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September 2014 LCBA Newsletter

In This Edition:

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 EVENTS:

September 6: Fall Management Issues Workshop

When: 1 p.m. to 3 p.m.

Where: Winlock (for directions, please RSVP to Susanne (see page 1 for contact info)

What: What to look for when doing fall inspections? Testing for mites, treatment pros & cons, treatment methods, when to / how to combine colonies, fall feeding, & more. Discussion to follow. If you couldn't schedule this, no worries – come to our Sept 10 monthly meeting & bring your questions!

September 10: LCBA Monthly Meeting – Fall Management Issues

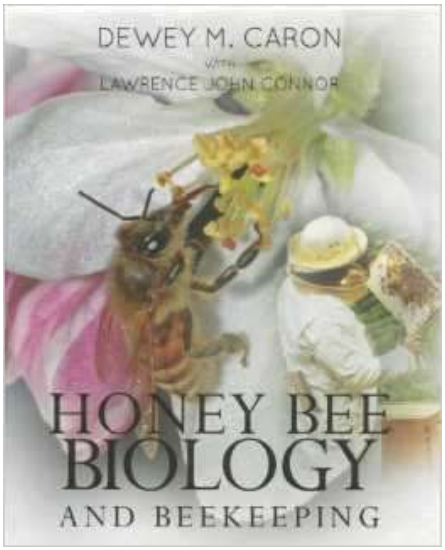
When: 6 – 8:45 p.m.: Social Time 6 to 6:30 p.m.

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

Topic: Improving Fall/Winter Survivorship / What You Can Do This Fall

Speaker: Dr. Dewey Caron: Bee losses in the Pacific Northwest were fearsome this past winter: Dr. Dewey Caron, affiliate faculty in Entomology at Oregon State University and one of the driving forces behind BeeInformed's bee loss survey, will update us on losses, broken out by Langstroth v.s. Top Bar v.s. Warre hives. His main focus will be take-home messages from BeeInformed's research on "what we as beekeepers can do – before fall weather closes us down – to raise the bees that are going to raise the bees to pass the winter: fall management with emphasis on helping improve survivorship." Q&A from LCBA members to follow.

FYI: There will be NO business meeting or drawing this September – after the break, we'll have presentations on fall management how-tos – feeding, assessing food supplies, combining weak hives, testing for pests/disease, treatment pro/cons, and Q&A. Please bring your questions, ideas, & experiences with preparing your bees to over-winter.



Above left – Dr. Dewey Caron's latest bee text, revised with Larry Connor; right, Dewey in his bee yard.

September 13: Honey Spinning Workshop

When: 10 a.m. to 4 p.m.

Where: Winlock (for address & directions, please RSVP to Susanne – see page 1 for contact)

What: LCBA members – bring your honey frames to spin! Limit, 2 supers, so wait times won't be extreme – if you need to spin more honey, contact Susanne & we'll set it up. Our new club extractors will be on hand, plus gear loaned by board members – uncapping tanks, hot knives, etc. Please bring buckets for your honey – food grade! Ed Carter & Sue Allen report that Spiffy's Bakery in Napavine, 115 2nd Ave. N.E., is selling food grade buckets for $3. Used buckets are also sometimes available for sale by WalMart and Safeway. If you don't have honey to spin but want to see how it works, please come! Refreshments provided & members are welcome to bring some too and make it a party ☺

Above left, Dahlia displays her honey; right, Greg & Sally Weber, Gordon Bellevue, & Ted Saari in various stages of honey extraction at our 2013 workshop.

September 17-20: Western Apicultural Society Annual Conference & 2nd International Workshop on Hive & Bee Monitoring

Where: University of Montana, Missoula

For Details & Registration Information, Visit: http://ucanr.edu/sites/was2

What: Hands-on workshops, talks, & displays, plus 2 keynotes:

(1) Thurs, Sept 18: Keynote Speaker: Dr. Eric Mussen, UC Davis: "Eric will be talking about what has changed in beekeeping during his professional lifetime. You know him - entertaining, informative, plain spoken and easy for anyone to understand, be they beginner beekeepers or ones with decades of experience."

(2) Fri, Sept 19: "G. Philip Hughes, Senior Director of the White House Writers Group of Washington, D.C.; Former Ambassador and White House National Security Aide for Presidents Robert Reagan and George H.W. Bush, will address the neonicotinoid pesticides and bees debate, giving a play-by-play of how this issue has been played out, highlighting issues ignored, misstated or oversimplified by media & politicians."

(3) Sat, Sept 20: Workshops "covering a variety of practical topics of interest to beekeepers and geared especially for those folks who cannot get away to attend the earlier events."

(4) Missoula's Honey Harvest Festival will be in full swing, too.

September 27: "Getting Started in Beekeeping" ~ Free Overview ~ Open to the Public

When: 2:15 – 3:30 p.m.

Where: Centralia College, Washington Hall 103, following Gardening for Everyone

What: Are you, family members, or friends interested in taking a beginning beekeeping class? LCBA board members will lead this free overview of what's involved in beekeeping – time, equipment, costs, rewards, "bee bio 101," hive inspections, bee management, & more, plus a preview of our fall LCBA/WSBA Apprentice class (see October 4, below). PowerPoint slideshow plus "show & tell" demonstration equipment. Children welcome! Questions? Call 360 880 8130, or email susanne.beekeeper@gmail.com.

Above, LCBA Membership Coordinator Tomme Trikosko at 6-21-14 workshop; Tomme, who's been keeping bees for several decades, joins our cadre of beekeeping instructors for this fall's class after embedding the WSBA curriculum in her spring 2014 animal husbandry class at Toledo High School.

Coming Saturdays this October/November: LCBA's BEGINNING BEEKEEPING CLASS

When: October 4, 11, 25, November 1, 8, from 9 a.m. to noon

Where: Centralia College Student Center, 212 S. Rock, Centralia WA 98531

Registration Brochure: available under "Upcoming Events" on LCBA's website (or ask Susanne for a copy). LCBA offers the Washington State Beekeepers' Association's apprentice beekeeping curriculum. The class builds core beekeeping skills and covers basic bee biology/behavior, equipment & apiary set-up, seasonal management, identifying & managing pests, honey harvesting, and over-wintering. Students completing the course earn WSBA's Apprentice certificate & can advance to Journeyman & Master Beekeeper courses. Washington State Beekeepers' Association manual lays out basics for beginning beekeepers; LCBA's PowerPoints & demonstration materials supplement manual with visuals. Questions encouraged; children welcome. Post-Course Support: LCBA's free Mentor Workshops give hands-on guidance in working bees. Students who join LCBA are eligible for discounts on spring package / nuc bee orders & free consultations with an individual "bee mentor." Course cost: $35 individual, $50 couple/family. Fall 2014 instructors: Tomme Trikosko, Norm Switzler, Bob Harris, & Jon Wade.

