CENTRAL COAST BEEKEEPERS NEWSLETTER

July 2024

NEXT MEETING July 27, 2024

Important Notice: Our meetings are now on SATURDAYS and LOCATIONS VARY. Please see the updated schedule for dates and locations, p. 3

PRESIDENT'S MESSAGE

By Jeremy Egolf

As we foraged ahead into summer and the blackberry nectar flow, we helped observe National Pollinator Week, June 17-23. Our own Becca Fain managed the CCBA display at the Waldport Public Library Saturday, June 22. A major outreach event, the Lincoln County Fair in Newport, July 4-6, was quite successful. Many thanks to all our volunteers and especially to Rick Olson, Becca Fain and Max Kuhn for providing observation hives, which were a big hit with the attendees.

Per initial reports, the club's bulk bee order nucs and packages our members installed in May are thriving. Members should be checking for overcrowding and adding supers as the bee density reaches 70% of the frames in the top box. Since the blackberry bloom is at an ebb, I

gave my hives some pollen patties so the young adults don't need to compete with the larvae for the forager-collected pollen.

Honoring the plethora of native pollinators, our June 26 meeting featured Dr. Andony Methalopoulos (OSU's Pollinator Health Extension Specialist and Master Melittologist) with his fine talk, "Take a Walk on the Wild Side: the Weird and Wonderful World of Native Bees (for Beekeepers)." A few among many interesting points:

- 70% of native bees are solitary ground nesters, an unusual example of which are the Alkali bees, found in hot springs in the Yakima area and which are the world's only managed ground bees

-- Solitary bees' success depends on locating an adequate substrate and adequate forage over their life span

-- 10% of the solitary bees parasitize other species' nests, and some have armor and "weaponry" to enhance their role as invaders

-- floral choice depends on factors including

1) Tongue length -- for example, hairy vetch, common fiddlenecks, and delphiniums all require long tongues to access their nectar

2) Pollen preferences - monolectic bees (such as Squash bees) favor a single species, oligolectic a few species, and polylectic many varieties of flowers

-- Corbiculi are found only on honeybees and bumblebees; all others have dense growths of hairs which sweep up pollen

-- The phone app, iNaturalist, has proven valuable for documenting native bee occurrences in association with flowering plants

-- Coastal bee species include Fog Belt Bumble Bees, which are depicted on the state's fundraising bee plates

-- Other coastal species include dune nesters such as the Pacific Sweat Bee and the Pacific Wool Carder Bee, with their fascinating ability to relocate their nests after the openings are backfilled by drifting sand

-- Two useful references (easily found online) for those who wish to plant native pollinators are:

-- Natural Resources Conservation Service, *Producing Pacific Northwest Native Trees and Shrubs in Hardwood Cutting Blocks or Stooling Beds*

-- OSU Extension Service, *Shrubs and Trees for Bees* (co-authored by Andony)

-- The Oregon Bee Atlas project's database matching specific flora and specific pollinators can be filtered by specific genera or species, and the correspondences "mapped" graphically

-- For post-blackberry nectar flow, useful plant genera include brassicas, trefoils, and, especially, chicory

-- Interspersing the small-In- stature Creeping Red Fescue with pollinator attractors helps to suppress competing grasses and weeds

And, as a follow-up to Andony's talk, our speaker Saturday, July 27, at the Newport Library will be Annie Marion of the USDA Natural Resources Conservation Service, Waldport Field Office on "Coastal Pollinator Habitat," including some discussion of grants available for enhancing the habitat. (This, incidentally, marks our shift from Wednesday to Saturday meetings.)

The Year's Program

All meetings 1:30 p.m. July 27 and September 21 at the Newport Public Library. October 19 and November 16 are at the OSU Extension office in Newport.

Saturday, July 27: Annie Marion (USDA Natural Resources Conservation Service [NRCS], Waldport Field Office): "Coastal Pollinator Habitat."

