

Missouri State Beekeepers Association
PO Box 214 Dexter, Missouri 63841

www.mostatebeekeepers.org

April 2013

Eugene Makovec
Editor
editor@mostatebeekeepers.org

Mark your calendars!

MSBA Fall Conference to be held October 25-26 at Lake of the Ozarks

This year's Fall Conference of the Missouri State Beekeepers Association will be held Friday and Saturday, October 25-26 at the Lodge of Four Seasons in Lake Ozark, MO. Lodge information is available at <http://4seasonsresort.com/> -- registration and room rates will be announced at a later date.

Planning is ongoing, but our speakers will include Greg Hannaford of Oklahoma and Blake Shook of Texas. Much more information will be provided as it becomes available. Online conference registration will begin in August.

Happy Spring ... finally! We were greeted with two inches of slush upon our return from a mid-March pilgrimage to Dadant. A week later the greater St. Louis area was blessed with its biggest winter storm of the year, with over a foot of snow in some parts.

But Spring is finally here, and what colonies survived the long winter are making up for lost time -- as are the plants and trees, most of which are about 4-6 weeks behind last year.

A member of the mint family, henbit (*Lamium amplexicaule*) provides a soft, early spring blanket to farm fields, forests and garden areas. A quick Google search reveals a variety of ways to kill this uninvited guest; however, as with many other "weeds", the beekeeper chooses to live and let live ... and the bees are grateful. See back cover for more on this fuzzy purple flower.

Take the Survey!



Your input is needed for this annual survey of beekeeping practices. Please see page 9 for details and instructions.

Bee prepared to volunteer for our ...

Missouri State Fair Booth

The 2013 Missouri State Fair dates are August 8th thru 18th. We already have local clubs signed up for Friday, August 9th; Sunday, August 11th; Monday, August 12th; Friday, August 16th; and Saturday, August 17th. Our biggest need for volunteers is during the week. Start planning your vacation dates now to include helping out in our booth. This year we are asking you to sign up for half days: 9:00 a.m. to 3:00 p.m. or 3:00 p.m. to closing at 9:00 p.m. Arrangement for overnight accommodations nearby is available for you to reserve dates of your choice. Please call Dean Sanders at 816-456-4683, or Steve Harris at 314-805-6451 for more information and to let them know what day(s) you can help.

THANK YOU! Your help is very much appreciated!

Dean and Steve



**CHICKS
DIG IT!**

**SEDALIA 2013
AUG 8-18**

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From the President by John Timmons

Peering out the back window toward my hives, I see them covered in about a foot of fresh snow, but I know my bees are well into their spring rituals. The queen is busy replenishing the colony after a long, hard winter, while her offspring anxiously await the start of their mad dash for pollen and nectar. This is a great time of the year for beekeepers as we anticipate all that's before us in the coming months.

In spite of the long, lingering winter, a lot has happened in the world of Missouri beekeeping since my February message.

I just returned from the Dadant and Sons 150th Anniversary Celebration in Hamilton, Illinois. What a tremendous event it turned out to be, with more than 800 beekeepers in attendance! Everyone had an opportunity to tour all the Dadant facilities on Friday, followed by dinner and a presentation by Dr. James Tew. For those of you who haven't had the opportunity to hear Jim speak, I can tell you that it's a real treat. While no one disputes his profound honey bee expertise, it's his wildly entertaining beekeeper humor that left us all rolling in the aisles.

On Saturday, we listened to some extraordinary presentations by Randy Oliver, Jerry Hayes, Jim Tew, and others. Randy, Jerry and Jim always provide a wealth of new beekeeping knowledge and it's a pleasure hearing about their new observations and discoveries. Everyone went home from Dadant with fresh perspectives on beekeeping and valuable new information.

