Apis-UK The Electronic Beekeeping Newsletter

Apis-UK Issue No.51 April 2007

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How times change, and how time flies. 5 years ago this month I didn't have a computer and I didn't have a proper roof on my new house which at the time was a 400 year old ruin. So I sat in my sitting room (the only room in the house) under a large umbrella and typed out the first ever edition of Apis UK on an old Canon word processor. I saved it in text on a floppy and walked 5 Km up a very wet, muddy and steep track to town, (the car couldn't handle it that day), converted it to Word in what passed for a cyber café with the help of the café owner and sent it off to the web master. There were no photos and I had no real idea of what I was doing. Some will say little has changed in that respect, but what I can say is that the Apis readership has grown; Apis itself now has its own identity and that identity is different from its neighbours. So now that Apis has established itself, it may now be time to advance it in the sense of gradually (we never do anything in a hurry) introducing new features and new ways of looking at things for the thinking beekeeper. That then will be the trend I hope and the future of this newsletter/magazine. If any reader wants a particular subject to be featured, or a new section of the newsletter put in place then contact me. After all, a magazine contents is dictated by the readers.

As for this 5th anniversary issue, we take a good look at various pollination themes, and we also investigate what could be a defining moment in beekeeping. A new way of controlling and looking after your bees. Can you do it all from the sitting room? It seems that you will be able to do just this! See below.
What have a Morrison's bumble bee, a calliope hummingbird, a lesser long-nosed bat, a Southern dogface butterfly and a certain type of gecko got in common? Actually they have a lot in common and we take a look at this theme in our research news section. Pollinators are a fascinating subject and one I think that most beekeepers will be interested in as they realise that honey bees are not the only pollinators around, but just one insect in an illustrious band of other creatures that keeps the planet healthy. Still on the subject of pollination; do bees need to know about toxic nectar? If so, can they remember which nectar is toxic and which isn't. See below for the answer.
In the news section we report on a new – or rather rediscovered hive beetle which is alive and well in the SW of England. From the reports, I learn that these beetles eat bees and honey! Is this so or is it a journalistic mix up confusing this rediscovery and the modern threat of the other type of hive beetle. If anyone knows, do let me know because I hadn't heard of it before.

In our other sections, we look at another discovery about the causes of hay fever, Chad contemplates Spring (for those of you up North), the historical section and the poem of the month go to America, and the recipe is truly splendid and fattening – but healthy as well.

Hubert Guerriat has published his latest edition of Mellifica which features a new multi purpose small Dadant Nuc type of hive useful for queen rearing purposes. See www.mellifica.be for this information, and the Federation of Berkshire Beekeepers sent in their newsletter which took a look at that latest threat to bees – Colony Collapse Disorder. I enjoy reading these newsletters very much as not only are they interesting and show a lively beekeeping theme in the UK and Europe, but they also keep me in touch with beekeeping matters in the Northern hemisphere.

We have two interesting letters, one from Arshad Farooqui asking for advice on beekeeping for heart attack victims – anyone got any ideas? And one in reponse to the article on hornets in last month's issue. I do intend an article on hornets and bees and this will probably appear next month.

So please enjoy this rather late (but we wanted to include something on the show) 5th anniversary edition and try and work out the beekeeping significance of this photo.

All the best

David Cramp. Editor

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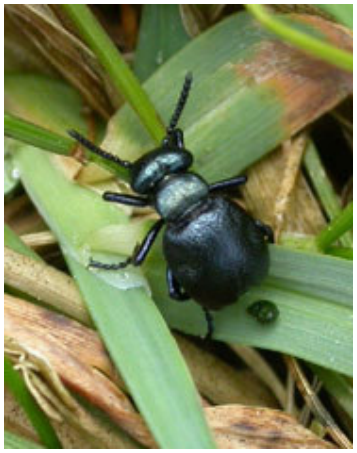
Hive! Beetle Alive and Well
A species of beetle thought to have been wiped out in Britain almost 60 years ago has been found living near the holiday resort of Salcomb in Devon. Short-necked oil beetles, which ooze toxic secretions to ward off predators, were last seen in 1948. Mr Bob Heckford, an amateur entomologist, found one while

counting insects on a coastal strip close to Salcombe, Devon.
The National Trust, which owns the nature reserve, has since found another 39. They were last recorded in Britain at Chailey Common, in Sussex, in 1948 and their survival in Devon has been attributed to the absence of intensive farming in a small area of land. **The flightless beetle, Meloe brevicollis, mines beehives and feeds on bee eggs and pollen stores.**

This last piece of information (about its activity in beehives) is news to me. Does anyone else know about this? If so, please let us know. Even Wedmore doesn't mention it, and he mentions everything! Ed.



