

Lewis County Beekeepers' Association:

December 2012 Newsletter

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 - **WSBA November Newsletter now online.** To read it, visit WSBA's homepage, <http://www.wasba.org/index.htm>, and click on the Newsletter link to the right. If you run into problems accessing either this or the WAS newsletter, below, contact Susanne, and she'll send you a PDF file.
 - **Western Apiculture Society: November Newsletter now online.** To read it, visit: http://groups.ucanr.org/WAS/WAS_Journal.

Please note: repeat announcements, like mentor information & beekeeping supply options, are now posted on our website: visit www.lewiscountybeekeepers.org

FYI: we will not post members' contact information (phone, email, address) online unless individual members authorize this; the secretary's phone and email serve as our online conduit for those who find our group via our website. If you haven't seen our website, please check it out!

Do you have questions, suggestions or resources you'd like to share? Please contact LCBA Secretary Susanne Weil (Susanne.beekeeper@gmail.com or call 360 880 8130. If you don't have internet access, but want mentor or supply information, please call!

UPCOMING LCBA EVENTS:

December 12: LCBA Holiday Potluck, 7-9 p.m (*folks are welcome to arrive at 6:30 to start your crockpots...*). *For location & directions, contact LCBA Secretary (see below for contact information).*

Please mark your calendars for LCBA's 4th Annual Holiday Potluck – we hope you'll join us to share good food, good fellowship, door prizes, & after dinner, a brief monthly meeting with our traditional Beekeeping Q&A. We'll take your suggestions for 2013 speaker topics, too.

Please Bring: a dish of food to share & a plate, cutlery, & cup to eat/drink from. Our venue has tables & chairs, 3 ranges, a refrigerator, & plug-ins for hot pots. LCBA will provide coffee, tea, hot chocolate, & napkins.

Questions? Contact Susanne Weil, LCBA Secretary, at Susanne.beekeeper@gmail.com, or by phone: 360 880 8130.

January 9, 2013: LCBA Monthly Meeting, 7 p.m., 103 Washington Hall, Centralia College.
Topic: Top Bar Hives: an alternative to the Langstroth standard. LCBA VP Dave Gaston will discuss how he uses top bar hives & will have samples for members to view.

January 25: Sue Cobey will speak about WSU's queen breeding program as part of Centralia College's STEM science lecture series, noon, NSC 101. This talk is free and open to the public. More details in our January newsletter!

February 13: LCBA Monthly Meeting, 7 p.m., 103 Washington Hall, Centralia College.
Topic: Swarm & Colony Removals: How They Work. LCBA President Norm Switzler will narrate a slideshow of colony removals done in the past few years. Discussion: what's involved & how interested LCBA members can participate. It's a great way to learn more about bees – as well as save them from the exterminator.

March 9, 16, 23, & 30: WSBA Apprentice Beekeeping class in East County:
Morton Senior Center, 1 to 4 p.m. Registration details are now available – see "Upcoming Events" on our website to download the brochure, or call Susanne (see above). LCBA President Norm Switzler will teach this introductory class with help from Peter Glover, Sheila Gray, and Susanne Weil.

NOTES FROM OUR NOVEMBER 14 MEETING

November 14: LCBA Monthly Meeting, 7 p.m., 103 Washington Hall, Centralia College

Topic: Highlights from October's WSBA/WAS Joint Conference. Susanne Weil & Peter Glover updated LCBA members on bee research presented by the speakers – a number of these talks have been published in the WSBA and WAS newsletters, respectively, so this

write-up will concentrate on what we saw as take-home messages of most value to our group, as well as information we gathered in response to our questions. This newsletter covers Jim Bach's talk on Sustainable Beekeeping, the HopGuard research update, discussion of the questions raised by the HopGuard information, and LCBA's 2013 participation in the WSU Queen rearing project. The Yakima Indoor Over-Wintering project and the Swarm Management information will be written up in our January 2013 newsletter.

“Sustainable Beekeeping”: WSBA Secretary and former Washington State Apiarist Jim Bach – whom some LCBA members will remember as the speaker at our original Bee Symposium in 2008 – kicked off this conference by asking some pretty provocative questions. To begin, Jim asked: how do we measure the sustainability of our colonies? And why are so many beekeepers losing 30 to 50% of their colonies? “If you don't have live bees, you're not a beekeeper,” he noted. When we lose colonies, how many of know exactly why it happened? “Without measurements, you have no reliable data upon which to make sustainable decisions,” he suggested.