As Dadant planned the Friday evening dinner gathering, I had been asked to make a short presentation about the Missouri State Beekeepers Association. Little did I know that I would have to follow Jim Tew. I have a couple of observations: following Jim Tew on the podium is like following Jay Leno ... the audience was so caught up in laughter that they had little time to recover for my remarks. Also, I can tell you that speaking to a room filled with 800 people is a bit intimidating. However, I pulled it off, reporting on two special notices that I'll share with you now.

It gives me great pleasure to report the MSBA award for the 2013 Beekeeper of the Year. There was little question who it would go to this year and, in somewhat secret deliberations, the Awards Committee proudly placed this year's award into the hands of Grant Gillard. Grant has exemplified himself as an important beekeeping educator and contributor to the growth and vitality of the MSBA. Not only does Grant contribute as a popular speaker around the region, but his role as the Past-President of the MSBA set a standard that encourages me to work hard. Congratulations, Grant, for an honor well-deserved.

I also announced in Hamilton, and I'm happy to report to you now, the selection of a date and venue for our 2013 Fall Membership Conference. After visits to several sites in the center of the state, and receiving bids from each, we have selected the Lodge of Four Seasons at Lake of the Ozarks for our next conference on October 25-26. After careful study of all the possibilities, there was simply no question which venue could provide the best facilities at the best price. We're pleased to be attending the Lodge in October and will keep everyone informed as we compile the list of speakers and agenda. Suffice it to say, that since this is our only membership conference for 2013, we intend to put together a show that will "knock your socks off". Put it on your calendar!

We'll be certain to announce the speakers and vendors far in advance of the event, and open online registration as early as possible.

Speaking of vendors, it's my personal goal and objective to ramp up our vendor participation for future conferences. We need to support our vendors at our events, making their decision to attend an easy one. And it's with this objective in mind that I'm proud to announce the appointment of Tim Hyde as our new Vendor Liaison. Tim has proven

his value to the beekeeping community over and over as he contributes to three clubs in the St. Louis area while providing an ever-increasing contribution to the MSBA at the state fair booth in Sedalia. It's no exaggeration to say that beekeeping in the eastern portion of the state wouldn't be the same without Tim's contribution, and I'm happy to have him as a part of the membership conference team. Tim will communicate with all our valued vendors and coordinate their attendance in October.

In closing, I hope everyone is ready for, what's sure to be, a busy and prosperous beekeeping season.

Till next time ...

John



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Dadant and Sons celebrates 150th Anniversary



For Immediate Release (Dadant and Sons), March 18, 2013

Eight hundred beekeepers converged on the Dadant & Sons, Inc., Beekeeping Supply and Candle Company in Hamilton, Ill, March 15 & 16, 2013 to attend the Sesquicentennial Anniversary celebrating the company's 150 years of business.

Festivities on March 15 included a tour of the company's three main area manufacturing facilities in Hamilton and Dallas City, Illinois, and Kahoka, Missouri, as well as a complementary banquet and evening speaker at Sullivan Auctioneers, Inc., located outside of Hamilton on Highway 136. We would like to thank the Sullivan family for their generosity and helping with our 150th Anniversary celebration. The following day, beekeepers were treated to a full day of speeches and displays, as well as lunch provided by the company. Saturday's program included speeches from nationally known beekeeping experts:



*At right, **Joe Graham**, editor of the American Bee Journal for the past 39 years, listens to one of the 800 or so attendees at Dadant's anniversary celebration.*

James Tew, retired Ohio State extension beekeeper and current extension beekeeper at Auburn University; Randy Oliver, California commercial beekeeper and pollinator and monthly columnist for the American Bee Journal; Jerry Hayes, former Florida State apiarist, who currently works for Monsanto in St.



***Jerry Hayes**, at right, long-time American Bee Journal columnist, reminisces with **Luke Dadant Menn**, a sixth-generation member of the Dadant family.*

Louis on bee health and writes the monthly Classroom column for the American Bee Journal; and Chuck and Karen Lorence, Illinois sideline beekeepers and honey marketing experts. Talks were also given by Tim Dadant, company president; Kent Robertson, Dadant's Dallas City Metalware plant manager; and Ray Latner, Dadant's Florida branch manager.

