

Spring 2007

w.a.s. Journal
The Journal of the Western Apiculture Society of North America

New WAS website: groups.ucanr.org/WAS/



Message from the President

It's late spring here in Tucson, with all the flowers in full bloom, including our best honey-makers, the mesquite tree and the Catsclaw acacia, or *Acacia greggii* (see photo 1). Also the saguaro cactus is starting to bloom, early for this time of year, (photo 2).

As I am writing this, I have been hard at work to develop a great program for this coming August. I am trying to finalize folks coming in to speak and to organize workshops that will be interesting and informative. I think it is shaping up to be a great meeting, with lots of things to do and see here in Tucson. You will be here for the exciting monsoon season, when the 'male' rains create spectacular lightning as well as heavy downpours and wonderful rainbows. A fun time to be here.

Nancy Ostiguy will be here with the latest update on CCD, or the colony collapse disorder; she and others from Penn State University have been helping to spearhead a lot of the efforts to find out what is the cause(s) of this large loss in bee colonies this year. We also have Rob Page coming down from his new digs in Arizona State University, in Tempe, to talk about the new lab he heads up there, and most of the folks here at the lab are also giving updates on our research. The fun side includes workshops and talks by local beekeepers as well as a full tour of our lab here.

We are also going to have a movie night, so bring your favorite "B" movie or DVD and maybe we'll get some popcorn. There are also lots of different day excursions to choose from, so if you have a preference, we will list 2 or 3 half-day trips, to see how many sign ups we get. I'm also lining up not only bee vendors but local vendors that will have some interesting local products for sale. Sunday morning at the Windmill Inn parking lot is a farmers market, so if you are coming into Tucson on Sunday, come in time for the market in the morning.

Diana Sammataro, WAS President



Catsclaw acacia



Saguaro Cactus

Conference accommodation - Windmill Inn, Tucson 1-800-547-4747 or 520-577-0045. Conference rate \$69/night + tax single or double. **PHONE TO BOOK. CONFERENCE RATE IS NOT AVAILABLE ONLINE.**

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Each state/province in Western North America is entitled to elect one Director to the governing board of the Society. Directors meet before and after each general meeting and set policy and guidelines for the operation of the business of the Society. Throughout the year, they serve as the liaison between the Society officers and the members in their respective states/provinces. They are responsible for recruiting new members, keeping track of state/provincial concerns and advising the membership of their activities through this Journal.

W.A.S. NEWSLETTER ADVERTISING RATES

(Payable in US funds only)

Full page	150 US
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Up to 25 words	10 US (incl header & contact info)
26 - 50 words	20 US

Make check payable to Western Apicultural Society and mail to Newsletter Editor/Publisher

NEWSLETTER

Editor/Publisher Fran Bach

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NOTE CHANGE

2 Spring 2007

Message from the Vice President

We are as busy as bees preparing for your visit to Tucson for the WAS 2007 Conference. By meeting time in August, we'll be well into our summer monsoon season. This is a celebrated time of year when the Sonoran Desert receives half of its annual rainfall. But don't worry! A 30-minute thundershower qualifies as a very long rain. You can expect to experience a desert shower while you are in Tucson, but it will by no means dampen your day. I hope that you get to experience a bit of our "second spring".

It still amazes me that after 2 months of searing 100+-degree temperatures in May and June, it only takes a little water to turn the desert green again in July and August. Seemingly overnight, the desert plants come back to life. Some -- like the Sangre de Cristo or Limberbush (*Jatropha cardiophylla*) -- produce their first green leaves of the year. At any other time, most of you would walk by the brownish-red stems of this semi-succulent plant and think they were merely dead twigs. But during monsoon, Limberbush explodes with abundant lime-green heart-shaped leaves and tiny, white bell-shaped flowers that provide summer pollen for honey bees.

Other desert plants -- like the creosote bush (*Larrea tridentata*) -- that have been dormant since spring, wake up and bloom a second time. The creosote bush also gives us the unique scent of desert rains. I've heard it described as "a singular but very agreeable odor", but I think "rain on a scorched parking lot" gives you a much better idea. It has been known to bloom any time of year if water is available. Creosote is a good pollen source and produces a bluish-yellow honey but rarely in surplus.

Most desert plants work very hard at sucking up as much moisture as they can from these short rains. The giant saguaro (*Cereus giganteus*) can grow up to 50 feet tall and may weigh 12 tons. Although the cactus is supported by an interior structure of wood-like columns, 75 to 95 of the weight comes from water. As you might expect, saguaro are adept at grabbing and holding onto any rainfall. Their root system penetrates only about 3 feet down into the soil but extends as much as 100 feet out to the sides of the cactus. They use this to absorb water quickly and channel it into their accordion-like stems where it is stored. These desert giants actually get fatter during rainy periods and slimmer during droughts. Because they store so much water, saguaros are one of the desert's most dependable bloomers, producing many waxy white flowers with



A forest of 2 to 6-foot "baby" giant saguaro cacti in the Tucson Mountains. Their first blossoms won't come until they're 8 to 10 feet tall or 45 to 50 years old. But ask any Arizona bee -- their sweet pollen and cups of nectar are well worth the wait!!

yellow stamens each year. Flowers open at night in May and are pollinated by several night-flying insects and bats. The bees and birds get a chance the following morning, then the flowers close for good in the afternoon. The flowers produce an abundance of sweet-tasting, high protein pollen, and each flower can yield up to a 1/2-cup of nectar which produces a beautiful light-colored honey. Unfortunately, the saguaro flowers and even their fleshy fruits will be gone weeks before WAS arrives in Tucson, but I hope that you will still enjoy the sight of our "biggest" bee plant.