NRCS Oregon programs can be reviewed here: https://www.nrcs.usda.gov/conservation-basics/conservation-by-state/oregon

And NRCS programs for the CCBA region are here: //www.nrcs.usda.gov/conservation-basics/conservation-by-state/oregon/lincoln-lane-west-county

August: Summer party hosted by Pat Wackford (to whom we are grateful!) (date TBD)

Saturday, September 21: Randy Oliver (by zoom - Professional Apiarist, Citizen Scientist - Scientific Beekeeping.com)

Saturday, October 19: Dr. Dewey Cary (Emeritus Professor of Entomology and Wildlife Ecology, University of Delaware, and Affiliate Professor, Department of Horticulture, OSU): "Winter Hive Preparations"

Saturday, November 16: Annual Meeting (Election of Officers, Plans for Next Year)

Diutinus Bees

At our May meeting, Dr. Sagili touched on the role of nutrition in producing diutinus (long lived, or "winter" bees). This sent us scurrying off to learn more; we turned up a fine web page on the subject (courtesy of *The Apiarist*) here:

https://theapiarist.org/diutinus-bees/

It's too long to extract at length for this newsletter, but the piece contains fascinating data on bee cohorts through the autumn during the gradual transition to the diutinus bees. The four key physiological factors to be considered are the levels of **juvenile hormone**, **vitellogenin** and **hemolymph proteins** and the size of the **hypopharyngeal gland**. A useful schematic presents a proposed system model for how the production of winter bees is regulated. Possible epigenetic factors in diurnal bee production are discussed.

Highway 101 Pollinator Project

Next time you're driving the coast in the Seal Rock area, look for an informational sign regarding Coastal Pollinators and Native Plants and spot the Fog Belt Bumblebee (the "license plate bee"). This sign (at 101 and North Coast Road) publicizing one of our favorite subjects is the current efflorescence of the Highway 101 Pollinator Project.

Planting native plants for native pollinators along Highway 101 is a cooperative project between Lincoln County and the Oregon Department of Transportation (ODOT), which has designated 19 sites for native plants that support native pollinators. The sites are located along 25 miles of Highway 101, extending from the Yaquina Bay Bridge in Newport to the Lane County line. Planting is done by volunteers.

This 25-mile section of highway has been maintained without herbicides for the past 17 years with the help of volunteers who manually removing invasive weeds. The Highway 101 Pollinator Project was conceived by Concerned Citizens for Clean Air (CCCA), a local nonprofit. In 2007, CCCA requested that ODOT refrain from spraying herbicide on Highway 101 shoulders throughout Oregon. After considerable negotiations, a 25-mile No Spray Project was granted by ODOT after an outpouring of community opinion against highway herbicide use. After the herbicide applications stopped, volunteers observed the return of some native plants and flowers. After the second year CCCA cold see that certain invasive weeds like tansy ragwort were detrimental to the project, so they volunteered to assist ODOT by hand removal of invasive plants. Volunteers went far beyond what ODOT might have done with herbicides, and removed large infestations of Scotch broom especially near the bridges by Waldport and Newport, which significantly improved the appearance of the highway along with regrowth of native plants and wildflowers in the years after herbicide use was stopped.

After ten years of the pilot project, CCCA proposed, with support from Lincoln County Commissioners and the cities of Yachats, Newport and Waldport, that ODOT make the 25 miles of highway in south Lincoln County the Highway 101 Pollinator Corridor. CCCA proposed to be allowed to plant additional native shrubs along the 25 miles and supplement them with flowering perennials which would help beautify this area as well as support native pollinators. ODOT reduced the proposal to the current 19 sites.

Native plants used for this project include riverbank lupine, red-flowering currant, evergreen huckleberry, yarrow, and Douglas aster. Pollinators that are attracted to these plants can include hummingbirds, bumble bees, sweat bees, flower flies and butterflies.CCCA strives to have a variety of flower shapes and bloom times to support native bees, butterflies, hummingbirds and other pollinators. Volunteers (over 18 years old) are welcome to join CCCA for fall planting, spring weeding and summer watering.

The Right-Size Nest Can Maximize Pollination Capabilities of Solitary Bees

USDA Agriculture Research Service, June 17, 2024

Solitary bees have a shorter lifespan compared to honeybees, usually lasting the spring or summer season. These bees have limited time to perform a lot of pollination work and they can use all the help they can get!