Comb residues: as Randy Oliver (*Scientificbeekeeping.com*) has argued, allowing these to build up is like “poisoning the womb of the hive.” In his talk, Jim noted that horticultural chemicals, bee pest and disease management chemicals, all build up in comb – and he urges removing old comb to reduce this problem. We may not have any idea what kind of residues have developed, and yet he noted that one rarely hears of anyone checking, let alone testing, comb: some do cut out old comb, but in his experience, it's done rarely because of time and expense. He urges us to consider: “What is the age of your brood comb? Is it old garbage with bad residues?” Old, contaminated comb will affect the queen's laying, too (not in a good way).

A recent article in *Bee Culture* suggested that rather than subjecting our colonies to unnecessary extra inspections, we should all simply assume that we have Varroa in our colonies and treat for it – yet without measurements, following that advice might mean imposing needless treatments on bees, risking miticide buildup in comb, and aiding mites themselves in building resistance. Though Jim did not directly reference that article, his talk challenged its assumptions.

Jim does not advocating *not* treating for mites – but urges that when we do, we follow directions carefully and record results we observe. For example, he used Mite-Away Quick Strips (MAQS) with gel, yet never did smell residue (though that is a common complaint). He had neither queen nor brood loss – some loss of hatching just below the strip, but not in the rest of the colony. He noted that others have seen bees boil out of hive after applying MAQS, but this may mean the strips were used at too high a temperature – if you applied in heat of day, did bees go back in at night? If they did not, perhaps the MAQS should be applied at a different time. Further, MAQS' manufacturer now says that beekeepers can use just one strip, so if you use MAQS, it's worth considering not over-medicating. Observe and record results, then evaluate what to do – perhaps differently – next time, based on those observations.

Another question Jim posed: what do you consider a good queen? How do you measure her quality? Geneticists say that the bee gene pool is too narrow; meanwhile, queen losses ranging from 15 to 75% have been reported, which is “costly if not unsustainable” and has put

many queen breeders out of business. If you are raising your own queens, Jim urges: consider the parent stock. Why do bees reject a queen? In some queen cages Jim's seen, queen banks had virtually no bee coverage, but others did. This suggests that bees are selecting, but why? Were those queens not as attractive as the ones bees covered? Jim thinks that when we see something like this, the problem is a queen lacking pheromonal attractiveness. Many queens are only truly productive for one year, he suggests. A healthy, attractive queen should be surrounded by 10 to 15 bees. If there are only 4 or 5 around her, you'll hear a "queenless roar," that 65-85 decibel fanning sound. But you don't need to run out and buy a decibel meter – just count the bees in the queen retinue, and you'll know whether you have a problem in the queen department.

Still another question: are we achieving genetic variability that will guarantee sustainability? There's little data available. WSU has been working to bring genetic variance from Europe, and he hopes that beekeeping associations (like ours! – see below) who take advantage of WSU's queen distribution program will follow up by sharing data on queens' success with WSU, to help them know what's working. Jim was asked: is it best to breed from survivors – the Darwinian approach? Jim thinks that this is reasonable, but that anyone doing this needs to keep data to understand why the losses happen – and, conversely, why successes happen.

Jim's final message: "Knowledge Develops Skill." Apiculture is a science, and there is far more to know than you'll ever get in a beginner course. If we observe bee behavior, interpret it, and thereby learn to facilitate what our colonies need, we can sustain economic and timely decision making. Jim suggested that not enough people simply watch their bees' behavior. When we open a hive, we should hear a quiet hum (rather than the "queenless roar," above). We should work toward feeling comfortable enough with our bees to be able to walk into our yards without suiting up (unless pulling frames, I'm assuming!).

Apropos of Jim's urging that we devote more time to observing our bees, Renzy Davenport recommended a book about observing bees titled *At The Hive Entrance* by H. Storch, 1985. Betterbee sells hard copies for \$19.95, or you can read it online at: <http://www.kootenaybees.ca/At%20the%20Hive%20Entrance.pdf>.

For more details from Jim's talk, check the November issue of either the WAS or WSBA Newsletter (see links, above). Jim had much more to say: the above are points that really resonated for us. Your scribe must confess feeling personally indicted by Jim's talk: for the first time, this year we lost colonies, and though we have reasonable conjectures about why (Varroa weakened them, then yellow jackets wiped them out), we didn't take measurements or keep careful enough records, and now must try to figure out what to do better next year. For example, we didn't get around to counting mites on our sticky boards – a practice that Jim urged as one of many ways to keep tabs on just what's going on with our bees so as to act to prevent problems – nor did we get around to sending samples to WSU, a resource that Jim noted is under-utilized. Renzy, our September speaker, gave us an overview of how easy it is to use WSU's service, how responsive they are, and we now have their forms posted on our website (under Resources and Links). This beekeeper's first 2013 New Year's Resolution: take advantage of these resources, and keep tabs on Varroa, Nosema, and other threats!

