

January 2008

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Next meeting:
7:30 pm – 01/10/08
Heather Farm Garden
Center
1540 Marchbanks
Walnut Creek

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What's the Buzz?



The Mount Diablo Beekeepers Association would like to wish all its members a Happy New Year in 2008! Thanks to all for your support and contributions to making 2007 such a success.



Meetings

Important DATE!

Our next meeting is **January 10th** at 7:30PM at the Heather Farm Garden Center in Walnut Creek.

Beekeeper Story

In the town where I live we've got this guy who is about three sandwiches short of a picnic. He drinks in the bar down the road and one night one of the new neighbors stopped in for a pint. Turns out he's a beekeeper and has two or three hives at the bottom of his garden. Somehow we all got to talking about pets and we're comparing them all. The beekeeper tells us that bees are actually quite smart for insects and to prove it told us this:

Every morning at 5 he'd go out to the hives and flip the latches to let the bees out. They'd all fly down to the park and wouldn't return until around five sharp that evening when he replaced the latch. Our friend started laughing at this point and when we asked why he thought this was funny he said, "because it's rubbish"! Everybody knows the park gates don't open till 10!

Beebread in Apitherapy



By Priscilla Coe, Journal of the American Apitherapy Society, Volume 14, Number 3, September 2007

Beebread is an extremely nourishing tonic made of pollen and honey that roughly simulates the beebread made by honeybees in the hive. Its high lactic acid content supports healthy digestion, which is a foundation of good health. The lactic acid also can be converted to glucose in the body, glucose being the main source of energy used throughout the body.

The production of beebread in the hive is not fully understood. Approximately one-quarter of the mature bees in a hive collect only pollen, one-quarter forage only for nectar, and roughly half forage for both pollen and nectar. Therefore, it is estimated that half of the pollen brought back to the hive has been mixed with nectar. The remainder of the pollen brought back to the hive has been mixed with some of the honey that the bees took with them as an energy source on their flights to obtain the pollen. The bees tightly pack these pellets—each containing millions of pollen grains—along with saliva, into the worker cells until they are three-fourths full. Having previously cleaned and lined these cells with a thin layer of propolis, the bees then seal the beebread “silo” with a thin layer of propolis to prevent the development of bacteria and fungi.

To make beebread for apitherapy purposes, the typical ratio is one to one, honey to pollen, though some people prefer additional honey for a more liquid consistency. This is mixed in a sterile glass container and then left for a few weeks to ferment. It is ideal to use fresh, not dried, pollen: as pollen dries, its vitality and nutrients are adversely affected. Fresh pollen has a moisture content of 10-20%, while dried pollen’s is 4-6%.

Dr. Stashenko notes that when the pollen is moistened with honey, the pollen’s lactic bacteria, with the aid of the pollen’s high protein content, quickly produce large amounts of lactic acid. The pH level of fresh pollen is approximately 7.2; in one-week-old

beebread it drops to 3.5-4.2. He further notes that preparing beebread is more efficient without oxygen, and therefore recommends that the jar be covered tightly and that the contents not be stirred after the initial blending. After the several-week fermentation period, beebread should be stored in the refrigerator. Theoretically, it can be stored in the refrigerator or freezer for as long as five years, though over time the amount of protein, sugar, and other acids will decline. Therefore, it is best to make beebread in small quantities and consume it within a few months.

Source: Vetaley Stashenko, PhD, ND, naturopathic doctor, apiculturist and apitherapist

Honey Bee Genome Project Reveals Possible African Origin of all Honey Bees



cwinner@wsu.edu , WSU News Service

Contact: Walter S. (Steve) Sheppard, WSU Department of Entomology, 509/335-5180, shepp@wsu.edu

PULLMAN, Wash. - An international consortium of researchers announced this week that it has finished sequencing the entire genome -- all the DNA -- of the honey bee. Washington State University entomologist Walter S. (Steve) Sheppard, a member of the sequencing team, also co-authored a study that strongly suggests that honey bees originated in Africa and spread to Europe and Asia during at least two major migratory periods during their history.

The honey bee genome results appear in this week's issue of the journal Nature, and the report on honey bee origins appears in this week's issue of Science magazine.

The honey bee, *Apis mellifera*, is only the fourth species of insect to have its entire genome sequenced. The others are the silkworm, the mosquito that transmits the malaria parasite and the fruit fly on which a large proportion of genetics research depends.

Sheppard said honey bees are one of the most economically important insects in the world. While

well-known for honey production, it is their role as pollinators of crop plants that makes them so valuable to agriculture. The genome sequence provides a vast amount of information that will further our understanding of honey bee behavior and the potential impact of "intruder" bees such as the Africanized bees that have moved into parts of Texas and the American southwest over the last decade, he said.

"It's a huge amount of data, and the statistical basis for how to analyze it is in the developmental stages," said Sheppard.

