

The Traveling Beekeeper



*Changing the Bee World
One Sunflower
and One Observer at a Time*

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Keepers of honey bees tend to isolate themselves from those who study other bee species. This may be a response to the fact that native (non-Apis) bee folks tend to isolate themselves from those who keep bees in hives.

There is no clear explanation for this behavior. Perhaps it is because the honey bee folks are more likely to get a great deal of attention from the media, funding agencies and the general population because of their wonderfully complicated and socially advanced pollinating and honey producing species. There may be a strong sense, on the part of the native bee group, that the honey bee is dominating the ecosystem and harvesting reserves long before the native or wild species get a chance to reproduce. Or it may simply be a case of one group not having much contact with the other. Beekeepers do not go to native bee manager's meetings as a rule. Only when crops require both *Apis* and non-*Apis* bees for successful pollination have I seen both groups in the same room.

In my garden this year on the basswood tree-lined street in a city filled with floral plantings, it is the native bees that are dominating, doing most of the flower visits on the flowering plants. Bumble bees and large leaf-cutters are keeping the honey bees out of the hollyhocks and Rose of Sharon. One peculiar ground-nesting species completely dominates one corner by the garage, where I have planted flowers good for honey bees like a dwarf catmint, Indian blanket flower and a few other species. I don't know where the closest managed honey bee colonies are located, but the non-*Apis* bees seem to



At the farm in Galesburg, sunflower seeds dropped by clumsy chickadees or titmice grew in the flowerbed. This may not be the perfect place for them, but it is a nice visual effect. The selection of sunflowers, a species native to all 48 of the lower states, is key to a citizen science project.

have the upper hand. This is true both in the numbers of bees I see of each species, and the frequency they are at the flowers.

At the family farm located between Kalamazoo and Battle Creek I see the same sort of division of resources. There is a commercial beekeeper with a summer location just across the street from the farm. Yet the native bees dominate on the clovers, vetch, sunflowers, and even some flowers I associate as being attractive primarily to honey bees, like spotted knapweed. A few weeks before I wrote this, I found summer bumble bee queens, recently emerged, foraging on the red clover; a week later I spotted their tiny worker bumbles. This must be a species that builds in the late summer on the goldenrod (about to bloom in mid-August) and the asters. The honey bees were rather active on the red clover flowers, especially the new blossoms. There is so much I do not know about these other species; part of the reason for that is that we separate beekeepers from the other students of bees.

Fortunately, there are enough honey bee foragers that have found the cucumbers on the two vegetable gardens on the farm. A bushel of cucumbers sits in the kitchen, waiting as I write this. They will keep until later today when they will be turned into refrigerator dill pickles. The dill, onions and garlic also wait for me to finish.

The shortage of bees from the Colony



With a minimum amount of training it seems possible the general public will learn to recognize this as a bumble bee at a high level of accuracy. There is a great deal of doubt in my mind that they will all be able to tell a carpenter bee from this type.

Collapse Disorder has had one positive side. It has opened the eyes of all bee scientists as to how we look at the mix of pollinators in our local ecosystems, and find out where the bees are, and what species they might be. Including honey bees in this is one way to document the lack of honey bees. This is something we have all experienced, at least second hand, when asked, "Where are the bees this spring?"

Through an article in *American Scientist*¹ that appeared in August I read about the Great Sunflower Project (www.greatsunflower.org), organized by conservation biologist Gretchen LeBuhn at San Francisco State University, who is attempting to monitor and map bee populations across the entire nation by using an army of volunteer observers. She and her colleagues have a simple plan, to find volunteers to plant sunflowers (*Helianthus annuus*), an attractive and popular flower native to the lower 48 states, and monitor the bees that visit those flowers for up to 30 minutes or until they find five bees on the flower.

After some pre-testing, "LeBuhn decided to have participants measure how long it took for five bees to visit their sunflowers, observing two times each month for a maximum of 30 minutes each. 'People can

take their cup of coffee out in the morning,' she adds, 'and if they see five bees in five minutes, they're done. If they see none in 30 minutes, they are still done, and they have the most important data' because the lack of bees indicates spots where populations may be in trouble."

To make it easier, the bees that observers are expected to identify are limited to five groups or species: honey bees, bumble bees, carpenter bees, green bees and "other." The strength of the program is in the volume of volunteers, between 30 and 35 thousand who have agreed to send in data. The statistical model is set up to reject a certain level of unlikely reports, and the emphasis will be on painting a picture of the status of pollinators in the country, based on these volunteer's observations. That the program uses volunteer observers greatly increases the volume of data without adding to the cost of the research.

We do not have a field guide to the bees of America, at least not one that will tell us the identity of the estimated four thousand species we have. Sam Droege, a U.S. Geological Survey biologist, estimates that about 500 native species do not even have scientific names. Over my lifetime there has been even more erosion in the science of native bees than of honey bees. That is startling since the number of people researching honey bees has shrunken dramatically. Most of the research being done with native bees is by ecologists and conservationists trying to work out a plant-pollinator relationship or the energy flow within an ecosystem. Fortunately, there are some remarkable exceptions to this. And a few groups, like Xerces Society², have been established to promote pollinator awareness and propaga-

tion by good cultural practices. But few beekeepers are aware of their work, and even fewer citizens.