HopGuard: One talk your scribe was eager to hear was Dr. Gloria DeGrandi-Hoffman's (USDA/ARS Tucson) latest research on the effectiveness of this highly touted miticide. Most Varroa treatments only knock down phoretic mites (hitchhikers parasitizing adult bees) and fail to penetrate capped brood to kill mites infesting larvae – however, the fume treatments that do penetrate brood cells not only kill bee larvae along with the mites, but can accumulate in comb. HopGuard, too, addresses only phoretic mites: but, derived from beta plant acids, it carries the GRAS – “generally rated as safe” – label given to food products. The EPA and USDA have made emergency regulation exceptions to streamline HopGuard onto the market in 18 states that have applied for it, including ours: according to the USDA, every treatment prior to HopGuard has failed to control Varroa effectively, and since bees are in such serious trouble, even though HopGuard has not been thoroughly tested, early findings seemed positive enough to persuade the USDA/ARS and EPA to green-light the product. (For the ARS's breakdown of different Varroa treatments and their failings, see the list that follows the end of this newsletter, below.)

Dr. DeGrandi-Hoffman began by acknowledging that HopGuard needs improvement. It reliably knocks down phoretic mites for about 7 to 10 days, but as new bees emerge, new mites emerge with them. At this point, she says, HG's what we've got, and she and her colleagues are trying to find best way to use it for beekeepers' mite control programs. Their first set of tests focused on trying to “clean up” packages, treating early so that new packages would be relatively mite-free. They found that whereas using 2 strips killed 90% of mites, using 3 or even 4 killed 95%: queens weren't killed, and the numbers of workers who died in the 3 strip condition were, she said not significantly higher than the no strip condition, though more did die in the 4 strip condition. Regardless how many strips were applied, though, she was surprised by how tenaciously mites rebounded later in the season.

In the next test, they experimented with treating at different times of the year. 5 colonies only got treated as packages; 5 got treated both as packages and as June colonies; 5 got treated in the package, in June, in August, and in September; 5 got treated in the package, in August, and in September; and 5 colonies got no treatments at all. After initial knockdowns, though, they found that by the time October rolled around, the mite levels for the colonies “either treated in the package or in June were similar to those that did not receive any treatments.” She commented that they were surprised by how fast the mites' reproduced and replaced their numbers following the initial treatment knock-downs. The one really significant time for treatment seems to be January – those colonies that were treated in January and then at later times in the year showed much lower mite levels, and were much better off than untreated colonies. However, these tests were done in Arizona and southern California – it's doubtful that many of us in the Pacific Northwest will want to risk opening up our hives in January.

It's probable that the strong January results had to do with the relative lack of brood in which mites could be harbored. Dr. DeGrandi-Hoffman's last set of tests focused on taking advantage of the “broodless window” to maximize HopGuard's effect, using splits, and found that for both splits with queen cells inserted (treated 21 days after split) and splits with mated queens (treated 14 days after split), they found significantly fewer mites by September than prior to treatments. However, they needed to count mites in November to see what would happen in October, when mite populations rebound as bees' reproduction winds down – this had not yet been done as of the WSBA/WAS conference.

Dr. DeGrandi-Hoffman recommends treating packages within 9 days of getting the package, before workers have sealed any brood cells, as a way to get rid of any mites that come with the package. Despite this, though, we need to be aware that mites will keep coming back, and fast: as she writes, “an unexpected observation in all of the studies was how quickly mite populations increased throughout the year. Though mite numbers were very low in March or June, by the fall they were high enough to need further miticide treatment, suggesting that mite reproductive rates might be higher than previously reported and thus mite populations may increase at greater rates than expected.” In Q&A, Dr. Eric Mussen from U.C. Davis noted a study which showed that no matter what treatments are used, mites rebound by October, partly because the mite population is spiking while the bee population is dropping, but also because mites migrate from collapsed colonies to healthy ones – and since mites can travel up to a mile, they can infest an entire bee yard.

Dr. DeGrandi-Hoffman was asked what one of our LCBA members wondered at this meeting: would bees foraging on hop nectar get benefits similar to those treated with HopGuard? Her answer was that since HopGuard has pure, more concentrated compounds, using the strips may be better. Of course, it would be interesting to try a hop nectar experiment!

One last, poignant question was: how long until mites become resistant to HopGuard? Candidly, Dr. DeGrandi-Hoffman acknowledged that if she were a commercial beekeeper, she would rotate HopGuard with other approaches to try to avoid resistance. Her response led your scribe to wonder:

Miticides and Varroa destructor resistance: What's a Beekeeper To Do?