Working with colleagues from universities across the U.S., Sheppard helped develop new techniques for tracing honey bee relationships by analyzing SNPs ("snips"), or single-nucleotide polymorphisms, within the DNA of honey bees from different regions. A SNP is a change in one letter of the DNA code that occurs in less than 1 percent of the bees examined. By looking at more than 1000 SNPs in the DNA of each of hundreds of individual bees, the researchers were able to develop a distinctive DNA profile for bees from each region.

Sheppard said the traditional view of honey bee origins held that they first arose in western Asia, the area comprising current-day Turkey, Afghanistan, Kazakhstan and Kyrgyzstan, and migrated from there to Europe and Africa.

Among the surprising results of the new analysis was that the type of honey bee common to northern and western Europe is more closely related to modern-day African honey bees than to its geographical neighbors in central Europe. Such discoveries led the researchers to conclude that honey bees probably originated in Africa and migrated into Asia and Europe on at least two different occasions.

After hundreds of thousands of years in their new homes, with no interbreeding among the populations in different areas, they evolved into today's subspecies whose DNA is unique enough that the SNP analysis can tell to which group they belong.

The researchers also examined honey bees captured at various sites in the U.S. They found that the SNP analysis could track the invasion of "Africanized"

bees, which have both European and African subspecies in their pedigree.

All honey bees in the Americas are relative newcomers, Sheppard said. Human settlers first brought western European subspecies in 1622. A Mediterranean subspecies was imported in the mid-1800s, and an African subspecies was brought to Brazil in 1956. Sheppard said the African bees are well-suited to the wet-dry seasonality of Brazil and have one big advantage over European honey bees: they are resistant to a mite that decimates bee colonies and necessitates the use by beekeepers of chemical miticides. It is descendants of the Brazilian-African imports that have recently gained notoriety as fierce defenders of their hives.

"It's not the stinging behavior that bothers beekeepers," said Sheppard. "The problem is that in warm places they swarm a lot." This behavior makes them less suited for the honey production and pollination practices currently being used in the U.S. He said their swarming behavior, when a large colony breaks into multiple colonies, may be the main reason they have not spread farther north in the U.S. The new, smaller colonies are often too small to survive a cold winter.

Himalaya Honey Hunters Cling to Cliffside Traditions



By John Roach for National Geographic News

Twice a year high in the Himalayan foothills of central Nepal, teams of men gather around cliffs that are home to the world's largest honeybee, *Apis laboriosa*. As they have for generations, the men come to harvest the Himalayan cliff bee's honey.

The harvest ritual, which varies slightly from community to community, begins with a prayer and sacrifice of flowers, fruits, and rice. Then a fire is lit at the base of the cliff to smoke the bees from their honeycombs.



From above, a honey hunter descends the cliff harnessed to a ladder by ropes. As his mates secure the rope and ladder from the top and ferry tools up down as required, the honey hunter fights territorial bees as he cuts out chunks of honey from the comb.

For hundreds of years, the skills required to perform this treacherous task have been passed down through the generations. But now both the bees and traditional honey hunters are in short supply, according to scientists.

Farooq Ahmad, coordinator of the Himalayan Honeybees project for the International Center for Integrated Mountain Development (ICIMOD) in Katmandu, Nepal, said the shortages stem from the overzealous harvests by non-traditional honey hunters and downbeat conditions for honey production.

"Our studies show that during the last 20 years, the number of bee nests and bee cliffs substantially decreased," Ahmad said.

Well adapted to the harsh climate of Nepal Himalayas, the honeybee serves as the prime pollinator for the eco-region. The bee's decline is thought to have devastating consequences for the native, high-altitude plants that rely on the honeybee for their reproduction.

Stephen Buchmann, a bee expert and entomologist at the University of Arizona in Tucson, said loss of key pollinators such as the Himalayan cliff bees is "really ripping away at the fabric of the ecosystem."

Honeybees, Buchmann says, pollinate about 25 percent of the wild plants within their 3 to 9 mile (5 to 14 kilometer) flight range. When the bees are lost, this vital ecosystem service is lost too, threatening

the food base for the entire region.

With funding from the Austrian government, Ahmad and his ICIMOD colleagues are documenting the causes and consequences of the *A. laboriosa* decline and working with traditional honey hunters to preserve their sustainable harvesting techniques.

Since 2001, the bee populations have stabilized. Now Ahmad and his team hope that an increase in tourism to traditional honey hunting communities will provide incentive for a new generation of hunters to learn the ways of their elders.

Threatened Tradition

According to Ahmad, a key threat to the cliff bees and traditional Nepalese honey hunters is growing recognition of the honey's value for use in Japanese, Chinese, and Korean traditional medicines.

"Nectar produced by some species of rhododendron in high mountain areas brings medicinal qualities to this honey," Ahmad said. "[It] has relaxing properties and is being used as a sedative agent. It is also reported that some Korean local healers use it for treating [drug] addicts."