Jennifer Finley, WAS Vice President

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WESTERN APICULTURAL SOCIETY WAS 2007 Conference Schedule

Sunday, August 19th

- 1:00 pm Exhibitors (& silent auction) set up in exhibits room
Registration (open all afternoon)
 3:00 Exhibits open to the members and the general public
 3:30 Delegates/Directors Meeting - Lecture Room
 5:00 **Dinner** on your own
 7:00 "Bee Buzz" (Social) in Exhibits Room
 Honey Tasting sponsored by Beekeepers Association of Central Arizona
 Greeters: Ericksons, Lopers,

Monday, August 20th

- 7:30 am **Registration**
 8:00 Welcome to the Conference - President Sammataro;
 local contacts
 Exhibits open
 8:20 Door prizes

Current Topics in Honey Bee Research

- 8:30 1. Nancy Ositguy, Penn State University: CCD update
 9:00 2. Rob Page, Arizona State University: Honey bee division of labor: the ovaries rule.
 9:30 3. Blaise LeBlanc: High antioxidant activity of desert bee pollen

- 10:00 **Beverage break**
 10:45 4. Gordon Wardell, S.A.F.E. LLC: Honey Bee Nutrition: Links to CCD?

- 11:15 5. Eric Mussen TBA
 11:45 **Lunch** - on your own

- 1:00 Door prizes

1:15 What's New in AZ?

1. Robert Page: New lab in Arizona
 1:45 2. Gloria DeGrandi-Hoffman, Carl Hayden Honey Bee Lab: Differences between European and African honey bees: More than just nest defense behavior.

- 2:45 **Beverage break**

- 3:15 3. Fabiana Segura: Essential oils and Varroa

- 4:30 4. Judy Hooper, Pima Research: TBA

- 5:00 **Dinner** on your own. Slide show/movie night??

BRING YOUR FAVORITE MOVIE, DVD

Tuesday, August 21th

- 7:30 am Registration (until 8:20 am)

- 8:00 Exhibits open

- 8:20 Door prizes

- 8:30 **Beekeeping in the Desert**

1. Managing our Bees: Fred Terry

- 9:00 2. Unique Problems in the Desert: AZ beekeepers
 9:30 3. NRCS Don Breckenfeld: What soils tell us about honey plants?

- 10:00 **Beverage break**

- 10:45 4. Carl Olson, U of A: Urban Wildlife in AZ, or how to live with bugs

- 11:15 5. Ruben Alarcon: Pollination work at the Lab

- 12:00 Botanical Gardens Tour/lunch

Possible workshops at the Garden? AZ beekeepers?

Dinner on your own (Conference room locked for the night)

Wednesday, August 22th

- 7:30 am Registration (until 8:20)

- 8:00 Exhibits open

- 8:20 Door prizes

- 8:30 Visit the Carl Hayden Bee Research Center

- 9:15 **Rotating Tours of the Lab**

AHB identification (Chambers)

Beekeeping in AZ (Deeby)

Wardell, Segura

Hoffman

Nancy/Samm: How to look for virus? Hands on experiment.

- 10:00 **Beverage break**

- 10:45 Continuing Tour of lab: Finley, Ruben, Blaise, Mona

- 11:45 **Lunch** - on your own

- 1:00 pm Spouse Tour: Sabino Canyon & DeGrazia's Art

Gallery

End of Silent Auction

- 1:15 Fred Terry : TBA

- 2 - 4:00 Workshops by local bee groups, place TBA

- 2:30 WAS Annual Business Meeting

- 3:30 Delegates'/Directors' Meeting - Lecture Room

- 6:00 Social gathering

- 6:45 **Awards Banquet and Auction, Windmill Inn**

Thursday, August 23th

- 7:30 am Registration (until 8:20)

- 8:00 Exhibits open

- 8:20 Door prizes

- 8:30 1. Dan Cummings: Project Apis m.

- 9:15 2. Chris Heintz: Update on Almond Pollination

OR P. Ellsworth: Update on new pesticides

- 10:00 **Beverage break**

- 10:45 3. R. Hoopingarner: Looking back at all the new ideas

- 11:15 4. Jim Bach: Funding for WA Bee Research?

- 11:45 Closing remarks

Adjourn until Next Year



WESTERN APICULTURAL SOCIETY

Windmill Inn, Tucson, AZ

August 19-23 2007



Pre-Registration Form

<http://groups.ucanr.org/WAS/>

Name(s) _____

For your name badge

Current mailing address _____

Street, apartment #

City State/Province Zip/Postal code

Phone No. E-mail

CONFERENCE COST PER PERSON

Full (4-day) Conference Package (including Bee Buzz snacks and Banquet)	\$100 x _____ = _____
Single Day (Monday, Tuesday, Wednesday) CIRCLE which day	35 x _____ = _____
Thursday Morning only	20 x _____ = _____
Banquet only (independent of Full Conference package)	35 x _____ = _____

LODGING: MAKE YOUR OWN RESERVATIONS:

Windmill Inn 4250 North Campbell Avenue; Tucson, Arizona 85718. Phone: 520-577-0007 local phone / 520-577-0045 local fax / 1-800-547-4747 toll free. SPECIAL RATE for WAS is \$69.00 + 12.05% tax per suite, per night single or double occupancy. (Phone to book. This rate is NOT available online.)