The USDA's Agricultural Research Service (USDA ARS), Insect Genetics and Biochemistry Research, participated in a study led by the North Dakota State University, that aimed to provide insights on how to help solitary bees maximize their pollination performance and to aid pollination management.

The study focused on the alfalfa leafcutting bee (*Megachile rotundata*) to determine how modifying the nesting cavity diameter of solitary bees can enhance bee conservation, performance, and management practices. The pollination work by this species of solitary bee is crucial for alfalfa seed production.

There are more species of solitary bees than honeybees. Like honeybees, solitary bees are essential for pollinating crops and gardens, but unlike honeybees, they do not live in hives. Many solitary bees, like the alfalfa leafcutting bee, are cavity nesters and lay their eggs in natural cavities such as hollow twigs and holes in wood or digging underground tunnels. Before laying their eggs, the mother bee determines the required amount of provisions, gathers the supply of nectar and pollen, and places it in the individual nest cells. Then, eggs are laid on the provisions for the larvae' development. Gardeners and bee managers help increase the number of bees by placing "human-made" nesting holes around gardens to help the bees with nest construction. Another method is the use of "human-made" nesting boxes, which are also commonly used in commercial pollination managers to synchronize the time pollinators emerge with crop bloom.

An interesting fact is that the performance of solitary bees is not solely determined by their genetics but also by their body size. Furthermore, the size of the bee's body is influenced by the diameter of the nesting cavity and the amount of provisions left by the mother bee. Bees that grow larger inside the cavities have been shown to have a greater foraging distance, making them better at spreading pollen. Therefore, the size of the nesting holes can either limit or maximize the pollination performance of the offspring. So, how can we determine the correct size and diameter for bee-nesting to maximize the production capabilities of solitary bee offspring?

An alfalfa leafcutting bee (*Megachile rotundata*) on an alfalfa flower. This bee species is one of many wild bees called on to help honey bees pollinate the nation's crops. (Photo by Peggy Greb, D1039-10).

Scientists examined the adult body mass and provision size of the alfalfa leafcutting bee. They collected samples from nesting boxes placed in the field. The boxes offered cavities ranging in diameter from four to nine mm in one mm increments. After scientists examined all the measurements collected from the field nesting boxes, including the body sizes and provision measurements, they found that the size of the pollen provision was positively correlated to the bee's mass. They also observed that bees' body size increased as the diameter of the nesting cavity increased, reaching a maximum size in the bigger nesting cavity diameters, with offspring emerging from 8 and 9 mm having the highest rate of winter survival.

In addition, the study found that various factors, such as gender, wing areas, wing loading, and overwintering, significantly influence the offspring when included in the analysis. The optimal nesting cavity size for the highest yield of offspring is 7 mm, while the best performance was observed in the 8 mm cavity. On the other hand, the 5 mm cavity could be the best option for the conservation of other cavity-nesting bees. As the different nest diameters impact each of these variables differently, pollination managers should carefully choose a cavity size that aligns with their primary management objective.

"This study demonstrates the importance of different nest sizes for solitary bees," said Research Leader Joe P. Rinehart, with the Insect Genetics and Biochemistry Research in Fargo, North Dakota. "While larger nests result in larger bees that may be able to fly further, the medium nests produced more bees overall, and even bees from the smallest nests have the advantage of increased relative flight power, which means that they have the ability to carry relatively heavier loads than their larger counterparts."

What is next? Scientists will continue researching to find answers to additional questions, including

more detailed studies on the costs and benefits of being a larger or smaller bee.

The study was published in the Journal of Economic Entomology.

To Grow a Right-Sized Bee, Give It a Right-Sized Nest (entomologytoday.org)

The Agricultural Research Service is the U.S. Department of Agriculture's chief scientific in-house research agency. Daily, ARS focuses on solutions to agricultural problems affecting America. Each dollar invested in U.S. agricultural research results in $20 of economic impact.

Bees collect pearl millet pollen. (Photo by Karen Harris-Shultz, ARS)

Pearl Millet Wins Approval From Honey Bees and Other Pollinators

USDA, Agricultural Research Service, June 18, 2024

Pearl millet, an annual grass used for grain and forage, can be a good food source for honey bees and hover flies, according to a recent study.