Left, Island County Extension Director Tim Lawrence, our Oct 8 speaker; right, Tim minus bees.

October 8: LCBA Monthly Meeting

When: 6 – 8:45 p.m.: Social Time 6 to 6:30; Speaker, 6:30 to 7:30; Business Meeting & Beekeeping Q&A, 7:45 to 8:45

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

Topic: Neonicotinoids & Bees; Bee Biodiversity

Speaker: Dr. Tim Lawrence: A longtime beekeeper, Tim is Extension Director of Island County. Based on Whidbey, Tim works with WSU's Entomology department researching a wide range of honey bee health issues, including his recent joint project with Steve Sheppard sampling Washington colonies for traces of neonicotinoids. His talk on "Human Dimensions of CCD" was one of the highlights of the October 2013 WSBA Conference.

Nov. 6-8: Oregon State Beekeepers' Association Conference

Where: Seaside Civic & Convention Center, Seaside, Oregon

What: WSBA encourages beekeepers to go to this year's Oregon Beekeepers Association conference. Their speaker roster (attached to this newsletter) reads like a who's who in bee research: Dennis vanEngelsdorp will speak on drivers of bee losses; Marla Spivak will speak on how conversion of resins to propolis affects bee health; Steve Sheppard will speak on the honey bee gene repository; Dewey Caron & others will speak on efforts to breed local queens; other speakers include Kim Flottum, Ramesh Sagili, & Paul Anderson. Additional topics include tree bee hives, predicting/managing pesticide losses, connecting kids with beekeeping, & much more. The full schedule is attached in PDF to this newsletter & posted on our website under upcoming events. Registration details will be available soon at this site:: http://www.orsba.org/bee_schools_and_events.php .

Nov. 12: LCBA Monthly Meeting: Topic – Winter Projects (details in October newsletter)

When: 6 – 8:45 p.m.: Social Time 6 to 6:30; Speaker, 6:30 to 7:30; Business Meeting & Beekeeping Q&A, 7:45 to 8:45

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

Dec. 10: LCBA 6th Annual Holiday Potluck: Please mark your calendars & get ready to share good food, good fellowship, door prizes, & after dinner, a brief monthly meeting with board elections, fundraising drawing for our 2015 Youth Scholarship Program, our traditional Beekeeping Q&A, suggestions for 2014 speaker topics, and more.

When: 6 – 9 p.m.: Social Time 6 to 7; Dinner 7 to 8; Brief Business Meeting, including Elections & Youth Scholarship Program Drawing, 8 to 9.

Please Bring: A dish of food to share & a plate, cutlery, & cup to eat/drink from. The Grange has tables & chairs, 3 ranges, a refrigerator, & plug-ins for hot pots. LCBA will provide coffee, tea, hot chocolate, & napkins. Food Drive: If you'd like to bring canned food or dry goods for the Greater Chehalis Area Food Bank, please do – we'll have a donation box.

Directions to Newaukum Grange, 104 Browns Road East, Chehalis, WA: from I-5, Exit 77: after exiting, take Hwy 6 West & turn left onto Riverside Rd. Riverside turns into Shorey Rd. Stay on Shorey Road until stop sign at Hwy. 603: the Grange is across the street.

Questions? Contact Susanne.beekeeper@gmail.com or call 360 880 8130.

LCBA MONTHLY MEETING NOTES: AUGUST 13TH

Above left, WSBA Master Beekeeper & Area 2 Representative Franclyn Heinecke (photo, WSBA); right, a honey bee with corbiculae packed with propolis (photo, TheHoneyGatherers.com)

This Month's Topic: Why Honey Bees Need Weeds ~ They're Medicinal!

A full house of beekeepers welcomed master beekeeper Franclyn Heinecke, our WSBA Area 2 Representative, who presented one of the research projects she did for her MB certification. ***To read Franclyn's Master Beekeeper paper on weeds and bee nutrition, visit: http://wasba.org/wp/wp-content/uploads/2014/05/Why-honeybees-need-weeds.pdf.***

The Ironic Economics of Bee Losses: Franclyn began by noting that since U.S. beekeepers lose roughly one-third of managed honey bee colonies each year, with 10 million colonies dead since 2006, at a conservative estimate of $200 per hive, that's over $2 billion lost. She cited Dennis Van Engelsdorp's comment that if one third of cattle died annually, that would be considered a national emergency. The die-off of honey bees is such an emergency, yet as a society, we're not reacting accordingly: rather, we are routinely destroying forage bees need. Pollen & honey from blackberries, for example, are especially nutritious for honeybees, yet these are among the plants listed as noxious weeds.

Bee Forage 101: Honey bees need forage from early spring through late fall to create winter stores: they do not hibernate. In Pacific Northwest, they need 70 pounds of honey and 500 to 600 square inches of pollen per colony to live through the winter. Scientists agree on three key ways that we can improve honey bee health: first, expand the genetic pool; second, control the varroa mite; and third, provide season-long forage for optimum nutrition. Health for honey bees means more than just the absence of disease: it requires many well-nourished individuals that can raise brood and resist pathogens. Crowding inside each colony makes bees vulnerable to pests and pathogens. Further, honey bees have fewer detoxification genes than other insects, only about one-third as many. For this reason, bees need immune- strengthening nutrients from forage, such as tree resins: sugar water is not enough.

Honey bee on flowering blackberry (photo, Wikimedia Commons)

Forage has been lost for many reasons. Monocultural agricultural practices offer little important bee forage. Hedgerows used to yield much nutrition, but these have declined. Land use policy changes make it harder for beekeepers to put colonies on public lands: even when they can, plant control practices limit nutrients for pollinators. Finally, extensive plant eradication takes place under present noxious weed control laws.

Bee Biology & Nutrition: Franclyn explained the biology behind honey bees' dependence on diverse forage. P-450 enzymes activate the principal phase 1 detoxification gene in animals, especially insects. They help metabolize foreign substances: humans need these enzymes, too. However, honey bees have fewer P-450 enzymes than other insects. For example, mosquitos have 106 P-450 enzymes, but bees have only 45. Bees activate P-450 enzymes with plant acids. This strengthens the bee's immune system. Propolis is a key source of polyphenols: so are nectar and pollen.