TOURS (optional)

1. Half Day Tour Tucson Botanical Gardens (not charged if registration paid) (Min. 20 people to sign up)	35 x _____ = _____
2. Spouses Tours: Sabino Canyon & DeGrazia's Art Gallery (Min. 20 people to sign up)	35 x _____ = _____

Annual Dues (US funds) _____

Individual.....\$10.00	Commercial.....\$50.00	Couple.....\$15.00
Association...\$10.00	Junior /Senior.....\$7.50	Couple life.....\$150.00
Life.....\$100.00	Benefactor.....\$500.00	Patron\$1000.00

Total Payment (US funds) _____



The theme of the meeting this year is
"Coming Together"

All W.A.S. registration forms and payments at full rate (no credit cards).
Make checks payable to **Western Apicultural Society** and mail to
George Steffensen, Treasurer, Western Apicultural Society,
PO Box 956, Grants Pass, OR 97528, USA

All pre-registration forms should be received no later than **July 15, 2007**.
There will be an additional \$15 assessed daily for ON-SITE registration.

Carl Hayden Bee Research Center Program

By Dr. Gloria DeGrandi-Hoffman

The mission of the Carl Hayden Bee Research Center is to conduct research addressing problems associated with moving bees for pollination. To fulfill this mission, we conduct research to: 1) improve honey bee nutrition, 2) develop methods to control Varroa mites, and 3) prevent Africanization of managed European honey bee colonies. We also conduct research on the pollination of agricultural crops.

Our research in honey bee nutrition has resulted in a liquid protein diet for beekeepers. A patent has been filed, and a licensing agreement with S.A.F.E. Research and Development for production and distribution has been granted. Along these lines, this year we are researching the effect of high fructose corn syrup and other commercial diets on bee health and longevity. Feeding experiments are underway to determine changes in hemolymph proteins and food gland development.

Research on developing new methods to control Varroa mites has resulted in three new strategies to reduce Varroa populations. The first is the identification of 2-heptanone as a miticide. The delivery system is being developed to apply the compound in honey bee colonies. We also have identified miticidal compounds that are beta acids of plants. The compounds are safe for human consumption and are stable in a hive environment. We are determining the amount of the compounds that need to be applied in colonies to control Varroa mites. We also are developing a biodegradable delivery system to dispense the products in hives in a manner that will not affect bee behavior or cause bee mortality.

In addition to methods that control Varroa in the phoretic stage (i.e., 2-heptanone and plant acids), we also are developing ways of systemically controlling Varroa. We have identified four essential oils that can be highly effective in reducing mite populations when fed to bees. We developed an emulsification procedure to mix the essential oils with various carriers. The first carrier we tried was a sugar syrup solution. While consumption of the syrup/oil mixture was high, only small

amounts of the oils could be found in the larvae and the treatment had almost no impact on mite reproduction. Next, we emulsified the essential oils in our liquid protein diet. The diet proved to be a compatible carrier and, in a preliminary experiment, mite reproduction levels were significantly reduced. Additional compounds for mite control are also being tested.

Finally, we are conducting studies to identify volatiles from worker and drone larvae that Varroa use to select cells to infest. Ultimately, this research might produce methods to disrupt host finding and reproduction by Varroa.

Our research in preventing Africanization of European colonies has two main components. The first is developing techniques to introduce European queens into Africanized colonies. We are conducting studies to identify chemical and behavioral cues associated with queen acceptance and determining whether thresholds for acceptance differ between Africanized and European bees. We also are examining behaviors and chemical cues associated with the usurpation of European colonies by swarms of African bees. The behavioral studies are directed at identifying methods used by African swarms to gain entry into European colonies. The methods used by the workers in the swarm to replace the host colony queen with their own also are being investigated. We also are determining whether chemical cues are associated with the selection of colonies to be invaded and how volatile or contact pheromones might play a role in the invasion process. We recently hired a chemical ecologist (Dr. Blaise LeBlanc) to expedite the progress in this research area.

Our most recent addition to the Bee Center is a pollination ecologist in a post-doctoral position (Ruben Alarcon). Dr. Alarcon will be studying pollination of oil seed crops used for biofuels and pollination of almonds.

We are looking forward to your visit to Tucson and to the Bee Center.



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6 Spring 2007

Crossing the Border to/from the WAS Conference

Entering the US

The Western Hemisphere Travel Initiative (WHTI) is a new U.S. law requiring all travellers, including Canadians, to carry a passport or other appropriate secure documentation when travelling to, or through, the United States.

AIR TRAVEL

All travelers are now required to have passports - including U.S. citizens returning to the U.S. by air from throughout the Western Hemisphere - as of January 23, 2007. This new requirement includes Canadians, Americans and others who have previously been exempt from having to carry a passport to enter or re-enter the U.S.

SEA (CRUISE) TRAVEL

No exact date is set but passports will be required for sea or cruise passengers entering or re-entering the U.S. on the same deadline as for land border crossings - some time before June 1, 2009.

LAND BORDER TRAVEL

In conjunction with the cruise deadline, a passport or other qualified travel document will be required at all land border ports-of-entry prior to June 1, 2009, possibly as early as

January 1st, 2009. But no exact date has yet been set. Canadians can continue to use such documents as their birth certificates and drivers' licenses to cross the Canada-U.S. border by land and sea until then.

The Government of Canada continues to recommend that travellers carry a valid Canadian passport for all visits abroad, including the United States. A passport is the only universally accepted identification document, and it proves that you have a right to return to Canada.

Check the website <http://getapassportnow.com> for links to appropriate sites to obtain passports. On the Canadian side, there is a considerable back-up so the ten-week period indicated is now longer. Make sure you allow as much time as possible, and indicate on the application what date you require your passport for planned travel.

Check with your local government office to determine how much goods can be brought back from your trip. If you exceed the limit, you will be required to pay duty on the excess.