Miticide resistance among Varroa is well documented: in fact, mites have developed resistance to every known miticide, according to a 2010 study titled “Varroa mites and honey bee health: can Varroa explain part of the colony losses?” (LeConte, Ellis, and Ritter, available at www.apidologie.org; if you'd like to read the PDF for this study or any of the studies referenced below, email Susanne). The paper documents how acaricides like fluvalinate, amitraz, and coumaphos became ineffective in the 1990s because mites developed resistance. The writers' argument is that treatments kill the weaker mites but leave the stronger ones to survive to breed: in short, that which does not kill Varroa makes them stronger, so, “over time, the mite population becomes increasingly resistant.” Thus, they argue that treatment only compounds the Varroa problem.

If our treatments are causing problems, then what about hygienic behavior (uncapping and removing infected brood) and grooming behavior (bees helping other bees remove phoretic adult mites) – can we rely on the bees' own natural defenses to stave off the Varroa apocalypse? A Greek study done earlier this year discovered that in their bite – yes, bees can and do bite creatures too small for them to sting! – bees secrete a chemical called 2-heptanone which stuns not only Varroa mites, but wax moths, giving the bees a window of opportunity to kick these enemies out of the hive (see “The Bite of the Honeybee: 2-Heptanone Secreted from Honeybee Mandibles during a Bite Acts as a Local Anaesthetic in Insects and Mammals,” Papachristoforou *et al.*, 2012). Bees' bites penetrate the exoskeleton of phoretic mites and inject 2-heptanone:

mites are paralyzed, then drop off the bee and die. The focus of this article was whether 2-heptanone could be used in anaesthetics for people, but it begs a question: if bees have the means to destroy Varroa in their own mandibles, why don't they deploy this power more often?

Other studies suggest why not. Another 2012 study found that, as its title summarizes, “Age and reproductive status of adult Varroa mites affect grooming success of honey bees” (Kirrane *et al.*). These researchers found grooming on the first day of mites' emergence was most effective; after that, grooming caused much less mite drop. They attribute this to the hardening process that mites' exoskeletons undergo after emerging from the pupa's cell – because the daughter mites' exoskeletons hadn't hardened enough for self-defense, they were easier for the bees to remove by grooming. Many studies have focused on hygienic behavior, and many breeders, including WSU, are working to breed bees who express this behavior; these studies suggest that grooming behavior, too, should be selected for.

Another new study has found genes that may drive hygienic behavior in our bees. Scientists at Purdue are working to isolate specific genes that govern the trait called “Varroa sensitivity hygiene”: they identified three leading candidate genes which govern bees' sense of smell and may trigger behavior that leads bees to find and destroy Varroa-infested pupae, thereby interrupting the reproductive cycle of the mites.

Meanwhile, at the University of British Columbia, a separate study has shown that bees have evolved proteins in their antennae to promote hygienic behavior: damaged larvae release these proteins when Varroa are present, and adult bees then uncap and remove parasitized larvae from brood comb. Referencing miticide resistance, these researchers suggest that if beekeepers get information to help them select colonies based on concentrations of these proteins in their bees, we may be able to lessen Varroa infestations in hives. (For more information and links on both of these studies, see “Bees in the News, below.)

Speaking of breeding a better bee: yet another 2012 study, “Host adaptations reduce the reproductive success of Varroa destructor in two distinct European honey bee populations” (Locke, Le Conte, Crauser & Fries) suggests a genetic reason why beekeepers' efforts to control mites may actually be harmful. Of course, we know that heavy *Varroa destructor* mite loads open the door to viruses that kill colonies – but that's true of our European bees (*Apis mellifera*), not the Asian bees (*Apis cerana*) with whom Varroa mites co-evolved. But wouldn't it make sense for Varroa to co-evolve with European bee species? A parasite can't thrive, after all, if it wipes out its hosts. This co-evolution may be taking place in France and Sweden, where this new study found feral bee colonies that “have survived mite infestation for extended periods of over 10 years without management by beekeepers.” In fact, the study showed that managed bees in the same areas actually fared worse being treated for mites than these wild bees did with no intervention at all. The writers conclude that the feral bees had “evolved resistant traits that reduce the fitness of the mite (measured as the reproductive success)” by about 30%. As an apparent result of reducing mite populations, the colony was able “to evade the development of overt viral infections.” They suggest that if bees can survive to continue breeding, ultimately they may either develop tolerance of the mites, or may end up with Varroa that do not have successful enough reproduction rates to take down colonies (to read more, visit:

<http://onlinelibrary.wiley.com/doi/10.1002/ece3.248/pdf>).