As the season winds down LeBuhn will start mapping pollinator activity, watching for areas where native bees are filling in the "gaps" where honey bees are lacking. She is also interested in watching populations of certain bumble bee species that data suggest may also be in decline. If she is successful in obtaining funding for five to ten years, she will be able to establish trends in pollinator activity countrywide. Nothing like that has been done before.

In a larger human social structure, these observations may play an important role in providing food in the urban and "periurban" gardens, where the urban poor get "60 to 80 percent of their food from these gardens." Understanding the pollinator activities in these growing areas, which will grow as human populations soar, will play an important part of social stability. While the poor of this country will clearly benefit, the knowledge will certainly be essential in countries less affluent than ours.

This is not new. Recently a high school classmate of mine shared a family story about his immigrant grandfather. New to the United States, the grandfather had a large family to feed, and he obtained permission to use Kalamazoo city land to raise vegetables and berries for his family to eat and to sell the extra to supplement his income. A large shopping mall occupies the land his grandfather once tilled.

Article author Anna Lena Phillips concludes "By balancing fieldwork with citizen science, LeBuhn is demonstrating an emergent, multidisciplinary mode of doing science—one that relies both on traditional research and on engaging the public. It's concerned with ecosystem health and human health, and with recognizing the integral connections between the two. And it demonstrates that, for biologists dedicated to exploring these connections, the solitary endeavor of the carpenter bee and the social goings-on of the honey bee are each useful models—in fact, both may be essential."

Certainly, the integration of a whole-system pollination study will generate useful information about the dynamics of pollinator populations. As beekeepers, we are all likely to benefit by participating in a variety of ways:

- Participation in programs like the Great Sunflower Project in future years. If this program is successful, expect more to follow.
- Integrating native bee talks into educational programs at local, regional and national beekeeping meetings. This has happened in the past, but the number of presentations have fallen dramatically.
- Establishing "Bee Clubs" as compared to "Beekeeper Clubs" locally. These could incorporate local food and fiber producers in urban and "periurban" areas—

¹ Phillips, Anna Lena. 2008 (August, no 5). *Of Sunflowers and Citizens—How are bee populations faring in the United States? A citizen science project will help find out.* American Scientist online: <http://www.americanscientist.org/issues/pub/2008/5/of-sunflowers-and-citizens>

² The Xerces Society for Invertebrate Conservation, 4828 SE Hawthorne Blvd., Portland, OR 97215 (503) 232-6639 www.xerces.org

folks who are interested in local food production regardless of the pollinating agent. The mixing of beekeeper and “locavore”³ food producer seems like an ideal relationship, one that is already successful in cities like Detroit, Chicago and elsewhere. Now we need to add the other pollinators.

- Provide personal and bee association funding of such projects as the Great Sunflower Project to promote the role of bees as pollinators—all bee species. The potential for use in youth science programs is huge.
- Provide bees in selected settings to see how the pollinator mix is changed by the introduction of several colonies of bees into a particular region. We need to determine the effect of moving 20 colonies into one area on the other pollinator species.
- Work to eliminate any separation between the honey beekeeper and those who work with native or native bees.
- Reduce anti-bee entomophobia (see below). Help to reduce the fear of bees, increasing the areas where bees may be legally placed to benefit food for both bee and ecosystem.
- To eliminate the arbitrary banning of bees from areas by elitist groups that have apparently self-appointed themselves as authorities that a particular area is pristine only if honey bees are absent.
- Develop studies that show that the year-to-year pollination maintenance of a population of bee forage by honey bees may actually benefit native bees whenever their populations wane due to cyclic factors. It may be that certain species of bumble bees and other bee pollinators are helped when the supply of forage is abundant due to prior-year pollination by honey bees.

Last month I got into a full head of steam about the need to educate folks about bees, and get them past the entomophobia skillfully taught to them by their parents and teachers. It would be nice if all children (and their parents) were exposed to bees in a positive manner rather than the conventional “swat madly and get stung” that seems to be the standard advise given to children nowadays.

So I find this citizen science project a great method to educate parents, teachers and small, easily impressed children that bees are amazing to watch and observe. While we can find flaws in the design of the program, it is a tremendous step forward in putting bees into their proper place, the useful and essential pollinators of much of the food we consume, especially in a country like the United States.

Every time you eat a dill pickle, or any other kind of bee-pollinated food, turn it into a lesson about the role of bees in our

³ locavore—One who consumes food grown or produced locally.



Successful recognition of a honey bee foraging on a large flower like the sunflower makes sense. But there will be mis-identifications: When grey or black honey bee workers are foraging with yellow honey bees, mixed with a number of ground-nesting bee species, there is likely to be confusion.



The Great Sunflower Project has picked a good plant, but in Michigan they often grow 8-12 feet tall in a well watered garden, drop their heads when they ripen, and can make it difficult for an experienced observer to accurately determine what species of bee is working. Picking the right plant will be key to individual success with this project. But it is a step in the right direction, something that has been rare in the past.

society, and how the bee gives us a food that we enjoy at our table. A well educated group of citizen scientists will be a tremendous asset as we move forward in our work as beekeepers and students of all bee species.

Time to do the dills!

Have you visited Dr. Connor’s website

yet? It is www.wicwas.com. You can enroll in the second North Central Queen Assembly and Alternative program set for October 11 in Comstock, Michigan; between Kalamazoo and Battle Creek. Check it out.

Reference

<http://www.americanscientist.org/issues/pub/2008/5/of-sunflowers-and-citizens>