Scientists have shown that natural pollens, nectars, and propolis up-regulate – that is, strengthen – detoxification and immunity genes in bees (see Mao *et al.,* 2013). Marla Spivak has shown that proper pollen nutrition enhances bees' stress resistance, helps them defend against pesticide exposure, and decreases their susceptibility to viruses. At OSU, Ramesh Sagili, too, has published evidence that nutrition is the first line of defense for bees. The key acid that works with these enzymes to strengthen bees' immunity is p-coumaric acid, a phenolic acid: it is the strongest inducer of P-450s in bees. Found in tree resin, honey, and pollen, p-coumaric acid helps trigger surges of activity in the genes needed to detoxify chemicals and make anti-microbial agents. Compounds called polyphenols in propolis, nectar, and pollen interact with p-coumaric acid with additive or even synergistic effects to regulate

detoxification and strengthen immune response. Tree resins become propolis: when a lot of propolis is in a hive, bees' immune response is higher and bacteria levels lower.

Doctors urge people to eat blackberries, a dark fruit, and these berries' nectar and pollen are key nutrition for honey bees. Antimicrobial activity is strong in blackberries, and their pollen contains more proteins, antioxidants, than other pollens studied. A study done in northwest Spain, where the climate is similar to ours, showed that blackberry pollen helped honey bees combat Nosema better than did other pollens (DiPasquale *et al* 2013). However, Himalayan blackberry is a Class C noxious weed in western Washington: in King and Pierce counties, the goal is to take out all Himalayan blackberry plants. This would be devastating for honey bees unless the blackberries are replaced with comparably nutritive forage. Chestnuts (castanea) are almost equal to blackberries in nutritive impact: in King County, as blackberries are being taken out, beekeepers are asking that they be replaced by chestnuts.

Above left, bee on thistle (photo, Christian Science Monitor); right, bee boxes in a field of chestnuts (photo, Tammy Van Horn). The American Chestnut Foundation is partnering with beekeepers to help preserve chestnuts and aid bee forage: to read about it, visit: http://www.acf.org/newsletter11.21.12honeybees.php.

The Complex Issues Behind Noxious Weed Classification: Franclyn noted that there are complex reasons why various weeds in Washington are designated as noxious and need to be controlled: she hopes for more balanced discussion. The term "noxious" applies to a weed that is hard to control and considered destructive to agricultural and natural resources: for example, salmon streams. Another issue is highway safety: "some plants provide erosion control, ornamental value, medicinal properties, or nectar and pollen for bees, but their ecological or economic impacts outweigh the beneficial uses" (Noxious Weed Control Board, 2013). In this context, pollinator needs are not seen as a crucial environmental concern. Franclyn believes that we need to look at how to replace these pollinator foods.

Of 142 noxious weeds, 27 are important honey bee forage. 6 are Class A weeds which must be taken out by law. 15 are Class B weeds: local control decides. 6 are Class C weeds: counties can decide on removal or control. Knapweeds and thistles are Class A and B weeds that are found in almost every county in Washington. Control methods recommended for knapweeds and thistles are to kill most or all broad leafed herbs: doing this also takes out clover and other legumes, vetches, and mints – yet these are not listed as noxious weeds. Franclyn complimented Bill Wamsley, our Lewis County Noxious Weed Control Board Coordinator, who addressed LCBA in May: Bill does not take out much optional-removal forage, and Franclyn applauded him, noting that as she drives through Lewis County, in contrast to other areas, she can see the good effects of this decision.

The consequences of noxious weed eradication: In contrast, in eastern Washington, aerial sprays with residual chemicals keep plants from growing from two months to four years. Much of the area looks like a desert, with no productive forage for bees over hundreds of thousands of acres.

Knapweeds and thistles are considered noxious because they reduce range land for cattle and big game, but as noted above, if one third of cattle were dying each year, would we respond by taking away a major source of their food supply? The needs of bees are being outweighed or ignored. Do we need to kill all forage to remove knapweeds or thistles? When plants that are important food for bees are removed, why not replace them with non-invasive forage plants? Why use such long-lasting herbicides that kill all forage in the area?

A question was posed concerning Scotch Broom: Franclyn asked Bill, who answered that broom is a Class B plant. Bill asked Franclyn how it ranked as bee forage, and Franclyn noted that it is average: when there are better sources of pollen, she does not see much broom pollen coming into hives – however, honey bees are opportunistic, and they will forage on what is available.

Honey bee on Japanese Knotweed (photo, Blueberrytalk.com)

Can state & local agencies do things differently? Each state agency has its own goals for weed control: counties, cities, park districts, all are different, and private landowners figure into this, too. It is hard to ascertain how funds break down, but Franclyn tried to investigate 2007 versus 2011-13 funds for weed eradication, which roughly doubled over that time (well over $7 million in 2011-13). The Department of Agriculture must control knotweed in waterways for fishing interests, but even WSDA representatives are asking whether we really need to take it out miles from a given waterway. Fish and Wildlife controls plants on all its lands. The Department of Transportation , too, increased funding for weed eradication over the time period studied. The Department of Ecology works with other jurisdictions for a variety of invasive aquatic projects, including knotweed eradication.

If these agencies would agree to do things differently, we could spend less and save some pollinator plants, Franclyn suggested. For example, Fish and Wildlife and Department of Natural Resources officials are in dialogue with beekeepers about whether, following fire, we could let weeds come back in to support pollinators. That these discussions are underway is a good start.

Forage loss is making our state less hospitable to beekeepers: Meanwhile, Franclyn has talked with long-term commercial beekeepers who now find Washington inhospitable to honey bees and beekeepers. After tree fruits bloom, many beekeepers take their bees to the Midwest because there is not enough forage in the Pacific Northwest to sustain their bees. If they stay, they must supplement their bees' diet with sugar and protein: a costly practice that keeps bees alive but does not support colony health as natural nectar and pollen can do. Commercial beekeepers who stay in the state to pollinate seed crops can do so because seed farmers plant acres of nutritious forage to sustain bees until seed crops are ready to pollinate. However, after pollination, this forage is eradicated. How long can we afford to ignore what we are doing?

Habitat Loss Linked with Bee Colony Loss: Franclyn believes that habitat loss goes a long way toward explaining honey bee colony losses. States with less open land have higher bee colony losses, whereas states with lower bee losses are among the top states with pollinator-friendly open land (see Naug 2009). Native pollinators, too, benefit when wildflowers are planted near crops they pollinate: one study showed that bees forage wildflowers more than targeted plants (see Fouls and Goulson 2014).

Good news at federal and state levels: The 2014 Farm Bill addresses some issues for bees and other pollinators. President Obama's June 14 memo directs federal agencies to develop pollinator-friendly plans and lead by example. Here in Washington, in 2013 the state legislature directed WSDA to develop a statewide honey bee working group to look at issues. Their report is due by the end of this year. Franclyn is on this working group, along with some others from WSBA, working with Erik Johannsen at WSDA. Members of this group reached out to the state Noxious Weed Board with concerns, and the Weed Board is now offering a brochure on bee-friendly weed control, which Bill distributed at our May meeting (it is also on LCBA's website); the Weed Board is looking into substituting good forage for noxious weeds that are taken out.