The United States Department of Agriculture (USDA)'s Agricultural Research Service (ARS) and University of Georgia College of Agricultural and Environmental Sciences researchers studied the impact of pearl millet as a source of insect food by surveying insects collecting and consuming the sucrose-rich pollen of this crop. Researchers planted Tift Long-Headed Bulk, a type of pearl millet known for its long candlestick-like heads, at a research farm in Tifton, Georgia, during the past summer.

According to the survey results, the most common insects observed feeding on Tift Long-Headed Bulk pearl millet were honey bees followed by lined earwigs, and maize calligrapher hover flies. Other pollinators such as two-spotted longhorn bees, common eastern bumble bees, American bumble bees, sweat bees, and two other species of hover flies also feasted on the crop.

Tift Long-Headed Bulk growing in Tifton, Georgia. (Photo by Karen Harris-Shultz, ARS)

"What makes the study and the results fascinating is that wind-pollinated grasses, like pearl millet, are rarely promoted as a food source of pollinators in comparison to nectar-rich plants," said Karen Harris-Shultz, a research geneticist at the ARS Crop Genetics and Breeding Research Unit on the UGA Tifton campus. "Our research shows that pollinators are utilizing grass pollen."

Harris-Shultz added that the study was also the first time that lined earwigs, banded cucumber beetles, two-spotted longhorn bees, and American bumble bees were observed collecting or consuming pollen from the pearl millet crop. ARS researchers in Tifton previously studied pearl millet as a food source for pollinators in 1965, but that study has not been revisited since, according to Harris-Shultz.

Harris-Shultz and the researchers' work focuses on bees and other pollinators of grasses, especially the turfgrass centipede grass and sorghum. The researchers took an interest in pearl millet because of its ability to thrive in areas characterized by drought, low soil fertility, and high temperatures.

These traits make pearl millet, which is grown primarily in the southeastern United States, a low-input crop with great benefits for pollinators and farmers looking for a good field border plant.

"Contrary to popular belief that grasses have no value to bees and other pollinators, this and our previous studies showed that these grasses can be good food sources for insects and may help combat decline in pollinator populations," said Harris-Shultz.

A common eastern bumble bee (A), maize calligrapher hover fly (B), cucumber beetle (C) exotic streaktail hover fly (D), two-spotted longhorn bee (E), western honey bee (F-left), sweat bee (F-right), American bumble bee (G), eastern band winged hover fly (H), and lined earwig (I) collecting or consuming pollen from Tift Long-Headed Bulk pearl millet grown at Belflower Farm in Tifton, Georgia in 2023. (Photos by Karen Harris-Shultz, ARS)

In addition to being pollinators, several of these insects, such as the hover flies and lined earwigs, are important biological control agents that assist in sustainable pest management."

The study and its findings were published in the *Journal of Entomological Science*.

Are you using the right miticide? Are your mites resistant to Apistan? or CheckMite+™?

[Courtesy of the British Columbia Ministry of Agriculture - Modification of test developed by Dr. J. Pettis of USDA-ARS Bee Research Laboratory, Beltsville, Maryland.]

This test can be used to determine mite resistance when a beehive doesn't appear to respond to chemical mite control measures. The test uses Apistan® and CheckMite+™ strips and can be conducted simultaneously on the same group of colonies by taking two samples from each hive.

Materials required to carry out the test:

- 500ml jar with lid (wide-mouth pint canning jar)
- light metal mesh cover for the jar (8mesh to the inch hardware cloth)
- index card or similar and stapler
- 3/8" X 1" piece of a new Apistan? and CheckMite+™ strip
- 1/4cup or 2oz. measure to scoop up bees
- 25% alcohol or windshield washing fluid
- straining cloth and 6 clothes pins
- plastic or rubber gloves
- plastic bucket
- sheet of white paper

Step 1: Staple a 3/8" X 1" section of an Apistan® and CheckMite+™ strip to the center of an index card. Make sure to handle the Apistan® and CheckMite+™ with gloves. Place the card in the jar with a section of the Apistan® or CheckMite+™ strip facing inwards. Replace the solid, round metal section of the canning jar lid with a piece of wire mesh. The holes in the mesh should be large enough to easily let varroa through.