More information on travelling between Canada and the US is available at http://www.travel.state.gov/travel/cbpmc/cbpmc_2223.html (United States) or <http://cbsa-asfc.gc.ca/menu-eng.html> (Canada).

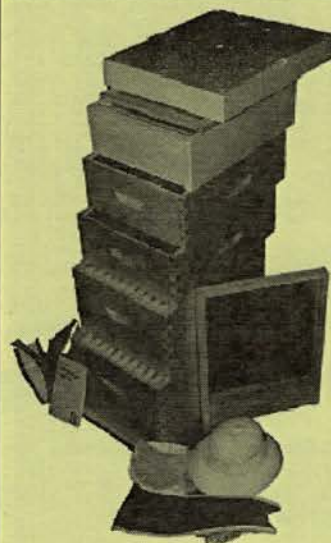


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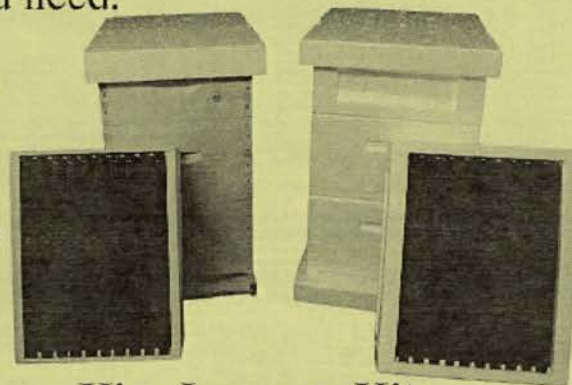
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Ontario Premier's Award of Excellence goes to NOD Apiary Products.

March 8, 2007: NOD Apiary Products, of Frankford, Ontario, Canada, was awarded the Premier's Award of Excellence for Agri-Food Innovation in a special ceremony on March 8, 2007 in Toronto, Canada. Recognition was for the development of Mite-Away II™ for control of Varroa and Tracheal mites.

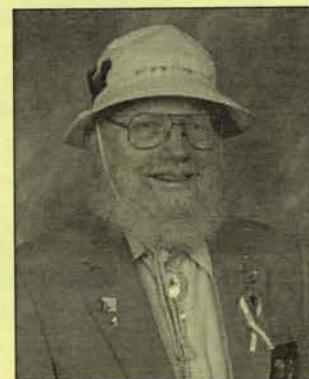
David Vander Dussen, CEO of NOD, supported through the University of Guelph and by the Ontario Beekeepers' Association, developed an effective and environmentally-friendly product to control these parasitic mites.

Mite-Away II has received approval from the Pest Management Regulatory Agency (PMRA) in Canada and is registered with the Environmental Protection Agency (EPA) in the United States, and is now widely used across North America. Not only does it work effectively to kill off parasitic mites, formic acid (the active ingredient) has been proven to be a formidable bactericide, fungicide and anti viral agent. Packing this kind of punch, Mite-Away II™ is an effective tool for beekeepers to use against Varroa and Tracheal mites as well as helping to solve the new problem of CCD.

Obituary....

Anthony R. "BOB" Marion, Jr
WAS Director for Idaho

Bob Marion, a long-time member of the Western Apiculture Society, passed away on Sunday, December 3, 2006. Bob was diagnosed with cancer in October and was cared for by his daughter until his death.



Bob was a kind, patient and loving man who was always ready to help others.

He was committed to his family, his community and God. He loved his bees and strived to be the best beekeeper he could be. His appreciation for these small creatures was an inspiration to all who knew him.

Bob always had a smile and a kind word to encourage others. To those of us who knew and loved him, his passing leaves a large void. My prayer for Bob is that he is in heaven tending to the Lord's apiary.

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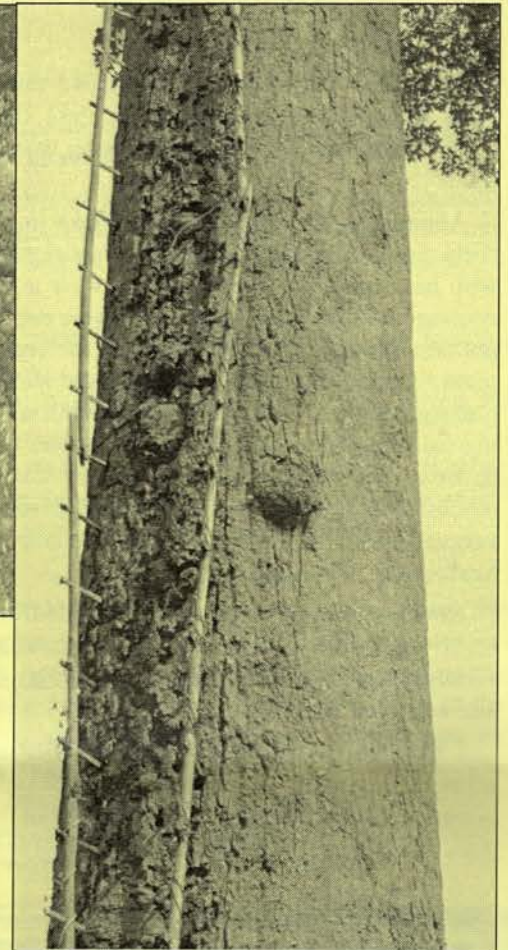
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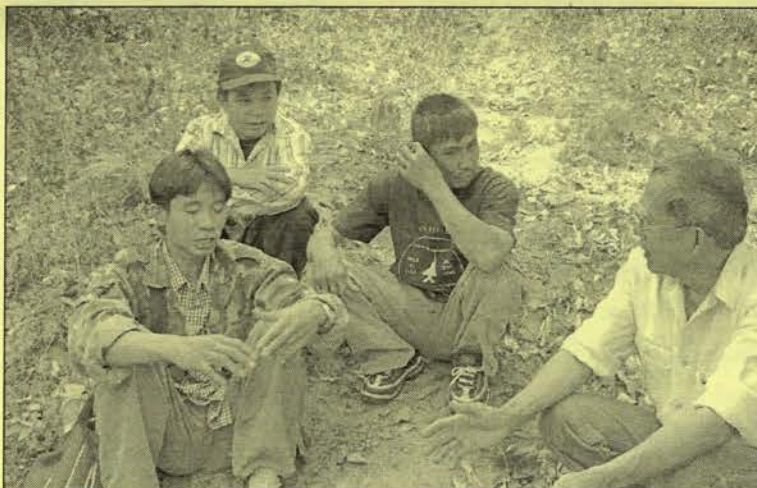
By Mike Burgett, OSU