Dadant & Sons, Inc., began their business in Hamilton, Illinois in 1863 when Charles Dadant emigrated from France to the United States with the intention of growing grapes in West Central Illinois. However, Charles, who had also been a hobby beekeeper in France, soon discovered that honey bees flourished and produced excellent honey crops in this area due to the abundance of native

wildflowers, as well as clover and alfalfa grown by farmers. From this sideline pursuit the family's beekeeping business continued to grow. At one time, the family was known as one of the largest honey producers in the country.

continued next page



***Randy Oliver**, California beekeeper, research scientist and author of the long-running "Sick Bees" series in the American Bee Journal, was a center of attention during breaks in the lecture schedule at the crowded Sullivan Auction House.*

All photos by Eugene Makovec



Dadant draws 800 beekeepers to Hamilton, Illinois

continued from previous page

Charles and his son, C.P. Dadant, also began to manufacture beeswax comb foundation for other beekeepers when it was discovered that providing reusable combs for beehives greatly increased the hive's honey productivity. Eventually, the company added beehives, honey processing equipment and other beekeeping accessories to the wide range of products they sold to beekeepers. As the family business grew, producing quality beekeeping supplies became a larger part of the business. Today, Dadant & Sons, Inc., is the largest beekeeping supply manufacturer in the world. They also manufacture candles for both the religious and decorative candle trade. Besides its plants in Hamilton and Dallas City, Ill., and Kahoka, Mo., it owns a woodenware plant in Polson, Mont. It also has 10 branch sales offices located throughout the country, in addition to significant international sales volume. On the educational front, it maintains the monthly American Bee Journal magazine, the oldest English language beekeeping magazine, as well as publishing an extensive line of beekeeping educational books.



"The sting is the thing that binds us." Jim Tew, Auburn University extension beekeeper, addresses the crowd during Saturday's meeting. Tew brought down the house with a rousing after-dinner address on Friday evening.



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- New and Exciting Developments in Apiculture
- What to do About Bee Losses

Space is limited and will be filled on a first-come-first-served basis

Meals and refreshments are included.

**Registration will be available online at www.easternmobeekkeepers.com
for EMBA members only, beginning April 13, 2013, and to the public,
starting April 20, 2013.**



Bees can sense the electric fields of flowers

by Ed Yong, NationalGeographic.com

A bumblebee visits a flower, drawn in by the bright colours, the patterns on the petals, and the aromatic promise of sweet nectar. But there's more to pollination than sight and smell. There is also electricity in the air.

Dominic Clarke and Heather Whitney from the University of Bristol have shown that bumblebees can sense the electric field that surrounds a flower. They can even learn to distinguish between fields produced by different floral shapes, or use them to work out whether a flower has been recently visited by other bees. Flowers aren't just visual spectacles and smelly beacons. They're also electric billboards.

"This is a big finding," says Daniel Robert, who led the study. "Nobody had postulated the idea that bees could be sensitive to the electric field of a flower."

Scientists have, however, known about the electric side of pollination since the 1960s, although it is rarely discussed. As bees fly through the air, they bump into charged particles from dust to small molecules. The friction of these microscopic collisions strips electrons from the bee's surface, and they typically end up with a positive charge.

Flowers, on the other hand, tend to have a negative charge, at least on clear days. The flowers themselves are electrically earthed, but the air around them carries a voltage of around 100 volts for every metre above the ground. The positive charge that accumulates around the flower induces a negative charge in its petals.

When the positively charged bee arrives at the negatively charged flower, sparks don't fly but pollen does. "We found some videos showing that pollen literally jumps from the flower to the bee, as the bee approaches... even before it has landed," says Robert. The bee may fly over to the flower but at close quarters, the flower also flies over to the bee.

This is old news. As far back as the 1970s, botanists suggested that electric forces enhance the attraction between pollen and pollinators. Some even showed that if you sprinkle pollen over an immobilised bee, some of the falling grains will veer off course and stick to the insect.