Step2: Shake bees from one or two brood combs into an up-turned hive lid, bucket or box. Scoop up 1/4 cup or 2oz. of bees (~150 bees) and place them into each jar, being careful not to damage the bees. Screw the lids onto the jars to stop the bees from escaping.

Step 3: Place the jars in an incubator or a warm 30? C room in the dark for 6 hours. Make sure the lids are not covered so air gets to the bees.

Step 4: After 6 hours, hold the jar about 10cm above the piece of white paper and turn it so the mesh lid is facing downwards. Hit the jar with the palm of your hand three times. Count the number of mites that fall on the paper.

Step 5: Knock the bees to the bottom of the jar. Remove the index card with the attached strip and fill the jar half-way with the alcohol or washer fluid. This should be done outside using gloves. Remove the mesh lid and replace with the original solid lid for the jar. Shake the jar vigorously for 5 min.

Step 6: Remove the solid lid and replace it with the mesh lid. Pour the fluid into the straining cloth pinned to the bucket. Refill the jar with fluid, swirl the bees around and pour through the strainer again.

Step 7: Count the number of mites recovered on the cloth. If the total number of mites recovered in both samplings (Apistan®, CheckMite+™) is less than 5, the results should be discarded.

Step 8: To calculate the percentage of mites killed by Apistan® and CheckMite+™, divide the number of mites that initially fell on the white paper before the bees were killed, by the total number of mites (total mites = white paper mite count + mite count from bee washing).

If more than 50% of the mites were killed by the Apistan® or CheckMite+™ after 6 hours, the mites should be susceptible and adequate mite control can be expected. If less than 50% of the mites are killed after 6 hours by Apistan® or CheckMite+™, the mites may be resistant to Apistan® or CheckMite+™.

Critical Factors for the Success of the Resistance Test

- Prescreen hives using the ether roll technique (250-300 bees) and test only those hives yielding 5 or more mites. This test gives meaningful results only when performed on hives with adequate mite levels. Do not expect levels of resistance to be the same among hives. Select 12 hives per apiary. More hives are better. This test is not designed to identify individual hives showing resistance. Use apiary averages to assess the results.

- Perform the test exactly as described. Jar size, size of Apistan® or CheckMite+™ pieces and temperature are important.
- Ensure that bees are mobile in the jars so they contact the strips. **Cool temperatures may cause the bees to cluster away from the strips.** If using darkened incubator, it may be helpful to open the incubator periodically to admit light and fresh air to encourage bee movement.
- It is best not to reuse strip pieces or index cards. Wash jars between tests.

Note: Do not expose jars with Apistan® or CheckMite™ to sunlight for any length of time. It is best to keep the jars in their storage boxes before and after filling until they are incubated. Sample bees from brood frames. For accuracy and to avoid bee injury, use a measuring scoop. Do not scrape bees directly into jars.

Disclaimer: This assay is intended to screen for resistant mites and is not intended to indicate the exact level of resistance.

Tropilaelaps Mites are spreading from Asia to Europe

First report of established mite populations, *Tropilaelaps mercedesae*, in Europe

Anna Brandorf,Marija M. Ivoilova,Orlando Yañez,Peter Neumann & Victoria Soroker

Published online: 16 May 2024, Journal of Apicultural Research Latest Articles [from https://www.tandfonline.com/doi/pdf/10.1080/00218839.2024.2343976}

Abstract

Ectoparasitic mites *Tropilaelaps* spp. (Mesostigmata*:* Laelapidae) can be devastating pests of Western honey bee, *Apis mellifera* L., colonies, but have so far occurred only in Asia. Here, we report for the first time on established populations in Europe. In 2021, high losses of honey bee colonies occurred in the Krasnodar region, Western Russia (53%) with clinical symptoms and mite morphology showing *Tropilaelaps* spp. infestations. We found that brood infestations fluctuated seasonally, and mites were able to overwinter locally. The specimens were identified as *Tropilaelaps mercedesae* using genetics. The source of pest invasion is yet unidentified, but it is very likely that *T. mercedesae* will further spread west and south. This calls for respective stakeholder action, especially in neighboring countries.