^^ Nest aggregation of giant honey bees – approximately 30 nests occupying this single tree in the Chiang Mai Province in northern Thailand.
^^ The nests will be harvested for honey, wax and brood in late March of 2007.



^^ The bamboo and vine ladder used to ascend the trunk for access to the colonies.



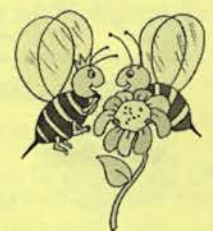
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The honey hunter (first on the left) who will climb 100' up and harvest the 30 colonies in about 4 hours - according to his estimate. He has been 'hunting' giant honey bees since 1987.

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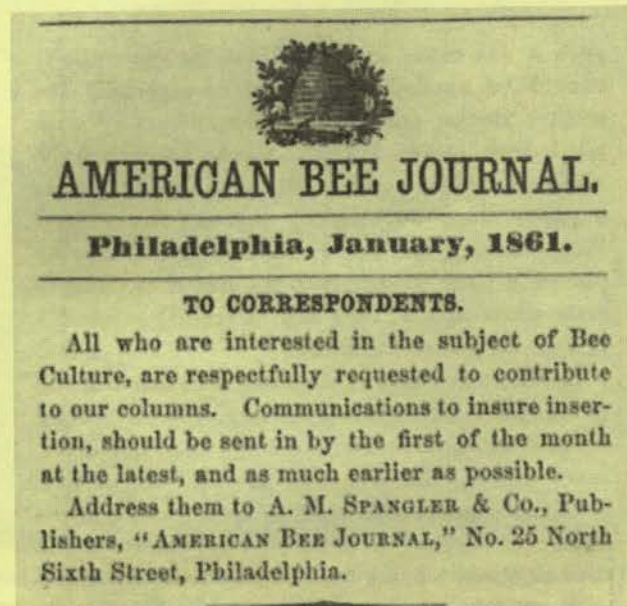
By Mike Griggs, President, Cornell University, NY (2002 EAS President)

It was hot at Cornell on August 8th and 9th in 2002. I remember it well as those were the dates Dewey Caron was to give a talk using materials from "the Vault".

Apparently, the one of a kind books in the E.F. Phillips collection were stored in an air conditioned, locked room with heat sensors. Those sensors were not there to detect cooling malfunctions, rather they were deployed to detect a potential thief. I was worried that the construction on the main road in front of the Library would slow the vans transporting people to & from this presentation. It was hot and the vans had no air and we had little time to get people to & from the Library so I was worried that this workshop wouldn't work out. It was a rare opportunity to get beekeepers access to these books of such historic value to the beekeeping community.

Now you can see some of these books from your computer, if you are connected to the internet, without an uncomfortable road trip. Try "<http://bees.library.cornell.edu/>" & see what you think!

I have been the industry liaison soliciting donations to allow the library to digitize volumes written by early American beekeepers and collected by the first professor of Apiculture here at Cornell. Many of these books are very




rare or just unavailable to you at a distance from a world class university library. E. F. Phillips foresight in collecting these books for all beekeepers to come see was great, but the internet now allows them to come to you. Never before has such a large collection of beekeeping books been placed on the WWW for all to read.

We are currently are trying to raise enough funds to digitize the first 20 issues of American Bee Journal, corresponding to the years 1861 through 1880. I've seen a few of these early issues but would like to spend a bit more time looking through them. This would be my chance. Your donation or your clubs donation would allow all with a desire, a chance to look them through. Our club donates a small amount in recognition of fellow beekeepers accomplishments or as a memorial to past members.

This really is a gift that lasts.

For more information be sure & visit the site "<http://bees.library.cornell.edu/>" or send me or the library a query! We would be happy to get you the information you might need.



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Diversity in Bees: Native Bees, Exotics, Solitaries, Cuckoos, and Socials

By Robbin W. Thorp, Department of Entomology, University of California, Davis, California, USA, 95616



Bees (superfamily Apoidea) are basically specialized wasps that have changed their larval diet from animal protein to pollen protein. We estimate that there are between 20,000 to 30,000 species of bees worldwide, about 4,500 of these species reside in North America, with about 1,600 living in California. Most bees in California are native to the state, but a few like the European (and Africanized) honey bee and the alfalfa

leaf-cutting bee have become naturalized in the state after purposeful or accidental introductions by humans.