But Robert is no botanist. He's a sensory biologist. He studies how animals perceive the world around them. When he came across the electric world of bees and flowers, the first question that sprang to mind was: "Does the bee know anything about this process?" Amazingly, no one had asked the question, much less answered it. "We read all of the papers," says Robert. "We even had one translated from Russian, but no one had made that intellectual leap."

To answer the question, Robert teamed up with Clarke (a physicist) and Whitney (a botanist),

and created e-flowers—artificial purple-topped blooms with designer electric fields. When bumblebees could choose between charged flowers that carried a sugary liquid, or charge-less flowers that yielded a bitter one, they soon learned to visit the charged ones with 81 percent accuracy. If none of the flowers were charged, the bees lost the ability to pinpoint the sugary rewards.

But the bees can do more than just tell if an electric field is there or not. They can also discriminate between fields of different shapes, which in turn depend on the shape of a flower's petals and how easily they conduct electricity. Clarke and Whitney visualised these patterns by spraying flowers with positively charged and brightly coloured particles. You can see the results below. Each flower has been sprayed on its right half, and the rectangular boxes show the colours of the particles.

continued on page 13

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- KELLEYS 1" bronze gear **honey pump** with reduction gears mounted on a 10X18" channel \$300.00
- Tommy lift gate** for P.U. mod. 1000, \$200.00. TWO **perfection gates** for drums, \$10.00 ea.
- LOVIBOND **honey color grader** (paid \$350.) \$50.00. KELLEYS **heat limit control**, new, \$50.00
- SPOTNAILS stapler**, with 5 boxes 3/16 X 3/4 staples & 1/2 bx of 3/16 X 1 1/8 staples . \$50.00
- BEE SWAX** 50 lbs. \$4.00/lb. **PROPANE bottles** 100 lb \$20.00ea KELLEYS **water circulator** \$50.00.
- HOBART 20 qt. **mixer** with meat grinder (A200) \$1200.00. WOODS 5' Finish **Mower** 3 pt. hitch \$800.00



Grant Gillard named 2012 Missouri Beekeeper of the Year

Outgoing MSBA President Grant Gillard was named Missouri Beekeeper of the Year during Dadant's 150th Anniversary celebration and meeting in March. The following is excerpted from the award presentation by current President John Timmons.

It's customary at our spring membership conferences, that we honor that member of the MSBA for his or her contribution to the organization and Missouri beekeeping. Like most state beekeeping organizations, the MSBA has been around for many decades. And, as with any successful organization, it's usually a small group of individuals stepping to the forefront with wisdom and guidance and grit and determination that keeps the wheels turning. In the case of the MSBA, it's individuals who not only shine as beekeepers, but educators and leaders. These are the individuals that make any organization successful, and the Missouri State Beekeepers Association is no exception.

It is with this high standard of excellence in mind that the Board of Directors of the MSBA presents this year's award for Beekeeper of the Year to Grant Gillard.

Following his graduation from Iowa State University, Grant began keeping bees in 1981 with twenty hives in southern Minnesota. A lot has happened since 1981, having transplanted himself from the cold confines of Minnesota to the near-tropical climate of southeastern Missouri.

Grant describes himself as a "Serious Sideliner", operating multiple apiaries totaling around 200 hives, give or take a handful depending on the time of year and the number of swarms he's captured. His beekeeping operation remains, as his wife Nancy puts it, "a hobby on steroids".

His methodology is best described as keeping bees as naturally as possible with sustainable practices, including raising his own locally

adapted queens.

He markets his honey through farmers markets, wholesale to grocery stores, and from his driveway with a self-service "honor box".

Grant is a Presbyterian Pastor in Jackson, Missouri, husband to Nancy and father of three grown children, Austin, Claire and Barbara.

He is a frequent conference speaker, and has published numerous articles in both Bee Culture and American Bee Journal, in addition to a number of books on beekeeping.