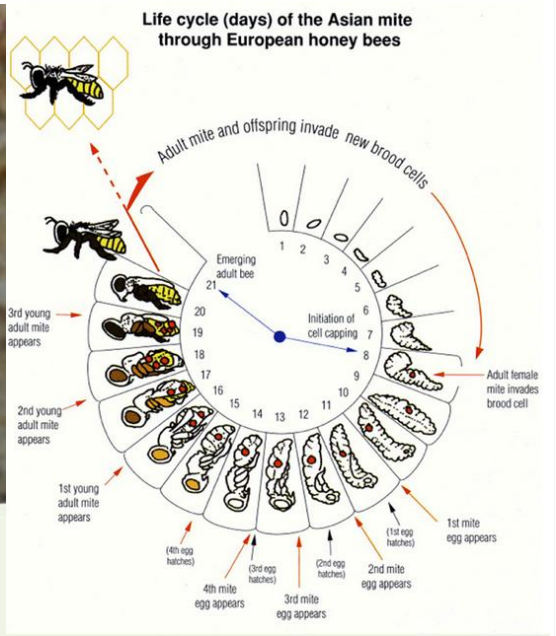
Tropilaelaps mites [from Beeaware.org.au]

Background

Tropilaelaps mites are native to Asia and naturally parasitise the brood of the Giant honey bees of Asia, such as *Apis dorsata*. Two species of Tropilaelaps mites (*Tropilaelaps clareae* and *T. mercedesae*) are also able to parasitise European honey bees (*Apis mellifera*). Tropilaelaps mites are external parasitic mites that feed on the haemolymph (blood) of drone and worker bee pupae, as well as reproduce on honey bee brood.

Life Cycle

Tropilaelaps mite feeding on an Apis dorsata pupa. Denis Anderson, www.beesdownunder.com.au



Life cycle of Tropilaelaps mite on European honey bee. Denis Anderson, www.beesdownunder.com.au

The life cycle of Tropilaelaps mites is very similar to that of Varroa mites in many ways, as both species of mites are external feeders which parasitise the brood stages of the honey bee. However, Tropilaelaps mites have a much shorter life cycle, and because of this, have a much greater reproductive rate than Varroa mites. Because of this greater reproductive rate, research has shown that in some hives there can be around 25 Tropilaelaps mites to every Varroa mite in a honey bee colony. However, unlike Varroa mites which can survive on adult bees for quite a few months, Tropilaelaps mites can only live for around 3 days on an adult worker bee as the adult Tropilaelaps mite mouthpiece cannot pierce the adult wall membrane, and therefore, cannot feed on adult worker bees. For this reason, Tropilaelaps mites spend the majority of their life in the brood and will continue to breed and survive in a honey bee colony as long as there is brood present.

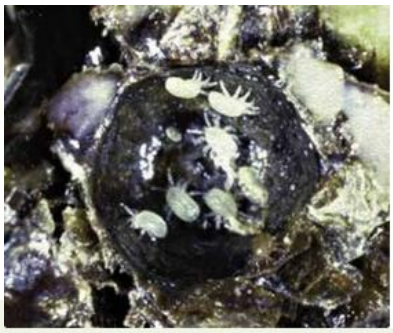
A female Tropilaelaps mite will enter worker and drone brood cells that are in the process of being capped and lay 1–4 eggs (though typically 3 or 4). The development from egg to adult takes approximately one week and the adult mites (usually about 2–3) will emerge from the brood cell along with the emerging young adult bee. While in the capped cell the larval/nymph stage of the mite is white in colour and feeds on the developing brood. Adult Tropilaelaps mites are active, red-brown mites around 1mm in length and typically 0.5mm wide, about one third the size of a Varroa mite. Considering that Tropilaelaps mites cannot survive for very long on adult bees, the vast majority of adult mites (>95 per cent) will typically mate and re-enter a brood cell to lay more eggs within 2 days of the adult bee emerging from the capped brood cell.