Meloe brevicollis, thought to be extinct in Britain is in fact alive and well.

Can Honeybees detect toxic nectar? Do they need to?

In last month's Apis UK we looked at how plants can increase their pollination by offering a toxic nectar to pollinators. This month we look at a similar subject from another angle. In some interesting research carried out by Dr Geraldine Wright (Newcastle University), she looked at whether honeybees can learn if certain nectars contain toxins, and does this influence their ability as pollinators? She presented data on how toxins in nectar affect a honeybee's willingness to eat floral nectar on 1st April at the Society for Experimental Biology's Annual Meeting in Glasgow.

Can this honey bee detect toxic nectar and does it need to do so?

Honeybees are very clever and can learn to associate almost any colour, shape, texture or scent with food. The newly-sequenced honeybee genome has revealed that honeybees do not have as many genes for taste receptors as other animals of a similar size, such as flies and mosquitoes. This prompted scientists to think that perhaps honeybees had a reduced need to detect and learn about toxins, despite the

fact that some floral nectar contains toxins. Work carried out by Dr Wright and colleagues suggests that honeybees may have the ability to react to toxins, even if they cannot taste them.

They found that both the sugar content and the toxins in nectar affected a honeybee's memory for learned odours. Honeybees learned not to respond to odours associated with toxins within 20 min of eating toxins, and would retain this ability up to 24 hours after eating a toxin. This suggests that honeybees can react to toxins in nectar, but that this ability may mainly be after they have ingested the toxins.

How to Get Some of Your Taxes Back

The MOD has paid out a substantial sum to a beekeeper in the Balkans for upsetting his bees through low flying by RAF/RN aircraft.

Have your bees been worried lately? Do they suffer anxiety due to low flying aircraft of the RAF? Then be the first in Britain. Sue.

In our modern day society where you can be sued for glancing at someone, the Ministry of Defence has paid out record compensation for disruption caused by low-flying military aircraft, *including payouts to a beehive owner in the Balkans* and a farmer who lost pedigree cattle when Chinook helicopters were sent in to demolish hilltop sites in Northern Ireland. The bill for claims arising from low-flying aircraft increased more than threefold last year to £4.1 million, against £759,000 the previous year.

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The Peril of the Lost Pollinators Destroyed by Humans

National pollinator week USA 24 30 June 2007

Quote: Orley "Chip" Taylor, professor of ecology and evolutionary biology at Kansas University. "We're losing six thousand acres of habitat a day to development, 365 days a year. One out of every three bites you eat is traceable to pollinators' activity. But if you start losing pollinators, you start losing plants."

This astonishing statement should surely bring it home to most thinking people that there is a problem here. A problem for all of us. So now, University of Kansas researcher and a world-famous crop artist are behind a nationwide campaign to publicize the peril faced by species that transfer pollen between flowers.

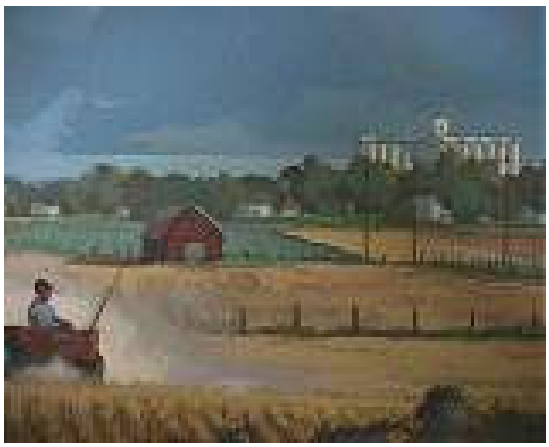
Taylor works with the North American Pollinator Protection Campaign (NAPPC). That group has successfully worked with the United States Department of Agriculture and U.S. Senate to designate June 24 through June 30, 2007, as "National Pollinator

Week." The NAPPC also has convinced the United States Postal Service to issue a block of four "Pollination" stamps this summer depicting a Morrison's bumble bee, a calliope hummingbird, a lesser long-nosed bat and a Southern dogface butterfly. To call more attention to pollinators at risk, Taylor has enlisted help from noted Kansas-based artist Stan Herd. Herd executes masterful large-scale earthworks around the world, including rock mosaics, natural-material sculptures and crop art. He's very much aware of ecological issues and he wants to become involved.