From 2010 through 2012, Grant served as President of the Missouri State Beekeepers Association.

It gives me great pleasure to present this year's Missouri State Beekeeper Association "Beekeeper of the Year" award to Grant Gillard.



Nancy Gillard applauds as her husband Grant is announced as the 2012 Missouri beekeeper of the Year.
photo by Michael Godfrey

Are you ready to survey?

Help the Bee Informed Partnership assess the health of our industry -- Surveys due April 15!

The Bee Informed Partnership (BIP) is a USDA/NIFA (U.S. Department of Agriculture/National Institute of Food and Agriculture) funded project with the stated goal of reducing colony losses. The program is a collaboration of research institutions, Universities and beekeepers in the US. It is now time for your active participation!

BIP and the nation's beekeepers, cooperatively seek solutions to reduce colony losses. While some beekeepers are experiencing near normal loss levels, others are experiencing devastating losses. BIP seeks a collective approach to gather and share information on what works and what doesn't work. We need your participation on two annual electronic surveys, covering both annual colony losses and management strategies. The information, after coming directly from beekeepers, is then analyzed and displayed graphically in a way that is easy to understand.

Beekeepers can find out which management techniques correlate to lower colony loss when beekeepers anonymously share data. More data is always more accurate than less data. Last year's survey included over 5,000 participating beekeepers sharing information.

As the third year of these surveys approaches, the goal of the partnership is to increase participation and report it so it is more significant and meaningful to beekeepers. This third year of data will enable us to conduct multi-factorial analysis and report results on a more regional basis; especially in states with large participation. Commercial beekeeper data will be separated to highlight this group's special needs and concerns.

The cost for participating is free. It will take less than 20 minutes to take both surveys. In return, you will have access to the compiled data from all aspects of bee management. The information you enter into the survey is completely anonymous designed to improve everyone's beekeeping success.

Go to Beeinformed.org to see what we have gathered so far and sign up for this year's survey. More Beekeeper participation means more information and more answers. We want you to BEE INFORMED. The surveys will be available beginning March 29th and will stay open until April 15th. For more information, to sign up to participate or to fill out a survey on March 29th, visit beeinformed.org or email Karen Rennich, BIP Project Manager at usbeesurvey@gmail.com