But can we stop treating our bees for Varroa long enough for co-evolution to happen? Would enough of our bees survive? Bees in Europe don't struggle with the "genetic bottleneck" that American bees do. The 2011 FY Annual Report from the Agricultural Research Service offers hope: although Varroa has taken a terrible toll on feral bees in the U.S., in Baton Rouge, Louisiana, new and vigorous colonies of feral bees have developed near Russian apiaries which have Varroa resistant honey bees: the feral bees are predominantly Russian in parentage. "This observation suggests that feral populations of honey bees will rebound in areas that have beekeepers that use Varroa resistant stock," the ARS report notes. This is yet another reason to support the work WSU and the USDA are doing to bring in European stock to diversify our bees' genetics – and LCBA is going to get the chance, this spring, to get two Caucasian queens from WSU for grafting in our new queen rearing project (see below). We may want to look at obtaining Russian queens from the USDA's project as well.

Speaking of genetics: it's not just the bees' genes that are getting analyzed. Scientists in Scotland who mapped the genome of the Varroa mite in 2010 – and found evidence that various specific Varroa genes could be "silenced" – have won new grant funding to isolate genes that might – ideally – stop Varroa from successfully attaching themselves phoretically to adult bees or from infesting larvae (see "Bees in the News," below, for more information and links).

While we're waiting for more news on the genetics front, is there anything else we beekeepers can do to help our bees survive Varroa infestations? One very practical approach has been suggested by Dr. Steve Sheppard on the WSU-APIS lab website: he summarizes a 2004 paper that describes how Varroa invades on bees' hemolymph leaves bees less able to synthesize key proteins – vitagellin - for over-wintering. If Varroa is in a colony, he suggests that the fall bees who will overwinter have already been affected and have less protein storage capacity. This means that rather than treating for Varroa in fall, it may make more sense to feed protein supplements to help the over-wintering bees make up the protein deficit that Varroa has caused.

At the end of the day, we may do best by our bees if we try multi-pronged approaches to Varroa. Randy Oliver (www.scientificbeekeeping.com) is a believer in treatment and uses both HopGuard and MAQs in conjunction with additional approaches, listed below; those of us who are concerned about perpetuating Varroa resistance to miticides may choose to go with these other options alone:

- Making splits early to create broodless windows that interrupt mites' reproduction cycles;
- Treating with more natural substances like oxalic acid and thymol, which haven't (so far) led to resistant mites;
- For phoretic mites, using organic treatments like powdered pure cane sugar dusting;
- Feeding pollen patties in fall to bulk up protein in over-wintering bees that may have been compromised by Varroa infestation; and
- Selecting queens bred for hygienic behavior and resistance to mites, like WSU's.

WSU Queen Rearing Project – Queens for LCBA:

At the WSBA/WAS conference, Dr. Steve Sheppard told your scribe that LCBA can get two Caucasian queens from WSU in spring/early summer 2013. These queens can be put to use in the queen rearing project that VP Dave Gaston and President Norm Switzler are organizing (let us know if you are interested in participating!). In return, we are asked to complete quarterly reports on the APIS website to help them track how well their queens are doing. The WSU Caucasians are not only bred to be hygienic, but are also reputed to be gentle bees: according to *Beesource.com*, Carniolans and Caucasians are “high” in “gentleness,” whereas Italians are only “moderate,” and the Varroa-resistant Russians are rated as “low-moderate.”

November Business Meeting:

President Norm Switzler was home sick, so Secretary Susanne Weil conducted the business meeting. Agenda items included:

- **Clarifying our group discount status with Ruhl Bees:** A number of club members have traveled to Portland but not received the 5% discount that we had thought LCBA members were eligible for. Treasurer Jon Wade met with Ruhl Bees’ owner, John Edwards: Jon reported that while Ruhl’s does offer a 5% discount for beekeeping associations, orders need to be arranged in advance by one person responsible for compiling the order list. About a thousand dollars is typical, but Ruhl’s appreciates LCBA business and would not reject a smaller order provided that it is coordinated by one person ahead of time.
 - Because it is cumbersome to coordinate group under the terms outlined, LCBA’s board decided not to organize equipment orders from Ruhl’s. As a nonprofit, we should not endorse specific vendors in any case. Nearby local vendors, such as Honey Hut in Centralia and Beeline in Rochester, are also deserving of club members’ support. Online vendors Mann Lake and Dadant offer discounts and/or free shipping for orders over specified minimums. Members can check the Beekeeping Supplies link on our website (under Resources and Links from the homepage) for a list of vendors (including contact information and links to their homepages).
- **WSBA Journeyman course: options for LCBA members:** Many among us have completed WSBA’s Apprentice course: we discussed whether a group might take on the next of WSBA’s courses, the Journeyman level, to improve our skills. To earn Journeyman certification, students study for and take ten tests, including a home apiary inspection, and register “service points” for things like mentoring new beekeepers, giving talks, doing swarm and colony removals, serving as board members, staffing at the county fair, etc. Louis Matej, who coordinates the course for WSBA, said that Charles Bennett, our October speaker, would be the person to administer our tests and apiary inspections. Journeyman students pay \$10 for a booklet.