Herd will take an image from one "Pollinator" stamp — the Southern dogface butterfly — and create a vast facsimile at Pendleton's Country Market, a family farm between Kansas City and Lawrence. The image will be best viewed aerially from a nearby silo or an aircraft. Herd's immense stamp reproduction is to incorporate plants that conservationists urge for use in backyard butterfly gardens.

Herd wanted to add my artistic statement to the equation. "I'm a fan of the flora and fauna and know that with migratory critters like butterflies there are increasing problems because of loss of habitat. My work is about my ideals. It also catches young people's attention and we'll bring school kids out to get involved in this piece." Taylor and NAPPC are grateful for the awareness Herd's work could bring to the drop in pollinator populations. "We can use this larger image to attract the attention of the public to this cause," said Laurie Adams, who manages NAPPC. "Beautiful green lawns are wonderful but we need to do more with our cities, farms and the habitats that we control to provide for wildlife. Creating pollinator gardens or Monarch butterfly waystations through MonarchWatch are easy to do. And they are important."

This story has been adapted from a news release issued by Kansas University.



A painting by the Stan Herd, an American environmental artist from Protection, Kansas. Stan is now involved in assisting with pollinator protection

This is a good idea. So few people in the UK and Europe actually know that bees, bats, humming birds and so on are pollinators and so are vital for all of our health, that a good dose of education on the subject in schools would be a good idea. Two years ago when I asked a young person what a pollinator was, he wasn't sure whether it was a film or something that caused hay fever! Ed. Perhaps the BBKA education committee could advise.

Altruism or Sex War

Beekeepers will know tht for the good of the colony and bee-kind, worker bees have given up their ability to effectively reproduce. This evolutionary trait also occurs in other social insect species – or does it?

In a very interesting piece of research entitled Spiteful Soldiers And Sex Ratio Conflict Among Parasitoid Wasps we read that even though the social insects provide some of

the most fascinating examples of altruism in the natural world, with sterile workers sacrificing their own reproduction for the greater good of the colony, altruism is not always the motive for this behaviour.

Research carried out in Canada and the United Kingdom reveals that, for a peculiar group of parasitic wasps, this sacrifice is more sinister. For years the function of sterile 'soldier' larvae in polyembryonic parasitoid wasps has been controversial. Traditionally, these have been viewed as bringing a benefit to their broodmates as a whole, for example by protecting them from attack by other species of parasitoids. More recently, it has been suggested that soldiers are primarily involved in a battle of the sexes, which they wage against their own siblings. Andy Gardner, Ian Hardy, Peter Taylor, and Stuart West, in a theoretical study of how natural selection shapes the behaviour of these larvae, published in the April issue of the American Naturalist, have rejected the brood-benefit hypothesis and found in favour of the view that their behaviour is altogether spiteful.

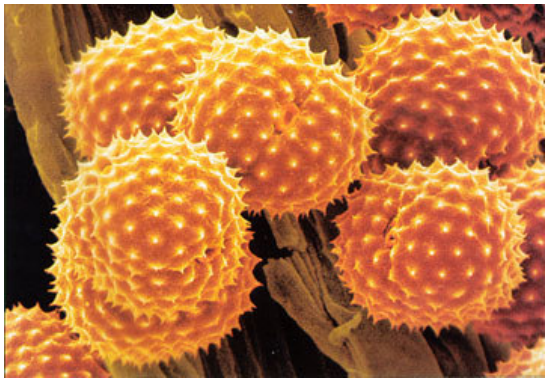
Andy Gardner, now at St John's College, Oxford University, explains, "We found that the bizarre genetics of these wasps means that brothers value their sisters more than sisters value their brothers, and so if sterile larvae function for the good of the group then it should be brothers who more willingly make the sacrifice.

Alternatively, if the sterile larvae are used by each sex to wage war against the other sex, then it should be primarily females who are interested in killing their brothers. As it happens, most sterile larvae are female, suggesting a primary role in sex conflict." This work also explains the often strongly skewed sex ratios in these wasps, where female outnumber males, due to sex differences in killing behaviour. More generally, it reveals how Darwinism can be used to explore the function of puzzling animal behaviours.

Reference:
Andy Gardner, Ian C. W. Hardy, Peter D. Taylor, and Stuart A. West, "Spiteful soldiers and sex ratio conflict in polyembryonic parasitoid wasps" The American Naturalist, volume 169 (2007), pages 519--533 DOI:

Nitric Oxide Allergic Reaction Linked To Hayfever

Hayfever is a major irritation for up to 20% of the population in most economically developed countries. Pollen is the cause of this allergic reaction but what causes it and why? In an interesting news release issued by the Society for Experimental Biology, scientists may have found the answer to these questions. Nitric oxide could be the culprit.



