka frass, for weeks or months at a time to avoid fouling the hive—which is not news to many beekeepers. However, did you know that bees have been known to foul the flowers they just pollinated? Neither did I, until running across Rusty Burlew's astonishing photos:

http://www.honeybeesuite.com/the-best-of-sanitary-practices/

Is this typical behavior? Seems unwise for a species to risk contaminating food sources with bacteria and such, but maybe honey bees aren't as fastidious about certain habits as we thought? Or is it simply a case of, when ya gotta go… look out! So sorry about the dining-room table.

On a related note: Some folks fertilize their garden with bug poop, though it makes me wonder how the stuff gets collected and packaged: http://www.onfrass.com/what.html

Many thanks to my friend Kurt Sahl, Principal Education Advisor at 21 Acres, for adding the word "frass" to my lexicon.

"PROFIT FROM BEES DYING"

"Get in on the ground floor of a booming industry! Bees all over the world are dying. Now is the time to invest in the **Human Pollination Market**. The coming global crisis could be *your* financial opportunity! Visit our site now."
[Be sure to scroll down past the video for full benefit.]

www.BeaBeeInc.com

"BEES AND MORNING GLORIES"

They swarm in light and, fast, dive in,
then drone out, slow, their pantaloons heavy
with gold and sunlight. The line of them,
like thin smoke, wafts over the hedge.

—From the poem by John Ciardi

http://www.poetryfoundation.org/poem/176398

Many thanks to Tualco Valley beekeeper Terry Johnson for suggesting a little poetry for *Beelines*. And thanks to his former colleague, Jamie Stockton (also a poetry lover), for forwarding the poem to him. As Terry writes:

"How timely—if the morning glories were blackberry blossoms… I've yet to see a bee working our morning glories."

Terry especially likes the image of bees wafting over the hedge: "Have you watched your bees against a green backdrop?"

BAR CODES FOR BEES

If you can overlook the narrator swatting at imaginary bees (how dare he!) at the beginning of this video clip, you may be interested to learn how our favorite insects helped develop advanced scanning technology for the now-ubiquitous bar-code.

Back in 1988, the USDA needed to track pollination activities of bees and hired Intermec Technologies (now in Everett) to help. This clip summarizes the project, and though it's promotional, it's yet another example of how useful this tiny creature is:

http://video.barcoding.com/default.aspx?v=8BXWKcmzv

BEE VENOM KILLS HIV

And speaking of the honey bee's usefulness: Science writer, Julia Evangelou Strait, reported in March 2013 that melittin, an active component of apitoxin, has been found to poke holes in the protective envelope around HIV and other viruses.

In addition, melittin-loaded nanoparticles, aka nanobees, can kill tumor cells without damaging surrounding tissues.

"Nanoparticles loaded with bee venom kill HIV,"
published by Washington University School of Medicine:

http://news.wustl.edu/news/Pages/25061.aspx

"Cytolytic nanoparticles attenuate HIV-1 infectivity,"
published in *Anti-viral Therapy*:

http://www.ncbi.nlm.nih.gov/pubmed/22954649