- Renzy Davenport, who is in the process now with a group from Olympia Beekeepers, cautioned that whereas the WSBA Apprentice course is very structured, the Journeyman course is self-paced and requires independence. A group working together may have to put out extra effort to find the specific materials that the course requires, and the tests are keyed to those specific resources. It was suggested that a club librarian could help with this: the board will look into this.
- Jon Wade is also in the Journeyman process at Olympia, and Jon and Renz both reported that one valuable feature of the training is the discussion and camaraderie with fellow students in a working group: this helps make up for the challenges of “going it alone.”
- Those interested in taking on the Journeyman challenge so far are Todd Baty, Tim & Deanna Brix, Dave Gaston, Peter Glover, Steve Howard, Ted Saari, Gary Stelzner, Norm Switzler, Susanne Weil, and Kim Weiland. *If you would like to join this intrepid band, please contact Susanne.* The Board will look into details, such as meeting places and times.
- **East County Beekeeping Classes in Morton: update:** Susanne reported that the overview class in Morton on Nov. 10, taught by Norm with an assist from Peter and Susanne, was a success: 16 attended, and 12 are interested in taking the WSBA Apprentice course in spring (since then we have heard from 3 others who want the class). Attendees reported that they appreciated Norm’s “laid-back style.” Sheila Gray, our Lewis County Extension liaison, has arranged for the Morton Senior Center to host the course from 1-4 p.m. on Saturdays, March 9, 16, 23, and 30. Bruce Casaw is willing to host a hands-on workshop for these students at his bee yard in Mossyrock. There was enthusiasm about making LCBA activities more accessible for our East County beekeeping friends.
- **Membership directory:** Steve Howard and Susanne are working to finalize the membership directory form, which will be available at our December potluck meeting. The Extension office is willing to help us produce a directory like that of the Master Gardeners to help LCBA members identify nearby beekeepers with similar interests. Steve has volunteered to take pictures for the directory, so get ready for your close-ups ☺
- **Holiday Potluck, door prizes, & more: update on plans / your suggestions:** It’s that time again: get your crock-pots humming for our 4th (!) annual holiday potluck, Weds, December 12, 7-9 p.m. (for location and what to bring, please see the announcement, above, under Upcoming Events). *Folks are welcome to arrive at 6:30 to warm up dishes.* We hope you’ll come and share good fellowship and food with us again this year. Family members are welcome even if they are not beekeepers! We will also have our traditional door prizes: if you have items to donate, please bring them along to add to the festivities. If anyone’s struggling for menu ideas, check our “Cooking with Honey” link under Resources & Links on our webpage. . . .

- **January is dues month: update on the benefits of membership & our LCBA scholarship fund:** Jon reported on upcoming dues. Per our revised bylaws, dues are now due in January and are \$24 for individuals or families. New members pay an additional \$10 join-up fee, unless they have taken / are taking the WSBA apprentice course – in that case, that fee is waived. Dues support association expenses, such as website fees, newsletter expenses, venue rental for the holiday potluck, workshop supplies, and contributions to Growing Place Farm’s hive, as well as occasional purchases by the club (e.g. the observation hive). We have a scholarship fund from members’ donations to help support anyone in need: just contact a board member.
 - Gary Stelzner, our Mentorship Coordinator, noted that the board is looking into sponsoring honorary memberships for a local high school boy and girl in 2013. We would pay for them to attend the Apprentice course and assign them a mentor. We don’t get many young people coming to our meetings and this might help shift that. Renzy noted that Olympia’s club did this and gave the young folks bees; they reported to the club on how things went (the kids, not the bees). We could advertise this not only with local high schools, but with the Boy and Girl Scouts, 4H, and Future Farmers of America groups. The board will continue to work on this; meanwhile, if you would be interested in mentoring a new teen beekeeper, please contact Gary or Susanne.
- Member announcement! Ted Saari reported that his son is starring in “The Lady Pirates of Captain Bree” at W.F. West, December 7, 8, 14, and 15. Kathy Saari has made the costumes. For more information, visit: <http://www.chehalis.k12.wa.us/wfw/AthleticsActivities/DramaTheatreThespians>