Pollen is a major irritation for up to 20% of the population in most developed countries. But how does it cause this reaction?

Dr Jo Bright and Dr John Hancock of the University of the West of England have found evidence that nitric oxide (NO) and nitrite is released by pollen grains, and they suggest that this could be what triggers the allergic response in the nose. Their

research was presented at the Society for Experimental Biology's Annual Main Meeting in Glasgow on 3 April. Dr Bright says, "Our research is the first to show that pollen which is allergenic releases much greater amounts of NO and nitrite than a non-allergenic pollen."

Evidently the discovery of the potential link to hayfever was made almost by accident. Whilst working on a separate project on plant reproduction they found that pollen was producing NO as a by-product. They then realised that this might have implications for the allergic response many people have to pollen.

This current study has enabled the researchers to look closely at how the plant produces NO, but they now need to carry out further research so that they can prove the link between the NO and the allergic reaction. These findings are very exciting and it is believed that they could have implications for how hayfever is treated in the future—but there is still a lot of work to do before the link can be fully established the researchers are now searching for funding to carry on this research."

Previous research indicates that the male parts of the plant (the pollen) may produce NO as a signal to the female parts (the stigma) during reproductive processes. NO and nitrite signalling are also important mechanisms in mammals and Dr Bright and her colleagues intend to investigate what role the pollen-derived NO and nitrite plays in human cell inflammation and irritation during hayfever.

Reference:

Hiscock, S., Bright, J., McInnis, S.M., Desikan, R. & Hancock, J.T. (2007) Signaling on the Stigma: Potential New Roles for ROS and NO in Plant Cell Signaling. Plant Signaling & Behavior, 2, issue 1. McInnis, S.M., Desikan, R., Hancock, J.T. & Hiscock, S.J. (2006) Production of reactive oxygen species and reactive nitrogen species by angiosperm stigmas and pollen: potential signaling crosstalk? New Phytologist, 172, 221-228 This research is a collaboration between the University of the West of England, University of Bristol and University of Cardiff and is funded by the Wellcome Trust (grant no. 077614/Z/05/Z "The release of Nitric oxide from hay fever-causing allergens").

Nitric Oxide

The chemical compound *nitric oxide* is a gas with chemical formula NO. It is an important signaling molecule in the body of mammals including humans, one of the few gaseous signaling molecules known. It is also a toxic air pollutant produced by automobile engines and power plants. Nitric oxide is a key biological messenger, playing a role in a variety of biological process. Nitric oxide, known as the 'endothelium-derived relaxing factor', or 'EDRF', is biosynthesised from arginine and oxygen by various nitric oxide synthase (NOS) enzymes and by reduction of inorganic nitrate. The endothelium (inner lining) of blood vessels use nitric oxide to signal the surrounding smooth muscle to relax, thus dilating the artery and increasing blood flow. The production of nitric oxide is elevated in populations living at high-altitudes, which helps these people avoid hypoxia.

The Long Tongue Trade Off

Orchid bees use their extraordinarily long tongues to drink nectar from the deep, tropical flowers only they can access. Researchers have long suspected that this kind of exclusive access came with a mechanical cost. According to common sense and a classic law of fluid mechanics, it's just plain hard to suck thick, viscous nectars up through a long straw.

Now, Brendan Borrell at the University of California, Berkeley has confirmed this prediction for the first time: orchid bees with long tongues suck up their nectars more

slowly than bees with shorter tongues. Borrell spent three years collecting bees in forests all over Costa Rica and Panama and measuring their feeding rates at artificial flowers. He found that the smallest bees sometimes had the longest tongues and the largest bees sometimes had the shortest tongues. But after taking into account all that variation in body size, he says long tongues really do impose a mechanical cost on bees.

Everyone knows just how busy bees can be, but orchid bees are basically sacrificing speed at flowers for exclusive access to them. Borrell thinks this may be because the rewards at these flowers can be tremendous, up to ten times the quantity of nectar provided by typical bee flowers.

Brendan J. Borrell, "Scaling of nectar foraging in orchid bees" American Naturalist, 2007, 169: 569--580. DOI: 10.1086/512689

Note: This story has been adapted from a news release issued by University of Chicago Press Journals.

Orchid Bee
For those interested in these fascinating bees, the following information is given:

Orchid bees use long tongues to gather nectar in deep flowers, but this slows them up considerably. Is there a trade off?

Orchid Bee, common name for a group of brightly coloured tropical bees.