Beekeepers can work with state agencies: We need a statewide agenda, with vocal beekeepers working together to improve pollinator forage. We can work to enact legislation and policies that require using control methods that only remove designated noxious plants and keep other pollinator forage. We need to enact practices with funds provided to replace forage that is removed. As Franclyn discussed with Bill, we need more beekeepers on local weed boards to learn the issues and advocate for honey bees.

Roadside with purple loosestrife flowers (photo, Emily DeBolt: http://nativeplantwildlifegarden.com/there-are-two-sides-to-every-road/roadside-with-purple-loosestrife-for-web/)

Roadside Forage Bill Before Congress: One hopeful possibility is expanding pollinator-friendly acreage along roadsides: HR 4790 has been referred to the House Transportation and Infrastructure Committee for consideration. This bill would "encourage and facilitate efforts by States and other transportation rights-of-way managers to adopt integrated vegetation management practices, including enhancing plantings of native forbs and grasses that provide habitats and forage for Monarch butterflies and other native pollinators and honey bees, and for other purposes." Projections show a small chance that HR 4790 will pass, but "if beekeepers are vocal about the crucial need for more pollinator-friendly forage, we can change that outcome." (To read the full text of the bill, visit: https://beta.congress.gov/bill/113th-congress/house-bill/4790/text.)

What can YOU do to bolster forage for your bees? Franclyn recommends:

- First of all, keep as much propolis in hives as you can.
- Work with weed boards to keep blackberries and other bee forage in the landscape.
- Add lots of pollinator friendly plants high in p-coumaric acid to your own landscape – this includes herbs, so you get the benefit of helping bees & your own kitchen adventures. Plant

oregano, coriander, marjoram, lavender, basil, mints, etc., let them fully flower, and you will be amazed at the number of bees you see.

- See the Xerces Society's website (http://www.xerces.org/) for native pollinator plants for the Pacific Maritime northwest.
- Other flowers that are great for bees include anise, asters, basil, black-eyed Susan, borage, buckwheat, catnip, clover, dandelion, coreopsis, coriander, cilantro, cornflower, corn poppy, cosmos, forget-me-not, hyssop, lavender, lemon balm, mints, mustards, kale, oregano, phacelia, sedum, sage, thyme, oregano, and wildflower mixes.
- Franclyn recommends West Coast Seeds and Ruhl Bee Supply to get wildflower mixes.
- For a free app that lists flowers for your area by zip code, see Bee Smart (http://pollinator.org/beesmartapp.htm).
- Finally, Franclyn encouraged LCBA members to take the handout on forage west of the Cascades, broken down by time of bloom: this is also linked on LCBA's website on the "Plant for Bees" page (http://www.lewiscountybeekeepers.org/plant_for_bees).

Above left, honey bee on rosemary blossom (Kathy Keatley Garvey); right, bee on oregano (Curbstonevalley.com)

[FYI: Pollinator News reported on 22 Aug 2014 that a new video is available free on YouTube: "Honey Bees and Other Pollinators – How You Can Protect and Support Them," from the New Jersey Beekeepers Association. NJBA is working with native plant nurseries to distribute late forage flowers like Seaside Goldenrod, Zig Zag Goldenrod, Butterfly Weed and New England Aster to the public at county and state fairs as public outreach. They are also working with public utility companies work on helping bees and native pollinators with Right-of-Way plantings. To see the video, visit: https://www.youtube.com/watch?v=WBVQGupoxEA .]

Question & Answer Period: President Norm Switzler began the questions, asking what response Franclyn has had from government agencies: are they open to replacement of removed plants with good forage, or do they say "the question needs long term study"? Franclyn said that there has been responsiveness, and that budget issues actually help, as we can't afford to continue business as usual. Back in the 1960s and 70s, we saved the bald eagle and other raptors from DDT, so we know it is possible to change. Restoring of salmon streams was almost a war in the 60s and 70s, but we figured it

out. Norm noted that the changing of guard in agencies makes a difference, as younger people who didn't own these policies for decades are open to seeing ramifications of old policies and looking at new ideas.

Martin Stenzig asked: have we done a good enough job of showing the impact on people if honey bees disappear? The analogy with cattle is good: we need to quantify the impact on agriculture, plus downstream effects like drops in production of vegetables, fruit, etc. – to emphasize the impact on consumers. Franclyn agreed, noting that beekeepers need a common, strong voice, like cattle industry has. These are political discussions, and if we want to make an impact, we must organize.

Herb Keeling asked what the environmental impact of spraying knotweed in waterways is: how do herbicides change things? Franclyn asked Bill Wamsley to speak to this: Bill said that it's important to follow label directions for settings, and that should lead to minimal impacts. Herb asked if tests are done on fish and wildlife: Bill said yes. Franclyn commented that the problem is that knotweed is important forage for bees in fall, when everything else is gone.

Gary Gorremans asked about non-native invasives and ornamentals – if none of those plants existed today, and we still had a bee problem, would Franclyn advocate bringing in non-native forage species to help? Franclyn suggested shifting the question since honey bees, too, are not native to the Americas, yet, for hundreds of years, they have been critical to our agricultural base. We could go back to beans, corn, and squash, as the Native Americans did, relying on native pollinators, but the reality today is that we do have the introduced plants that are in some cases invasive, and we also have honey bees. We can't turn the clock back.

Concerning propolis, VP Dave Gaston asked: if you paper the inside of the hive with rough grit sandpaper, will that raise propolis levels? Franclyn answered that Marla Spivak says no: she has studied feral bees in the wild, where they completely envelop the inside of tree they've taken over and propolize it all. If people built hive boxes with rough cut timber inside, they might see that kind of propolizing.

Norm noted that some of his bees use minimal propolis and are doing fine, whereas others propolize so much that he just about has to hammer frames loose: however, he doesn't see significant differences in behavior and health (though the smell of propolis is great and seems to go along with healthy colonies). He wondered whether some bees may just be more adept at collecting propolis. Could it be localized, that in some areas more resins are available, or is the bees' ability what determines this? Franclyn noted that more research needs to be done here: Carniolans seem to bring in more propolis than Italians, but that's an anecdotal observation.

Gary Stelzner noted that we try to be careful about using chemicals, so we minimize toxics. Given that so much honey sold in the U.S. is imported, have tests been done on toxicity levels of honey to see whether countries like China are using DDT, or toxic mite controls? Franclyn wasn't sure; Terrie Phillips noted that mercury, lead and other minerals have been found in imported honey. (See our LCBA website's honey page for more about this.) Gary noted: a good excuse to encourage buying local honey!

Martin asked what motivated Franclyn to go through the Master Beekeeper program: Franclyn answered that after she first kept bees, her first question was what bees could eat after she fed them her first year, so she decided to go into the program and study forage. She found that the MB program helped her stay focused and got her into conversation with more experienced beekeepers: Bob Smith (LCBA's June 2013 speaker) told her to start talking to the Weed Board if she was interested in forage: she did, and the more she learned, the more upset she got - which then led to good discussions.