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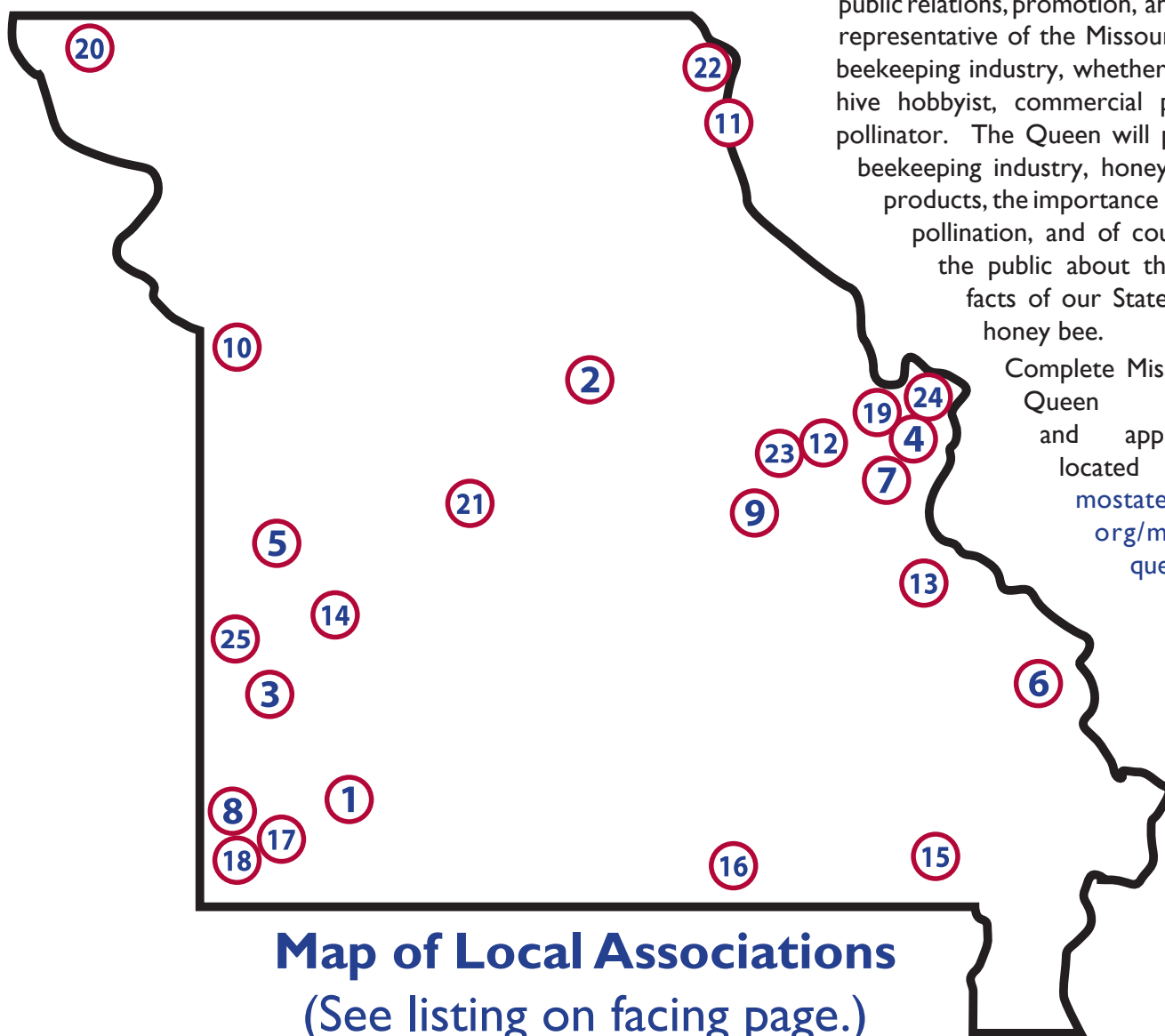
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Searching for a Queen by Wanda Johnston, Queen Chair

The search is on for a 2014 Missouri Honey Queen. Single young women between the ages of 18 to 24 are invited to apply. Application deadline is August 31, 2013.

The Missouri Honey Queen is a year-round public relations, promotion, and advertising representative of the Missouri honey and beekeeping industry, whether it is a single hive hobbyist, commercial producer or pollinator. The Queen will promote the beekeeping industry, honey, honey bee products, the importance of honey bee pollination, and of course educate the public about the fascinating facts of our State Insect: The honey bee.

Complete Missouri Honey Queen information and application is located at <http://mostatebeekeepers.org/msba-honey-queen>



Map of Local Associations
 (See listing on facing page.)