Bees exhibit diverse life styles. Most people know something about the commercially managed honey bee with its complex society. But few realize that most bees are solitary, construct their nests in the soil, and have an annual life cycle during which they spend most of their time developing out of sight in brood chambers in the soil (much like annual plants that spend most of their life cycle as seeds waiting to germinate and flower). Some bees such as leaf-cutting bees and mason bees nest in old beetle burrows or other suitable cavities. A few, such as carpenter bees excavate their nests in pithy stems of Agave or even soft woods such as redwood. Some bees have given up collecting pollen from flowers to feed their young and spend their time searching out nests of industrious pollen collecting relatives in which they lay their eggs. The offspring of these cuckoos kill the eggs or larvae of their host bees and complete their life cycles using the pollen provided by the host mothers. Some of our native bees are social, but their societies are usually not as complex nor long lasting as those of the honey bee. Most of our social bees in the USA such as bumble bees have

annual colonies that are started by queens that were mated the previous fall and hibernated over winter.

Many of the diverse types of bees, their main adaptations for collecting pollen and nectar from plants, nesting behaviors and life histories will be illustrated in a slide presentation.

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Editor's note:

Unfortunately, Robbin did not have time to expand the synopsis that appeared in the 2006 WAS Proceedings, but for those who are interested, the web site "www.vernalpools.org/Thorp/" has a fully illustrated detailed description of the life history of a native solitary bee, with information on pollination of vernal pool (threatened habitats) flowers. The native solitary bees that specialize in collecting pollen from the showy flowers in these habitats and in turn pollinate them are important, but too often under appreciated.

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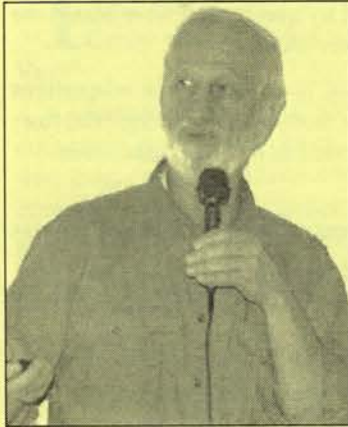
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WAS Conference 2006

Almond Pollen collection by Australian and US honey bee colonies

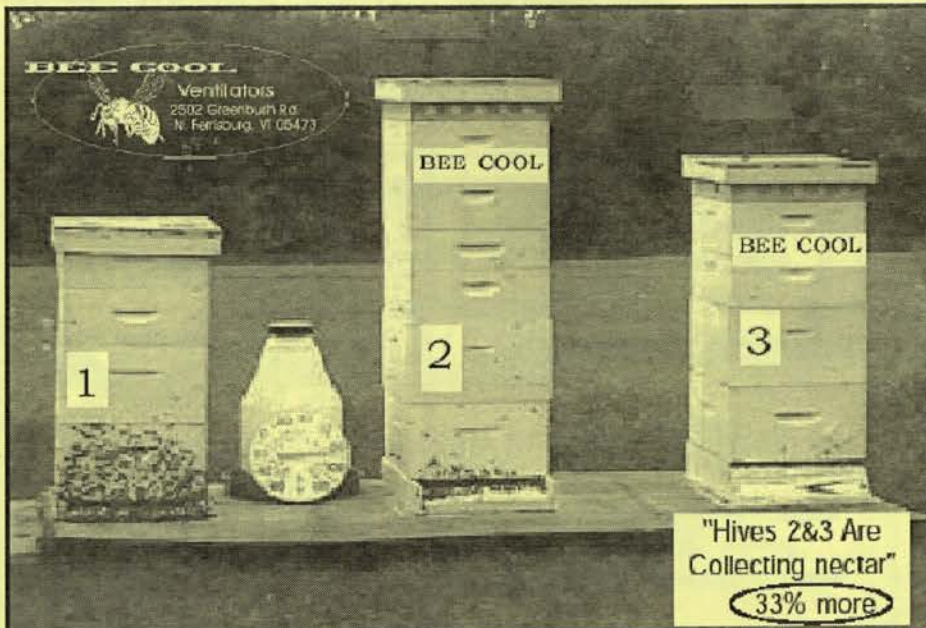
By Frank A Eischen, R. Henry Graham, R. Rivera and J. Traynor. Honey Bee Research Unit, SARC, USDA-ARS, Weslaco, Texas,



A possible honey bee colony shortage for almond pollination and high pollination fees kindled interest in importing packages of Australian bees. During 2005, a few thousand packages were imported to California. The performance of established colonies was considered worthwhile. In late 2005 and early 2006, about 40,000 packages were imported. Some of these were used to fortify existing weak colonies. Others were established as independent colonies. We compared the performance of Australian package colonies with overwintered US colonies.

The amount of pollen collected by standard 8-frame United States (US) colonies was about 2.5 times that of Australian (AUS) 4-lb package colonies established in late January 2006. Pollen collection by US 6-frame colonies was similar to the AUS 4-lb colonies and both of these were significantly higher than the AUS 3-lb colonies established in late January 2006. All groups collected significantly more pollen than the AUS 4-lb colonies established in mid-December 2005.

As a measure of performance, we calculated the weight of pollen collected per frame of bees (beginning strength). On this basis, AUS 4-lb colonies collected about 65% as much pollen as US 8-frame colonies. However, over the 20-day collection period, Australian 4-lb colonies lost strength, but their pollen collection did not decline proportionately. Calculated on ending bee populations, pollen collection by Australian colonies was about 112% of US colonies. We assume that this was, in part, caused by an increased effort to meet the needs of an enlarged broodnest. Many US and Australian colonies collected relatively small amounts of pollen from a second species. The Australian colonies collected significantly more of this.