We thanked Franclyn for a very informative and thought-provoking presentation.

Above, bees foraging on artichoke flower ~ photo courtesy of LCBA members Sue Allen & Ed Carter.

August 13 Business Meeting:

Treasurer's Report: our new Treasurer, Rick Battin, gave the Treasurer's report and outlined club purchases: this year, the association has bought two extractors, a projector and screen, and outfitted our two Youth Scholarship Program students. The board also bought & distributed the Queenline jars for the honey judging contests at the Fair. Norm noted that as our membership has grown, the board looked into purchases like these to benefit members. The two hand crank extractors will radially spin 9 frames each, the equivalent of a full super, or 4 deep body frames if done tangentially. Norm has donated a 4 frame Dadant extractor. All three are ready to use at our September 13 spinning workshop/party.

The projector and screen were bought to help in teaching our classes, now that our class sizes have exceeded the Extension classroom's capacity and we have moved to the college cafeteria. Norm and Dave looked at state surplus but found nothing reliable, so we bought new. The projector and screen will also help when we give talks to public groups that contact the board asking for speakers. Among the groups board members have addressed about bee issues this year are Rotary, Sertoma, American Association of University Women, the Home and Garden Show, and more.

Southwest Washington Fair Report: Susanne reported on our honey contests – see the Fair report in its special section, below, for details.

Honey prices: Kevin Reichert sent a question via Gary: what is considered a fair price for honey in Lewis County these days? It was noted that $18 to 19 per quart seems to be the going rate. Kevin harvested 500+ gallons and it's almost all gone.

FYI: if you are looking for local honey, please visit our website and click on the honey page, then the "buy local honey" link for LCBA members who have sent us information.

KiReeco Kenyan Beekeepers – discussion of proposed memorandum of understanding for sister beekeeping association relationship. Susanne summarized the MOU (the complete MOU was attached to the June 2014 newsletter and will be posted on our website under a new KiReeco page; their website is www.kireeco.wordpress.com). In brief, KiReeCo has invited LCBA to become their sister organization, "to work in partnership to train farmers in humane beekeeping and honey production, help them set up a hive production program and workshop on their school campus, assist them in designing and producing a commercial extractor with assistance from KiReeCo volunteer technicians, and working together to share information, experiences, and data on beekeeping, honey production, livelihood impact, and other areas of concern to both groups." This would be done through information sharing, volunteer work, and targeted fundraisers – funds would not come out of LCBA's regular association dues. However, the funds we raise will enable subsistence farmers, many of whom are second and third wives, to learn beekeeping and honey harvesting: honey sales will help them send their children to secondary school, which is not free in their area of Kenya.

Susanne clarified that the LCBA members traveling to Kenya are funding travel, room, board and all other expenses entirely by themselves: no LCBA funds are being spent for this. The fundraisers that we have done for KiReeco have been specific drawings, in which members can choose to participate: no dues moneys would be used under the MOU. Dave Gaston, Thad Stelzner (Gary's son, an experienced wood- and metalworker), and Susanne are going to Kisii in October. Dave and Susanne will help Wilma teach 500+ beekeepers along with Wilma's volunteers. Dave and Thad will work with a local engineer to build hive boxes and design a bicycle extractor. Wilma's beekeeping association includes two young men who want to learn the wood- and metal-working skills necessary to help KiReeco supply beekeepers with equipment. Finally, Susanne noted that the board felt it was important to ask the membership to vote on this initiative rather than simply move and approve it at the board level. This is a major new initiative for LCBA to take on, so association members should have the chance to approve or disapprove it.

KiReeco beekeepers with Langstroth hive components (photos, Wilma Sofranko)

One member had asked the board why we are doing an international initiative rather than doing outreach in WA State: Susanne clarified that there are 24 local beekeeping associations in Washington state already, and we don't want to push into others' areas unless they ask for our help. Meanwhile, Lewis County is large and over the past two years, we have worked on expanding our outreach by teaching a spring 2013 class in Morton and expanding to two beginners' classes this spring. We are mentoring beginning beekeepers: individual members can ask for a personal mentor, and we have expanded our hand-on workshops, which are free and open to the public, as are our monthly meetings. Through the swarm and colony removal project, we are helping the public by removing unwanted bees and placing them with trained beekeepers who can help them thrive. Through the youth scholarship program, we are

starting to work on training a new generation of beekeepers. By doing outreach at the Spring Youth Fair and Southwest Washington Fair, as well as talks to local groups, we are working to educate the public about honey bees – what they do for us, and how we can help them. As our membership has grown, the board has been stretched to meet all these initiatives, and members are warmly invited to help as their time allows. If the MOU is not accepted by vote, those who are planning to go to Kenya to help will still do so, but the association would not conduct further fundraisers for KiReeco.

Questions: Martin asked what tools the KiReeco beekeepers need. Gary said they already have basic tools, but lack knowledge, so we will teach safety and techniques. Gary noted that they have a generator, but no electricity publicly available. Wilma will send a list of items that would help them. Tonight's fundraiser is specifically to help defray the cost KiReeco has to spend to train the new beekeepers. Marcelle suggested matching contributions – her office matches what she donates to nonprofits, and others' may as well. Marcelle would donate a percentage of her real estate sales and her office would match 10%.

Vote: By closed ballot, members present voted 32:2 to accept the KiReeco MOU. Many present did not vote.

Drawing: Dave Gaston's hand-tooled top bar hive (with bees from Norm next spring) was won by Maggie Keeling. $525 was the total raised for KiReeco by the top bar hive.

Above, Maggie Keeling won the top bar hive made by VP Dave Gaston for August 13 drawing to benefit KiReeCo, our "sister association" of Kenyan beekeepers (photo by Herb Keeling). President Norm Switzler has pledged a swarm of bees for this hive come spring 2015.

LCBA Logo Hats: Dave Gaston organized baseball caps with the LCBA logo with Awards West: these sold out at $12 (the cost of the hats including tax). Members were asked how many would be interested in t shirts: many are, so Dave will work on those next. If you want a hat or t shirt, please contact Susanne or Dave.

501(c)4 Application: Membership coordinator Tomme Trikosko reported that although LCBA is a registered Washington State nonprofit, federal law requires us to report annual income, and we are subject to tax & fines if we do not file for nonprofit status. The board is working on a revised constitution and bylaws to meet the requirements for this application, for which we must pay a $400 fee. We also must report past income and project future income. The proposed revisions will be in the November newsletter for discussion at the November business meeting and a vote at the December business meeting.