In the past few decades, demand for this *A. laboriosa* honey, which is produced during the spring when the rhododendrons bloom, has soared. A kilogram (2.2 pounds) fetches upwards of U.S. \$15 on the open market.

To supply demand, Nepal's forestry department has transferred ownership of the cliffs from indigenous communities to the government and opened up honey harvesting rights to contractors on a first-come, first-served basis, Ahmad said.

As a result, traditional honey hunting techniques and rituals that ensured a sustainable harvest and maintained bee populations have given way to non-traditional techniques that denude cliffs of nests in an effort by contractors to maximize profits.

Dwindling forage also hinders *A. laboriosa* populations, as pristine forests are cleared and replanted with non-native commercial crops or fast-growing plantation trees that are of no use to the

bees, Ahmad said.

Buchmann has closely studied *A. laboriosa's* closest relative, *Apis dorsata*. (Some scientists think the two bees are the same species, however.) Buchmann said deforestation and habitat fragmentation are likely the primary causes behind the *A. laboriosa* decline.

"It's the main thing hammering pollinators around the world," he said.

Further complicating matters is the fact the European honeybee (*Apis mellifera*) was introduced to the region in the 1990s to pollinate non-native crops and increase honey production. Native Himalayan cliff bees must now compete with European honeybees for nectar. When the European honeybee was introduced, so to was its associated parasite, *Melissococcus pluton*, to which the Himalayan cliff bee has little resistance, Ahmad said.

In response to these changes, according to ICIMOD, young people in traditional communities have shunned honey hunting as a profession, preferring better-paying work such as providing services to tourists as porters and guides.

Ahmad and his colleagues fear that if a new generation of traditional honey hunters is not found, the traditional system will fade away. In its place, they say, people with no interest in sustainable harvesting methods will exploit nests for short-term monetary gains.

Bee Tourism

In order to maintain viable bee populations, Ahmad and his colleagues worked with the honey hunters since 2001 to keep between 20 and 50 percent of the *A. laboriosa* nests intact at any given cliff site.

"Our initiative is working and honey hunters understand the importance of this bee species by using managed harvesting techniques," Ahmad said.

The next step for the ICIMOD researchers is to promote community-based ecotourism.

The group envisions tourists swarming to Nepal communities to view traditional honey hunters

dangling from cliffs on roped ladders. In the process, tourist dollars will pour into the community. (Buchmann said he helped successfully implement a similar, smaller-scale program in Malaysia.)

Ahmad, the Himalayan Honeybees project coordinator, said: "Honey hunting and bee watch tourism is to support the honey hunting communities so that they understand the economic importance of [Himalayan cliff bees] and conserve them voluntarily."

Honey hunting tourism is not enough, Buchmann said, noting that wild honeybees need habitat protection. "It's the best possible thing that could be done."

Newbee Nuggets.....

To minimize diseases such as American Foul Brood, use brood frames for just two years or so, then convert them to honey frames.

After several years the comb in the frames will darken and become propolis filled, rendering them unsuitable for use. Before that happens, remove the comb, except the top half inch, and place the frame back into the hive during nectar flow season. The remaining comb will act as a starter for the bees to build new comb, thus speeding the comb building process. If the comb is too old, remove all of it, and if your frame has a top wedge bar (not grooved), remove the wedge and turn it sideways. The protruding bottom edge of the wedge will then act as a guide for the bees to start new comb.

Recipe of the Month

Fruit-Infused Honey Vinegars

Preparation Time: 5 minutes

Cook Time: 30 minutes

Ingredients

2 cups white wine vinegar

2/3 cup honey

Directions

Combine vinegar and honey in medium saucepan, then stir in one of the flavor additions below:

Apricot: 2/3 cup apricot jam (Makes 2-1/2 cups)

Pear: 2 (15 oz.) cans pears, drained and diced (Makes 2 cups)

Raspberry: 1 (6 oz.) basket fresh raspberries, mashed (Makes 1-3/4 cups)

Fig: 2 cups quartered, dried Mission figs (Makes 1 cup)

Bring to a boil, then reduce heat to low and simmer for 30 minutes. Let cool, then pour through a fine mesh strainer to remove any solids. Store, tightly covered, in the refrigerator for up to 2 months.

Serving Suggestions

Whether served with French bread for dipping or drizzled over mixed greens, these sweet vinegars are sure to be a hit, especially as gifts during the holiday season

Announcements

 Please send in your favorite honey recipes or bee articles via email to ersten3@yahoo.com

 **Membership Dues**

**Dues should be sent to:
Jeff Peacock, Treasurer
Mount Diablo Beekeepers Association
3341 Walnut Lane
Lafayette, CA 94549**

**The Diablo Bee
21 Newell Ct
Walnut Creek, CA 94595**