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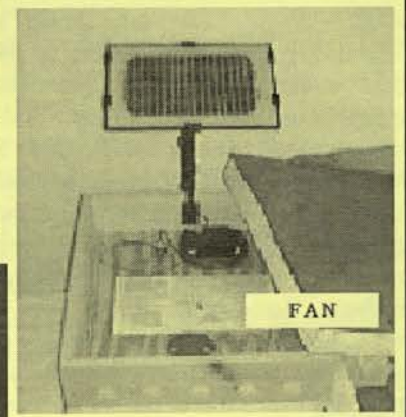
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Brood Pheromone Effects on Foraging Behavior and Colony Growth

By Tanya Pankiw, Department of Entomology and Faculty of Neuroscience, Texas A&M University, College Station, TX



Nothing works without communication. Flowers must communicate with bees in order for pollination to be successful and, as the principal consumers of pollen, honey bee larvae must communicate with adults so their nutritional needs are met. Ten fatty acid esters extractable from the surface of larvae, called brood pheromone, when added to colonies are known to affect a suite of honey bee colony-level and individual forager behaviors. Addition of brood pheromone increases the number of pollen foragers by up to 150%, depending on colony state and will also increase the overall number of foragers, pollen load weight returned, the number of pollen grains extractable from the bodies of non-pollen foragers and, increases pollen forager trips per unit time (Pankiw et al. 1998; Pankiw and Page 2001; Pankiw and Rubink 2002; Schulz et al. 2002; Pankiw 2004a; Pankiw 2004b). Treatment of colonies with brood pheromone over 4 spring weeks results in significantly greater colony growth measured as number of bees reared (Pankiw et al. 2004). Brood pheromone also primes winter colonies for increased brood rearing (unpublished). Understanding the mechanisms and foraging strategies that increase colony size is important to apiculture. Colony management practices are such that beekeepers invest labor and inputs to stimulate colony growth to coordinate maximum colony size with major nectar flows to maximize honey production. Larger colonies are better able to withstand parasite and pathogen infections, and field more foragers for pollination and nectar collection. Brood pheromone is being developed as a tool to enhance apiculture and crop pollination.

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WAS Conference 2006

Oxalic acid and Sucroside™ treatments for Varroa control

By Diana Sammataro, Jennifer Finley, John Skinner and Antonio Nanetti, Carl Hayden Bee Lab, Tucson AZ

Because the parasitic honey bee mite, Varroa (*V. destructor* Anderson & Trueman) is becoming resistant to the registered chemical treatments, we tested two compounds that serve as an alternative treatment for resistant mites.

The first, Oxalic acid (OA) has been used successfully in Europe and Canada to



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control Varroa by trickling a sugar/OA solution on bees or by burning the crystals with a heat source, creating a vapor.

Vapor phase application is not precise enough and could be hazardous to the operator.

The second compound, Sucroside™ is a newly introduced (since 2004) product registered for Varroa control in the US and must be applied as a liquid so the active ingredient (sucrose octanoate esters) can come into direct contact with the bees.

The purpose of this experiment was to test these products in different climatic extremes, including the desert southwest (Arizona), the humid southeast (Tennessee) and a Mediterranean climate (Italy). We compared Sucroside using the "spray-down" method and OA with the trickle method.

WAS Conference 2006

Selective breeding of honey bees, improvement of resistance against diseases and parasites

By Marina Meixner, Department of Entomology, Washington State University, Pullman WA

In 2001, a breeding and selection program for honey bees was initiated at WSU to produce and propagate honey bees with higher resistance to parasitic mites, together with other traits of apicultural significance, such as overwintering ability in the northern U.S., gentle temperament and improved honey yields.

Initially, queens were bought from commercial queen producers throughout the U.S. to integrate the genetic variation present in the country. After assessments for traits, queen and drone mothers were selected and daughters produced. An isolated location was selected as a mating apiary and monitored for the presence of foreign drones. Subsequent generations were produced by family-level selection; currently eight different maternal sublines are maintained at WSU.

In the course of the breeding program, the stringency of the freeze-kill assay to assess hygienic behavior was increased -- we now routinely perform the test during a nectar dearth with a reduced scoring interval of 24 hrs. In the spring of 2006, colonies selected as queen and drone mothers for the next generation were >95% hygienic after 24 hrs. Since the start of the breeding program, we have ceased all antibiotic treatment for American foulbrood; in the fall of 2005, based on reduced mite levels in the selected stocks, we were able to forego miticide treatments for the first time since the arrival of Varroa mites in the U.S.

Editor's note: Marina has now returned to Germany.



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Spring 2007 15

Highlights from the BCHPA, CHC & CAPA Meetings

The Canadian Honey Council (CHC) and Canadian Association of Professional Apiculturists (CAPA) meet annually in conjunction with one of the provincial conventions. The 2007 meeting was held in Langley, BC at the end of January. (This was actually the 2006 annual meeting of BCHPA, who normally meet at the end of October).

BCHPA

1. The BCHPA was directed to lobby the provincial government to include beekeepers in a "qualified seasonal agricultural workers program" which employs mainly Mexican and South American workers. The employee shortfall is particularly notable in the Peace River, where the bigger beekeeping operations are, and where beekeepers must complete with oil patch wages.
2. A project has been initiated to produce a BC-wide honey label for certified producers who are members of BCHPA.
3. Since Small Hive Beetle was found in Alberta last summer, limited testing in BC was undertaken -- no sign of SHB.
4. The BC queen testing program was the only one of four applications accepted by the Beekeeping Industry Development Initiative in 2006. The project has two more years to run.
5. The BCHPA magazine "BeesCene" will move to the next level, adding an additional 8 pages and more color.
6. As the Canadian Honey Council is currently in the throes of reconstruction, there are no budget projections for required support from the provinces at this time.