Beekeeping Q&A: Feeding: Norm asked how many are feeding: many are, and Norm noted that as the hot summer has dried up most forage, many may want to feed their bees to help them prepare for winter. For now, 1:1 sugar: water is recommended, as bees may still be building out comb on frames. By September, a 2:1 sugar:water solution is easier for bees to dry out. Tomme noted that a number of stories and questions about feeding have been posted on the club's Facebook page. Tomme uploaded a video of how many bees came to her outdoor feeder – after she spilled syrup on her shoes….. Gottfried Fritz noted that years ago, a 15 gallon tub of honey could be bought for $15 dollars ;) Alan Sparling asked about feeding bees while supers are on– Norm said it's best not to do this, or you'll get adulterated honey.

What methods of feeding work best? The bucket feeder that goes on top of the hole in the inner cover has the advantage of being covered up by a deep and telescoping cover, minimizing robbing: at this time of the year, a boardman feeder in the hive entrance attracts not only robber bees from other colonies, but also yellow jackets and other pests. Some favor the division board (feeder that takes the place of 2 frames) because, like the bucket feeder, it is contained within the hive, though others dislike the lattices that the bees walk down to feed – some bees tend to drown with this feeder method. Tomme emphasized that the main thing is that the bees need food, and each beekeeper must find the thing that works for you. Candy boards and dry feed methods are best for winter when trying to minimize moisture in the hive: we'll cover this at the September meeting, along with other fall management issues.

Left, bucket feeder; right, how does a beekeeper know it's fall? 'Cause sugar is always on the grocery list…

Adding medication to feed: good or bad? Norm said he doesn't treat, but others do, and asked Gary how he treats. Gary uses apistan and MAQs: building resistance in mites and nosema is the risk, but the alternative may be losing colonies. Gary will bring in his microscope for the September meeting, and those who want to test for nosema can bring in samples of bees in alcohol. Gary noted the Fumagillen recipe that he uses now, since Dennis VanEngelsdorp's study showed that the old dose of Fumagillen seemed to cause Nosema to rebound stronger. Gary uses a quart of sugar water with one half teaspoon of fumagillen: he does this for 4 weeks if Nosema is in a hive. The quarter teaspoon was the old dose that was judged ineffective. The recommendation is now to dose with half a teaspoon. Gary noted that Randy Oliver's website, scientificbeekeeping.com, is a great resource.

Removing honey supers: best practices? Taylor Mizar asked for a recap of recommendations for removing honey supers for those who missed the August 9 workshop. Many agreed that the easiest method may be Kent's leaf blower: many dislike the toxic odor of fume boards, and bee escapes take time. In the leaf blower method, the super is placed on sawhorses and the bees are blown from below in the direction of the hive. It's important to blow up so that the bees don't get snagged in the downslope of comb. Rick noted that it helps to take out a couple of frames out of the super so that the blower doesn't wedge bees into the frames. Pat Swinth observed that it's a good idea to scrape wax off both sides of the

super before applying the blower to help avoid a big mess. For those who have the time, it can be easiest to take full honey frames a couple at a time over the course of inspections, first quickly shaking off the bees, then brushing off the remainder, and storing the frames airtight (an empty super box resting in a telescoping cover & covered by another telescoping cover works well). Using a 9 frame holder in super boxes helps bees to build up comb, not only yielding more honey, but making uncapping it easier. Dave asked if anyone has used a heat gun to decap honey. It was noted that the risk with a heat gun is scorching. Also, wax may solidify and seal the cells back up.

Above left, LCBA's nice honey display at the Fair; right, mentor Kent Yates with visitors on Children's Day.

Southwest Washington Fair Report:

LCBA's exhibit at the Southwest Washington Fair drew plenty of visitors with many questions about the challenges honey bees face today. It's great to see so much public concern for bees, and it was a joy to see so many children enjoying the observation hive! Please check out the photo gallery on our website: http://www.lewiscountybeekeepers.org/photo_gallery/2014_southwest_washington_fair .

Over 40 LCBA volunteers braved the heat to answer questions, loaned equipment, entered or judged honey in our 2 contests, & helped celebrate National Pollinators' Week, culminating with our "People's Choice Honey Tasting" on National Honey Bee Day, August 16. A big THANK YOU to: Sue Allen, Rick Battin, Gordon Bellevue, Darla Bowen, Ed Carter, Melanie Case, Gottfried Fritz, Dave & Kaye Gaston, Sharette Giese, Peter Glover, Mel Grigorich, Marnel & Jim ("Grubby") Groebner, Danny Halverson, Mike Helms, Steve Howard, Grant Inmon, Bob Lloyd, Dan Maughan, Tom Mayberry, Joanne Morgan, Linda Newton, Ed Odell, Joyce Olsen, Janet Opsitnick, Michaela & Terrie Phillips, Kevin & Jeanne Reichert, Roy Schaafsma, Lorna Shelton, Amie & Trevor Smith, Gary Stelzner, Norm Switzler, Kimo Thielges, Nancy Toenyan, Tomme Trikosko, Linnea Warren, and Kent Yates.

Special thanks to Norm Switzler for isolating queens in nucs so that we could have a great display and change out the bees every other day. Special thanks, too, to Kevin & Jeanne Reichert, Grant Inmon, and Dan Maughan for helping set up the booth – and for hoisting the wild hive / paper wasp nest demonstration into the rafters when the thermometer read 100 degrees in the Floral Building – so hot that baby bees started hatching out of Dan Maughan's drawn comb demonstration frame (it had a few capped brood cells….who'd have thought it would be hot enough to hatch them!). The Fair officials wanted to give LCBA a special honor, and all present agreed that the Reichert/Inmon demonstration hive, which drew people into the Floral Building, should get the nod. See photo, next page:

Other highlights – Dave Gaston's top bar hive & light box to help visitors see pollen grains in honey; Gottfried Fritz's fresh-out-of-the comb tasting honey and microscope to display comb up close; Mel Grigorich's extractor (we tried not to let kids crank it too long!), Dan Maughan's Langstroth display, Sharette Giese's "gifts of the hive" display of royal jelly, beeswax, pollen capsules, and more, plus her interactive Velcro label-the-parts-of-the-bee children's game; Kimo Thielges' great mason bee materials; Peter Glover's hive tools & bee suit display. Special mention has to go to Bob Lloyd for donning a bee suit and walking the fairgrounds in 90+ degree weather to let people know we were in the Floral Building! Trevor Smith brought a guitar on Saturday that provided lovely background music; Lorna Shelton also played & sang. The board bought honey stix from Glory Bee that were eagerly devoured by kids visiting our booth (the Pacific Northwest Blackberry was a big hit). Thanks, too, to the National Honey Board for donating recipe booklets & pamphlets on how honey is made.