BEES IN THE NEWS:

Three new studies offer hope from the frontlines of the *Varroa destructor* apocalypse. First up:

“Scientists find genes that help bees defend against mites”: Scientists at Purdue are working to isolate specific genes that govern the trait called “Varroa sensitivity hygiene,” known to beekeepers as hygienic behavior. Starting from 1300 markers, they have isolated 27 genes and identified three leading candidate genes which govern bees’ sense of smell and may trigger behavior that leads bees to find and destroy Varroa-infested pupae, thereby interrupting the reproductive cycle of the mites. According to lead researcher Greg Hunt, “Bees are fighting back. They're getting rid of the mites themselves . . . We can select for these traits now, but it's tedious. If we can identify the genes that influence these traits, we could develop better methods to screen for these genes and speed the process.” To read more, visit:

<http://www.agprofessional.com/news/Scientists-find-genes-that-help-bees-defend-against-mites-177970541.html> . To read a PDF file of the complete study online, visit: <http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0047269>

Next, ***“Honey bees fight back against Varroa”***: Honey bees have evolved proteins in their antennae to promote hygienic behavior, according to a recent study at the University of British Columbia. Damaged larvae release these proteins when *Varroa destructor* is present, and adult bees then engage in uncapping and removing parasitized larvae from brood comb. Since Varroa are becoming increasingly resistant to miticides, the researchers suggest that beekeepers selecting colonies based on concentrations of these proteins in their bees may be able to lessen Varroa infestations in their hives. For more information, read *Phys.org*'s account of the study: <http://phys.org/news/2012-09-honey-bees-varroa.html>. The full study is available online at BioMed Central's open access journal *Genome Biology*: <http://genomebiology.com/content/pdf/gb-2012-13-9-r81.pdf>.

Finally, ***“Vita helps fund new research to halt honey bee killer”*** describes how massive new grant funding has been made available to researchers in Aberdeen, Scotland, who are seeking to build on 2010 research that mapped the genome of the *Varroa destructor* mite itself. It may prove possible to “silence” specific genes in the mite. Work is now underway to isolate genes that might – ideally – stop Varroa from successfully attaching themselves phoretically to adult bees or from infesting larvae. For more information, see: <http://www.vita-europe.com/new-money-for-research-to-halt-honey-bee-killer/>. For a BBC News report on the original study, visit: http://news.bbc.co.uk/earth/hi/earth_news/newsid_9306000/9306572.stm

“Honey Bee Die-Off Shouldn't Sting”: CNN Money reports that despite honey bee die-offs, beekeepers and farmers have thus far managed not to pass along costs of bee replacement to consumers. Their reporter comments, “So while it doesn't appear to be translating into a food shortage or even sparking a price spike for consumers, the bee die-off remains a scientific mystery and perhaps a cause for concern about our environment.” “Perhaps”? Wake up and smell the coffee, CNN Money (and realize that without honey bees to pollinate the flowers of the coffee bean tree, you might not have morning Joe to smell). To read more complacent foolishness, visit: http://money.cnn.com/2012/02/07/news/economy/honey_bees/index.htm.

“A Sculptor Creates a Stop on the Bee Train”: A subway stop in Brooklyn has been graced by bronze doors featuring 400 sculpted honey bees on hives and flowers, thanks to a grant to help artists make New York a more beautiful place. (As a native New Yorker, your scribe can attest that bee art could only help!) For more information & some beautiful photographs, visit: <http://www.nytimes.com/2012/08/02/garden/a-sculptor-creates-a-stop-on-the-bee-train-qa.html?ref=bees>. Someone tell Bill Gates: maybe Olympia could have something like this!

Visit Glenn Apiaries' comprehensive Bee News page for a fascinating compilation of articles on bees, all with clickable links. Pretty much any topic you can imagine you'll find archived here: http://www.glennapiaries.com/honey_bee_beekeeping_news.html.

LCBA Announcements & Upcoming Educational Opportunities:

January 25, 2013: Sue Cobey will speak on WSU's queen breeding program as part of Centralia College's STEM lecture series, noon, NSC 101.

This talk is free and open to the public. More details in the January newsletter!

March 9, 16, 23, & 30, 2013: WSBA Apprentice Beekeeping Class – March 2013 – East County: If you missed our fall 2012 class, mark your calendar for March 9, 16, 23, and 30, 2013: President Norm Switzler will teach the WSBA Apprentice class on these Saturday afternoons, 1 – 4 p.m., at the Morton Senior Center.