CHC & CAPA

1. The Canadian Honey Council introduced "Pierre the Spokesbear" for Canadian honey, an awareness project that includes billboards, radio and public appearances by Pierre.
2. Pierre is part of the CHC's current major initiative "Forging a New Direction" -- "re-inventing" the CHC to better meet current and future challenges to the Canadian honey bee industry.
3. Jerry Hayes, Florida State Apiarist, attended to bring the Canadians up to date on WAS Conference 2006the impor-

tant Colony Collapse Disorder (CCD) issue. Reports of similar die-offs are reported in beekeeping literature going back as far as 1896. A group of researchers has been formed to study the situation, including representatives from the universities of Montana and Pennsylvania, and the Florida and Pennsylvania Departments of Agriculture. Beekeepers can help by completing the survey found at www.beesurvey.com.

4. The Canadian Food Inspection Agency (CFIA) indicated that changes to honey grading regulations will reserve "Canada No. 1" for Canadian honey only. Offshore honey will be simply "No. 1" with country of origin clearly marked.
5. CFIA Animal Import is still waiting for Australia to state how they are prepared to deal with SHB after it was found in packages shipped to Alberta and Manitoba. Permits may be given for hand-caught queens or packages from areas known to be SHB-free.
6. Bayer has applied for a full registration for Check-MiteTM in Canada. If this does not transpire in time for the 2007 season, the provinces have agreed to co-operate on an emergency-use permit for this year.
7. The Ontario Beekeepers Association asked that BayvarolTM also be registered for use in Canada, and that bees from Chile -- apparently free of mites and Africanized bees -- be allowed into Canada.

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Beekeepers' Calendar

Jun 22: 54TH ANNUAL BEAVERLODGE BEEKEEPERS' FIELD DAY, Research Farm, Beaverlodge, Alberta, Canada. Info Dr. Steve Pernal pernal@agr.gc.ca

Jun 24 - 28 9TH ANNUAL POLLINATION SYMPOSIUM, Iowa State University. Info maharris@iastate.edu

July 20 - 21: MARITIME BEE TOUR, Charlo (near Campbelltown), New Brunswick, Canada. Info Paul Vatour pcvaut@nb.sympatico.ca

Aug 8 - 10 EASTERN APICULTURAL SOCIETY CONFERENCE, University of Delaware Clayton Hall Conference Centre, Newark, Delaware. Info www.easternapiculture.org/programs/2007/

Sept 9 - 14 APIMONDIA 2007, MELBOURNE INTERNATIONAL BEEKEEPING CONFERENCE, Melbourne Exhibition & Convention Centre, Melbourne, Australia. Info Apimondia2007@meetingplanners.com.au or www.apimondia2007melbourne.com

Oct 25 - 27: BRITISH COLUMBIA HONEY PRODUCERS' ASSOCIATION ANNUAL GENERAL MEETING, Dawson Creek. Info Kerry Clark 250-784-2559, Kerry.Clark@gov.bc.ca or Sue Hansen 250-789-9113, dale&suchansen@telus.net

Oct. 25 - 27 : WASHINGTON STATE BEEKEEPERS' ASSOCIATION ANNUAL MEETING, Sunny Mountain

Lodge, Winthrop. Info www.wasba.org

Nov 1 - 3: OREGON BEEKEEPERS ASSOCIATION ANNUAL MEETING. Info Rosanna Mattingly thebeeline@comcast.net

Nov 6 - 8 ALBERTA BEEKEEPERS AGM & CONVENTION, Fantasyland Hotel, West Edmonton Mall, Edmonton, Alberta. Info honeybee@AlbertaBeekeepers.org

Nov 13 - 15: CALIFORNIA STATE BEEKEEPERS ASSOCIATION 2007 CONVENTION, Harrah's, South Lake Tahoe, CA. Info 209-667-4590 or www.californiastatebeekeepers.com

Jan 9 - 12 NATIONAL BEEKEEPING CONFERENCE (ABF & AHPA), Double Tree Hotel, Sacramento CA. Info info@abfnet.org

Jan 23 - 26: CANADIAN ASSOCIATION OF PROFESSIONAL APICULTURISTS ANNUAL MEETING, Carriage House Inn, Calgary, Alberta, Canada. Info Rheel Lafreniere rlafrenier@gov.mb.ca

Jan 23 - 26: 67TH CANADIAN HONEY COUNCIL ANNUAL GENERAL MEETING & CONVENTION, Carriage House Inn, Calgary, Alberta, Canada. Info chinookhoneyco@nucleus.com



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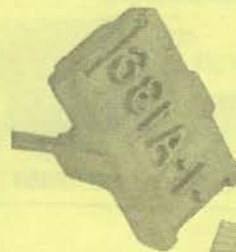
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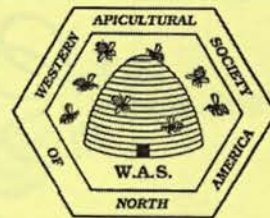
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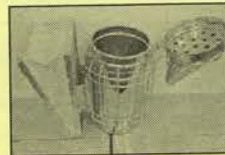
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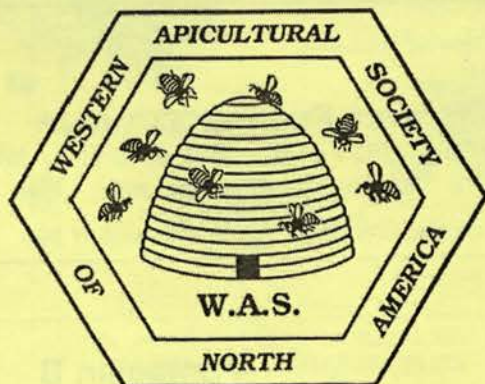


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