Local Beekeeping Associations

- 1 Beekeepers Association of the Ozarks**
4th Tuesday of each month, 7:00 p.m.
Darr Ag Center, 2401 S. Kansas Expwy, Springfield
Bruce Snavey, President 417-732-5219
www.ozarksbeekeepers.org
- 2 Boone Regional Beekeepers Association**
3rd Sunday of month, 3:00 p.m., Columbia Insurance
Group, 2102 Whitegate Dr. (back door), Columbia
President Jim Duever 573-254-3373
www.boonebees.org
- 3 Busy Bee Club**
4th Tuesday of each month, 7:00 p.m., Cedar County
Health Center, Owens Mill Road, Stockton
Neal Lee 417-276-3090, Neil Brunner 314-276-4252
grnthumb@alltel.net
- 4 Eastern Missouri Beekeepers Association**
2nd Wednesday of each month, 7:00 p.m., location
changes. Bob Sears, President 314-479-9517
www.easternmobeekeepers.com
- 5 Golden Valley Beekeepers**
2nd Monday of each month, 7:00 p.m. (but varies)
Henry County Courthouse, Clinton MO
Jamie Perry, Secretary 660-924-3404
jamiebperry711@yahoo.com
Tom McCormick, President 417-644-7507
tlmccormick@mccormickcos.com
- 6 Jackson Area Beekeepers**
4th Tuesday of each month, 7:00 p.m.
First Pres. of Jackson, 206 E. Washington
Contact Grant Gillard 573-243-6568
gillard5@charter.net
- 7 Jefferson County Beekeepers Association**
2nd Tuesday of each month, 7:30 p.m., Hwy B & 21
Jefferson County Extension Center, Hillsboro
Contact Scott Moser 636-285-7295
- 8 Joplin Area Beekeepers Association**
Last Tue. of each month, 7 pm, SM Bank Community
Building (7th and Duquesne Rd), Joplin
Steve Davis, President 620-202-0232
- 9 Mid Missouri Beekeepers**
3rd Sunday of each month, 2 pm, Old Train Depot,
St. James. Steven Todd, President 573-885-6650
steventdd447@gmail.com
- 10 Midwestern Beekeepers Association**
Nov-March, 2nd Sunday of each month, 2:30 p.m.
April-Oct, usually 3rd Thursday of month, 7:00 p.m.
(Schedule varies; please call first to confirm.)
Bass Pro Shop, Independence, Conservation Room
Cathy Misko, President 660-656-3485
cathymisko@earthlink.net
- 11 Mississippi Valley Beekeepers Association**
Last Tuesday of Month in Quincy, IL
Contact Bernie Andrew 217-938-4975
- 12 Missouri Valley Beekeepers Association**
3rd Monday of each month, 7:00 p.m.
Location varies, contact below if unsure
President Calvin Brandt cvbrandt@landolakes.com
- 13 Parkland Beekeepers**
3rd Tuesday of month, 7pm, Ozark Federal Savings
President Jim Johnson 573-330-6498 or 573-330-6499
- 14 Pomme de Terre Beekeepers**
2nd Thursday of each month, 7 pm
Missouri Extension Office, Hermitage
Contact Bessi Shryer 417-745-2527
- 15 SEMO Honey Producers**
2nd Thursday of month, Church of Christ, Poplar Bluff
Contact Ernie Wells 573-429-0222
wells.ernie@gmail.com
- 16 South Central Missouri Beekeepers Association**
1st Friday of month, Howell Electric Coop, West Plains
Monty Wiens, President 417 257-3994
- 17 Southern MO Beekeepers of Monett "MOBees")**
3rd Tuesday of each month, 7:00 p.m.
United Methodist Church, Hwy 37 NW of Monett
Leon Riggs, President 417-235-5053
- 18 Southwest Missouri Beekeepers Assn. of Neosho**
1st Tuesday of month, Neosho High School FFA Bldg
President Roger Ross 417-472-3504
- 19 Three Rivers Beekeepers**
3rd Monday of month, University of Missouri Extension,
260 Brown Road, St. Peters, Missouri, 7:00 p.m.
For info: 2952 Greenleaf Drive, St. Charles, MO 63303
info@threeriversbeekeepers.com
- 20 Northwest Missouri Bee Busters**
1st Monday of odd months, 7:00 p.m.
511 4th Street, Conception Junction, MO 64434
Gerald Auffert, President 660-944-2535
- 21 Lake of the Ozarks Beekeepers**
3rd Saturday of month, 1:00 p.m.
UMC Extension Office, 100 E. Newton, Versailles MO
Contact Russell Kasnick 573-372-3122
- 22 Northeast Missouri Beekeepers Association**
1st Friday of month, 6:30 pm Running Fox Elementary
(3 miles south of Wayland) Acting President
Randy Ewart 573-248-5561 rewart@centurytel.net
- 23 Gasconade Region Bee Keepers**
2nd Tuesday 7:00, First State Comm. Bank, Owensville
President Rodney Angell 573-259-5811
2224 Nowack, Rosebud MO bee143@fidnet.com
- 24 St. Louis Beekeepers**
4th Tuesday 6:30, Schlafly Bottleworks
contact@saintlouisbeekeepers.com
www.saintlouisbeekeepers.com
- 25 Western Missouri Beekeepers**
2nd Tuesday 6:30, Moor-View Community Room, Nevada
Caroline Phillips, President 417-321-3587
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See state map on facing page for approximate geographic locations.