Honey Contests: Thanks to Roy Schaafsma for serving as judge again this year. In the Official Fair Honey Contest, the following LCBA members' honey won ribbons:

Amber Honey: Dave Gaston (2 entries), Mel Grigorich, Don Hershey, Dan Maughan, Joyce Olsen, Michaela Phillips, Kevin Reichert, Gary Stelzner, Tomme Trikosko. The Fair officials singled out Dan Maughan's honey for a special best in show award based on its color & clarity.

Dark Honey: Dave Gaston, Sharette & Tim Giese, Kevin Reichert.

Comb Honey: Dave Gaston (2 entries - dark & light), Linnea Warren (chunk honey)

Above, left, Dan Maughan's special "best in class" honey; right, Michaela Phillips won a blue ribbon for the honey she harvested at the end of her first year keeping bees. Michaela painted her hives, inspected her bees, & spun her own honey with a little help from her family: 3 generations of beekeepers!

Above left, first year beekeeper Linnea Warren with her blue ribbon chunk honey; right, Steve Howard explaining to visitors the difference between raw & commercial, processed honey.

People's Choice Honey Tasting Contest Winners: We celebrated National Honey Bee Day with our 2nd annual People's Choice tasting. First Place was a tie between Dave Gaston's floral honey & Kevin Reichert's marionberry honey, which many thought had almost a wine-like resonance. 2nd Place went to Sharette & Tim Giese, and 3rd Place to Don Hershey. Thanks to the others who entered their honey for helping make this year's People's Choice tasting as popular with visitors as last year's: Peter Glover, Mel Grigorich, Dan Maughan, Joyce Olsen, Michaela Phillips, Gary Stelzner, Nancy & Mark Toenyan, and Linnea Warren. We were only able to run the People's Choice honey contest on Saturday: some fairground bees found it, and by 4:30 the scouts had brought reinforcements, so we had to shut it down. The next morning, we had only had the honey pots uncovered for 15 minutes before the bees were back in force: Norm tracked them back to their hive, which is in the walls of the dairy barn. We've offered to remove them next spring, before the Youth Fair!

We know not everyone can volunteer, and it was great to see many more LCBA members bring family members by, too. Looking forward to next year's display!

Above left, Kevin Reichert displays his People's Choice 1st place honey, a stunning marionberry whose flavor many tasters thought savored almost of wine (photo, Jeanne Reichert); right, Dave Gaston, whose dark amber wildflower honey tied with Kevin's, is pictured answering questions at the observation hive.

Below left, happy tasters on National Honey Bee Day enjoying People's Choice honey entries; right, Bob Lloyd helping visitors to the observation hive find the queen:

Bees in the News

Thanks to Norm Switzler, Tomme Trikosko, Kent Yates, and the good folks at American Bee Journal and Bee Culture magazines for sending news this month.

"Parasite Pressures on Feral Honey Bees. Feral Colonies Are Pathogen Reservoirs," 25 Aug 2014, *Bee Culture*

We know how damaging Varroa destructor can be for our managed colonies, but how does it affect feral honey bees? As it's hard to sample ferals, given the places they tend to take up residence, no studies have focused on this until now. Uncertain genetic origins of feral colonies complicate these questions, too. Do ferals "represent a reservoir of Varroa tolerant material that could be used in apiculture"? In this study, researchers gathered foragers from "paired feral and managed honey bee colonies and screened for the presence of ten honey bee pathogens and pests." What they found was that the rate of infestation was "similar" between the feral and managed bees. Yet "feral honey bees contained a significantly higher level of deformed wing virus than managed honey bee colonies." Analysis of the wings of bees in both groups showed no obvious differences, "suggesting feral colonies could simply be escapees from the managed population." The study also found that when managed colonies are not treated or Varroa, they show levels of deformed wing viruses similar to those of the feral colonies, "potentially lethal levels." To read more, visit: http://home.ezezine.com/1636/1636-2014.08.25.09.15.archive.html.

(Below, could these healthy-looking bees from a 7-12-14 removal be pathogen reservoirs? Food for thought!)

"Of bees, mites, and viruses: Virus infections after arrival of new parasitic mite in New Zealand honeybee colonies": 21 Aug 2014, *Science Daily*

The bad news is that Varroa mites have reached New Zealand; one of the few positives is that this new "viral landscape" can give new insights into Varroa infestations. This new study looks at interactions of bees, mites, and viruses, comparing European data with new information about Varroa in New Zealand. Would the New Zealand bees experience the "accelerated virus epidemic" that kills untreated colonies within two to three years? As the researchers monitored the beginning stages of Varroa infestations, they found that the mite "dramatically changed the viral landscape within the honeybee colonies of New Zealand," with 7 separate viruses implicated. Deformed Wing Virus had "almost never [been] seen" in New Zealand bees before the mites arrived, but as Varroa numbers rose, so did DMV. Kashmir Bee Virus reached its height two years after the arrival of Varroa, then vanished, "leaving DWV as the dominant honeybee virus in long-term Varroa-infested areas." However, the KBV seems to have helped weaken the colonies, suggesting that the interaction of viruses in the wake of Varroa infestation may be particularly dangerous. The researchers' next steps "will focus on the mechanisms that form the evolutionary basis for the bee-Varroa-virus interaction."

To read more, visit:
http://www.sciencedaily.com/releases/2014/08/140821141439.htm?utm_source=feedburner&utm_medium=email&utm_campaign=Feed%3A+sciencedaily+%28Latest+Science+News+--+ScienceDaily%29

"Report Bee Kills. Support Funding Evidence Kits": 4 Aug 2014, *Bee Culture*

In 2013, the Pollinator Stewardship Council tracked bee kill reports from 13 states: 14,976 colonies were reported lost. In spring 2014, 89,000 colonies in 5 states were reported killed. The "piles of dead bees at the entrance, dead brood inside the hive, dead adult bees inside the hive, and often dead queens" suggested pesticide poisoning. However, "not all of the bees, wax, and pollen from bee kills was collected for lab analysis due simply to the cost: : beekeepers are charged over $300 to get dead bees tested to see whether pesticide was the killer. Bee Culture comments that "this is cost prohibitive for many, as that $300 is needed to replace that now weakened or dead bee colony." More research is needed: "the real-world of tank-mixed pesticides, of 'other ingredients' in pesticides with unknown, un-tested toxicity levels, of pesticide coated seeds wherein the pesticide is often exuded through the pollen and nectar of the plant, are at the root of the health decline of honey bees."

Bee Culture is asking beekeepers to donate to help them "provide 200 bee kill evidence kits and the lab analysis for pesticide-related bee kills. Support our work to provide the scientific analysis of the real-world pesticide exposure of honey bees in rural, suburban, and urban areas." They also suggest that beekeepers "send a letter to EPA Administrator, Gina McCarthy requesting protection for honey bees and native pollinators, and cease the application of bee toxic pesticides on bee attractive plants in bloom with NO exceptions."