Appearance

Tropilaelaps mites are active, red-brown mites around 1mm in length (though *T. mercedesae* is slightly longer) and typically 0.5mm wide, about one third the size of a Varroa mite. Tropilaelaps mites can be seen with the naked eye on both adult honey bees or in the brood. They have four pairs of legs, the first pair of legs are held upright resembling antennae and the body appears unsegmented. Tropilaelaps mites are a fast-running mite, moving rapidly across the brood combs which can be easily observed during comb inspection. The young larval/nymph found within the brood cells are white in colour and are typically motionless while they feed on the honey bee brood.

Dorsal view of a Tropilaelaps mite. Food and Environment Research Agency (Fera), Crown Copyright

Tropilaelaps mites on European honey bee pupae, and a deformed honey bee resulting from Tropilaelaps mite infestation. Denis Anderson, CSIRO



A family of Tropilaelaps mites within a brood cell. Denis Anderson, www.beesdownunder.com.au

Adult Tropilaelaps mites lay eggs in the brood cells of honey bee larvae and feed on developing honey bees. The symptoms of Tropilaelaps infestation are very similar to that of Varroa mites, and are generally termed as parasitic mite syndrome (PMS). Infestation results in the transmission of honey bee viruses, such as deformed wing virus, and causes the death of many pupae, resulting in an irregular brood, deformed honey bees with missing legs or wings and a reduced weight and life span of adult bees. Irregular and poor brood patterns are also common, as nurse bees try to clean out the sick or infected pupae. Crawling honey bees and brood discarded at the entrance of a colony may indicate a colony heavily infested with Tropilaelaps mites. Heavy infestation of Tropilaelaps mites will invariably lead to the colony absconding, or colony collapse.

Detection

Observing Tropilaelaps mites on adult honey bees is difficult because only 3–4 per cent of adult Tropilaelaps mites attach themselves to adult honey bees. When adult Tropilaelaps mites emerge from a brood cell, they almost immediately enter another brood cell within 48 hours, which makes it unlikely that they will be noticed on adult bees until the level of infestation is quite high. Considering this low percentage of the population on adult bees, some detection methods which are used for Varroa mites, such as alcohol washing and sugar shaking are not believed to be effective at detecting Tropilaelaps mites.

However, this lack of adult mites on adult bees means that brood detection methods, such as drone uncapping, colony examination and sticky mat examination can be very effective.

Deformed pupae are a sign of Tropilaelaps mites. Food and Environment Research Agency (Fera), Crown Copyright

Pupa infested with Tropilaelaps mites. DAFWA

Tropilaelaps mite feeding on a honey bee pupa. Denis Anderson, www.beesdownunder.com.au

Since Tropilaelaps mites cause very similar symptoms to Varroa mites, beekeepers should always look out for symptoms of PMS in their colonies of honey bees. Symptoms of PMS include irregular brood patterns, dead brood remaining partially uncapped in cells, malformed bees with distorted abdomens, stubby wings, or deformed or missing legs, as well as perforated cappings as a result of hygienic behaviour of worker bees. Nurse bees may also start depositing deformed crawling bees and brood at the entrance to the hive when a colony is heavily infested. General colony symptoms such as a reduction in the bee population and generally colony health may also be noticed.

Spread

Tropilaelaps mites are highly mobile and can easily spread between honey bees and within a colony. Short and long distance spread can occur through beekeeper management practices,

such as the transportation of infested hives or equipment (such as beekeepers clothing), or through the movement of combs between hives. Natural behaviour of honey bees, such as swarming, drifting, robbing or absconding can also easily spread Tropilaelaps mites. Unlike Varroa mites, which can potentially survive on adult honey bees for months, Tropilaelaps mites can only survive on adult honey bees for around three days. Therefore, the level of Tropilaelaps mite spread is somewhat dependent on the level of brood within colonies.

Distribution

Tropilaelaps clareae is currently only present throughout Asia, while *Tropilaelaps mercedesae* is present throughout regions of mainland Asia and Indonesia. Both species are now also present in Papua New Guinea. [CCBA Editor's Note: But see the previous item on the discovery of these mites in Russia!]

Club Information and Contacts

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