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Bees get a charge out of flowers

continued from page 7

The bees can sense these patterns. They can learn to tell the difference between an e-flower with an evenly spread voltage and one with a field like a bullseye with 70 percent accuracy.

Bees can also use this electric information to bolster what their other senses are telling them. The team trained bees to discriminate between two e-flowers that came in very slightly different shades of green. They managed it, but it took them 35 visits to reach an accuracy of 80 percent. If the team added differing electric fields to the flowers, the bees hit the same benchmark within just 24 visits.

How does the bee actually register electric fields? No one knows, but Robert suspects that the fields produce small forces that move some of the bee's body parts, perhaps the hairs on its body. In the same way that a rubbed balloon makes your hair stand on end, perhaps a charged flower provides a bee with detectable tugs and shoves.

The bees, in turn, change the charge of whatever flower they land upon. Robert's team showed that the electrical potential in the stem of a petunia goes up by around 25 millivolts when a bee lands upon it. This change starts just before the bee lands, which shows that it's nothing to do with the insect physically disturbing the flower. And it lasts for just under two minutes, which is longer than the bee typically spends on its visit.

This changing field can tell a bee whether a flower has been recently visited, and might be short of nectar. It's like a sign that says "Closed for business. Be right back." It's also a much more dynamic signal than more familiar ones like colour, patterns or smells. All of these are fairly static. Flowers can change them, but it takes minutes or hours to do so. Electric fields, however, change instantaneously whenever a bee lands. They not only provide useful information, but they do it immediately.

Robert thinks that these signals could either be honest or dishonest, depending on the flower. Those that carpet a field and require multiple visits from pollinators will evolve to be truthful, because they cannot afford to deceive their pollinators. Bees are good learners and if they repeatedly visit an empty flower, they will quickly avoid an entire patch. Worse still, they'll communicate with their hive-mates, and the entire colony will seek fresh pastures. "If the flower can signal that it is momentarily empty, then the bee will benefit and the flower will communicate honestly its mitigated attraction," says Robert.

But some flowers, like tulips or poppies, only need one or two visits to pollinate themselves. "These could afford to lie," says Robert. He expects that they will do everything possible to keep their electric charge constant, even if a bee lands upon them. They should always have their signs flipped to "Open". Robert's students will be testing this idea in the summer.

Many animals can sense electric fields, including sharks and rays, electric fish, at least one species of dolphin, and the platypus. But this is the first time that anyone has discovered this sense in an insect. And in the humble bumblebee, no less! Bees and flowers have been studied intensely for decades, maybe centuries, and it turns out that they've been exchanging secret messages all this time.

Now, Robert's team is going to take their experiments from the lab into the field, to see just how electrically sensitive wild bees can be, and how their senses change according to the weather. "We are probably only seeing the tip of the electrical iceberg here," he says.

Reference: Clarke, Whitney, Sutton & Robert. Detection and Learning of Floral Electric Fields by Bumblebees. Science <http://dx.doi.org/10.1126/science.1230883>

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Henbit is a common annual, blooming in winter in warmer climates, and early spring in the Midwest. Honeybees are known to work it for both pollen and nectar. It can reportedly result in a slightly minty honey, but in these parts the nectar goes exclusively for population building. If allowed to mature, the plant can achieve a height of 12-15" and produce tiny, nutlike seeds.

photo by Eugene Makovec

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