2013 Educational Opportunity ~ WASBA Journeyman Class: A group of LCBA members is forming to tackle this class in 2013. If you'd like to join, please contact secretary Susanne. For basic details on the Journeyman program, visit <http://www.wasba.org/master.htm>. If you're interested in the Master Beekeepers' course, contact Louis Matej at journeyman@wasba.org or 253-921-5612 for the syllabus.

WSBA's November Newsletter now online: WSBA's latest newsletter presents summaries of some talks from October's conference, including the HopGuard information. To read it, visit WSBA's homepage, <http://www.wasba.org/index.htm>, and click on the Newsletter link to the right. If you run into problems accessing either this or the WAS newsletter (below), contact Susanne, and she'll get you a hard copy.

Western Apiculture Society's November Newsletter now online: Among many informative articles, you'll find Jim Bach's provocative talk, "What Is Sustainable Beekeeping," along with a number of articles by speakers from last month's joint WSBA/WAS conference in Tukwila. To read it, visit: http://groups.ucanr.org/WAS/WAS_Journal.

WAS Invitation: Western Apicultural Society's secretary, Betty Farber, invites beekeepers to join WAS, both individually and as associations. Those interested in serving as WAS directors (who represent their state on the WAS Board for 3 years) or delegates (who represent individual beekeeping organizations) can check our website for more information: visit our Helpful Beekeeping Sites page under "Resources & Links" and click on the PDF file.

June 2013: WSU – WSBA Bee Field Days: WSU-Pullman's APIS Lab will host WSBA again this June. All Washington State beekeeping societies/members are invited. More details – date, workshops, cost – will be posted on our LCBA website & announced in the newsletter as soon as they're available. Road trip to Pullman, anyone?

Late summer/early fall 2013: The 2013 WAS conference will be held in Santa Fe, New Mexico (road trip, anyone?). Updates will be posted in upcoming newsletters.

October 31 – November 2, 2013: WSBA/ORSBA Conference, Seaside, Oregon. WSBA will co-host its annual conference with the Oregon State Beekeepers' Association next year. Updates will be posted in upcoming newsletters (theirs & ours :).

Respectfully reported—best wishes for a happy, healthy holiday and a joyful 2013!

Susanne Weil, LCBA Secretary: Susanne.beekeeper@gmail.com; 360 880 8130

ARS/USDA [Maine] breakdown of Varroa mite treatments and their problems:

Information below is from the Maine division of the USDA 2012 emergency exemption from tests to allow use of Hopguard: for graphs and further information, visit:

http://www.maine.gov/agriculture/pesticides/pdf/board/agenda_documents/jul12/Section-18-Hopguard-combined-files_7-12.pdf

Among other interesting notes, this ARS report compares HopGuard's effectiveness with that of other products v. varroa. They note that toxic accumulation in comb isn't known yet; also that if used with other products, that may reduce chance that varroa mites will become resistant to HopGuard.

- Apistan (fluvalinate) and Checkmite (coumaphos) are routinely detected in the wax combs in honey bee colonies, creating an additional negative impact on colony health.
- ApiGuard (thymol) is too labor intensive for the large-scale commercial beekeeping operations due to its temperature dependency and bee mortality risk (Floris et al. 2004).
- Api Life Var (thymol/eucalyptus oil/menthol) is not being used because it is reported by beekeepers to be ineffective in killing Varroa mites. In addition, bee mortality has been reported (similar to ApiGuard).
- Mite Away II (formic acid) was another vapor-action pesticide that was formulated as a presoaked pad. The Maine registration for this product was discontinued by the company in 2011 and replaced by Mite-Away Quick Strips.
 - o Mite Away 2 was hazardous to the applicator unless it was handled very carefully. Control of mites was not adequate even when temperatures fell within the recommended range. The product was ineffective if the temperature was too cold and the bees may be driven out of the hive by the vapor if the temperature was too hot (Calderone, 2009).
- Mite-Away Quick Strips (formic acid) is also hazardous to the applicator unless it is handled very carefully. It is also associated with queen loss, adult bee/brood mortality and absconding when used during hot temperatures.
- Sucrose octanoate esters (Sucroicide) is a contact pesticide that is formulated as a liquid, but is not registered in Maine. It may be useful for hobby beekeepers with a few colonies; however, it is not useful for large commercial beekeeping operations because of the need to remove each individual frame and spray with product, thus making the procedure too labor

intensive. This product can be very harmful to bees if not applied at the correct rate (Sammatro, et al., 2008).

For additional information see the FY 2011 ARS Annual Report:

<http://www.ars.usda.gov/SP2UserFiles/Program/305/PDFsofAnnualReports/NP%20305%20FY2011%20Annual%20Report.pdf>