To read more, visit: http://home.ezezine.com/1636/1636-2014.08.04.12.34.archive.html .

“Venom Gets Good Buzz as Potential Cancer-fighter”: 11 Aug 2014, *American Bee Journal*

Scientists have found a way that bee, snake, and scorpion venom could be used in “cancer-fighting drugs”: the new method “target[s] venom proteins specifically to malignant cells while sparing healthy ones, which reduces or eliminates side effects that the toxins would otherwise cause.” The venom toxins would be packaged in “tiny nanometer-sized particles to treat breast cancer and melanoma cells in the laboratory." Because these particles are “camouflaged from the immune system, [they can] take the toxin directly to the cancer cells, sparing normal tissue." Melittin, a substance in honey bee venom, stops multiplication of cancer cells, but since bees make very tiny quantities of venom, it must be synthesized. Next, this new method will be tested in rats and pigs, then in human patients within the next 3 to 5 years.

To read more, visit: http://us1.campaign-archive1.com/?u=5fd2b1aa990e63193af2a573d&id=ed92385685&e=e9ff21e0bb . To see a video on this research, visit: http://www.youtube.com/watch?v=GRsUi5UrH7k&feature=youtu.be .

Above, drone emerging from drone comb (photo, Kathy Keatley Garvey)

“Worker bees ‘know’ when to invest in their reproductive future”: 20 Aug 2014, *Science Daily*

Once a bee colony’s population hits 4000, this number seems to “trigger” building drone comb. Cornell University neuorbiologists studied this, noting that “reproduction isn't always a honeybee colony's top priority” – “survival and growth” is, especially early in the colony’s growth. Once the colony reaches a certain threshold, “its workers start investing in reproduction,” with drone comb the first step in that process. The researchers wanted to learn “precisely which colony features kick-start this key process of building drone comb. Is it the number of workers in the colony? Is it the total area of worker comb in the colony? Is it the amount of brood in the colony? Or perhaps it's the size of the colony's honey stores?” The researchers tested each of these factors separately and found “that while every colony built worker comb (non-reproductive comb), not every colony built drone comb (reproductive comb). In fact, only an

increase in the number of workers stimulated the workers to start constructing drone comb. This was seen whenever colonies contained 4,000 or more worker bees."

How, then, would one worker bee "'know' how many other workers there are in its colony"? Possibly feeling crowded in the hive tells them. "Colonies with more workers built a greater proportion of drone comb, but colonies with more comb, more brood, or more honey stores, did not do so . . . we estimate that a colony needs approximately 4,000 workers to invest in building drone comb." The researchers' next steps will focus on this. To read more, visit: http://www.sciencedaily.com/releases/2014/08/140820091609.htm?utm_source=feedburner&utm_medium=email&utm_campaign=Feed%3A+sciencedaily+%28Latest+Science+News+--+ScienceDaily%29 .

Above, Gene Brandi inspecting bees and drawing honey (photo, MSN News)

"California's record drought hasn't been sweet to honeybees, and it's creating a sticky situation for beekeepers and honey buyers": 21 Aug 2014, *MSN News*

California's record breaking 3-year drought is stressing bees and beekeepers. The honey crop – traditionally one of America's biggest - is "severely impacted" because of forage loss, says Gene Brandi, VP of the American Beekeeping Federation, living in the Central Valley farm town Los Banos. Amid the official "drought emergency, residents now face fines of up to $500 a day for wasting water."

The drought has exacerbated "a worldwide shortage of honey that has pushed prices to all-time highs. Over the past eight years, the average retail price for honey has increased 65 percent from $3.83 to $6.32 per pound, according to the National Honey Board." California's honey yield has dropped from 27.5 million pounds in 2010 to 10.9 million pounds in 2013, with lower numbers anticipated for 2014. North Dakota, Montana, South Dakota and Florida have taken over as leading honey states.

Beekeepers get income from pollinating crops, but the drought has stressed farmers, who are now renting fewer hives: they don't have enough water to irrigate those crops in the first place. Meanwhile, beekeepers like Brandi are forced to feed more sugar syrup – "but it's expensive and doesn't produce honey." If this continues, Brandi and others predict "higher food costs, higher pollination fees and unfortunately higher prices for the commodity of honey." Trying to survive, many beekeepers are taking

their hives out of California to North Dakota and other states "where they can forage in clover and buckwheat fields."

Meanwhile, businesses that "sell raw honey to high-end restaurants, grocery stores and farmers markets" are running out of stock, and special honeys like those "from sage and star-thistle aren't available at all because it's too dry for their flowers to produce nectar."

To read more, visit: http://news.msn.com/us/california-drought-stings-bees-honey-supplies .

"Evolutionary History of Honeybees Revealed by Genomics": 24 Aug, 2014, *American Bee Journal Bee Culture*

In the U.S., there's much concern about the genetic bottleneck in honey bees. A new study by Uppsala University researchers has done the first "global analysis of genome variation" in bees: not only does it show a "surprisingly high level of genetic diversity," but it suggests that most honey bees likely originated not in Africa, but came from cavity-nesting bees in Asia 300,000 years ago. The researchers revealed that "in contrast to other domestic species, management of honeybees seems to have increased levels of genetic variation by mixing bees from different parts of the world. The findings may also indicate that high levels of inbreeding are not a major cause of global colony losses."

Climate change plays a role in cyclical bee population fluctuation, shown "in the patterns of genome variation": these patterns display "signals that indicate large cyclical fluctuations in population size that mirror historical patterns of glaciation . . . Populations in Europe appear to have contracted during ice ages whereas African populations have expanded at those times, suggesting that environmental conditions there were more favorable."

The study also found "specific mutations in genes important in adaptation to factors such as climate and pathogens, including those involved in morphology, behavior and innate immunity" that may help us understand "the biological mechanisms behind disease resistance and adaptation to climate, knowledge that could be vital for protecting honeybees in a rapidly changing world." To read more, visit: http://us1.campaign-archive1.com/?u=5fd2b1aa990e63193af2a573d&id=fa71a6ef4f&e=e9ff21e0bb .

ANNOUNCEMENTS & HELP WANTED

WSBA isn't having a conference this fall, but encourages beekeepers to visit the Western Apicultural Society meeting in Missoula, Montana, September 17-20, & the Oregon State Beekeepers' Association meeting in Seaside, Oregon, November 6-8. For details, please see Upcoming Events, above.

September Western Apicultural Society Newsletter: http://groups.ucanr.org/WAS/WAS_Journal. 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.

September WSBA Newsletter: Pick up your copy online at www.wasba.org: click on "Newsletters." *Special announcement – there are two stories about LBCA events in this month's WSBA newsletter, including photos from the Fair.*

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

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