Orchid bees are also known as gold bees. There are more than 175 species. They occur only in the western hemisphere in tropical and subtropical regions from northern Mexico to Argentina. Many species of orchid bees collect nectar, pollen, and other substances from orchids. Orchid bees are among the most brilliantly coloured insects. Many species are green, blue, purple, gold, or red. Some are black with yellow or white hairs and resemble bumble bees, to which they are closely related. Orchid bees range from 8 to 30 mm (0.3 to 1.2 in) long. They have tongues that, in some species, may be twice as long as the body. The long tongue allows them to reach nectar in deep-throated tropical flowers.

Orchid bees are fast, strong fliers and can travel great distances. Some are known to fly as far as 45 to 50 km (28 to 31 mi) in search of flowers. Orchid bees drink nectar for energy. Male orchid bees are especially attracted to orchids, from which they collect fragrant oils that are stored in specialized receptacles on the hind legs. The orchids often produce no nectar or pollen, but they have special mechanisms that attach the pollinium, or pollen bundle, to a specific location on the bee as it gathers oils or searches for nectar. The pollinium releases its pollen on the next flower of the same species that the bee visits. Males of some species are easy to observe because they can be attracted to artificial fragrances. Females are less attracted and thus less frequently seen. Orchid bees display very interesting foraging behaviors and are believed to be important pollinators of many tropical plants. Plants in the tropics do

not grow in groups, and individual plants of the same species are often miles apart. Orchid bees are believed to forage on specific plants along set routes, a behavior known as traplining.

The nests of only a few orchid bee species have been found. Nests are constructed in cavities in wood, in fern roots, in the ground, in bamboo stems, in termite nests, under palm leaves, in crevices, under bridges on rocks, and on roofs of houses. Nests are lined with resin collected by the female. Some species seal up the nest entrance with resin at night. Some nests are constructed of wood chips or bark mixed with resin. Many species nest in groups. Some nests are shared by a number of individuals, but each female constructs her own brood cells (compartments for the young) independently. Nests may be used continuously by different generations of orchid bees.

Orchid bees in one genus have lost the ability to make their own nests. Instead, they parasitize the nests of other orchid bees. Other types of insects also parasitize the nests of orchid bees.

Scientific classification: The orchid bees comprise the tribe Euglossini in the family Apidae, which includes honey bees and bumble bees. The largest orchid bee genus is Euglossa. Bumble bee-like species belong to the genus Eulaema. Parasitic orchid bees are in the genus Exaraete.

Pollination Games with Geckos
This piece of research news is about geckos, not bees and you may be wondering why on earth I've included it in Apis UK. Well although not about bees, it is about a very specialised pollinator and it illustrates the dependency of plants and pollinators to an extraordinary degree. With pollinators rapidly disappearing from our landscapes, every bit of knowledge we can glean about them may be of importance in the future. In a nutshell, this article shows how if you cut down one plant, another one cannot exist.

Neighbours gone, sex gone, fruits gone, species gone. This is the ultra-short conclusion of the findings in a study by Dennis Hansen, Heine Kiesbüy, and Christine Müller from Zurich University, and Carl Jones from the Mauritian Wildlife Foundation, who found that an endangered plant in Mauritius depends on a neighbouring plant to provide a safe home for its pollinator, a day-active gecko.

Pandanus plants on Mauritius provide hiding places for the day gecko.

If the pandanus is near to the Trochetia plant, the day gecko can reach the Trochetia in safety to pollinate it.

So if Pandanus plants grow near to this Trochetia, its chances of pollination are high enough for its survival.

ependency is critical in prot .
a rare endemic Mauritian p owers
endemic day gecko Phelsu s of the
isitive animals. However, freely all
the time, if they want to avoid predators. Thus, the geckos spend a lot of time hiding. A favourite hideout of Phelsuma cepediana is the maze of spiky leaves offered by dense patches of Pandanus plants. In an experiment carried out in 2003 and 2004 and reported in the April issue of the American Naturalist, Hansen and co-workers showed that Trochetia plants growing close to Pandanus patches had a higher chance of being pollinated and produce fruit than plants further away. Thus, Trochetia enters an indirect dependency with its neighbour Pandanus via the geckos. The case of Trochetia and its pollinator is only one of many examples of the complexity and fragility of island community interactions. When an island ecosystem is altered by humans, the outcome for both plants and animals are hard to predict. "We need field experiments such as this one to understand the potentially disastrous effects," says Christine Müller. "There has been a long tradition of studying direct interactions in pollination biology," says Dennis Hansen, "but only little focus on indirect interactions, even though they often have large effects.

This study illustrates how important it is to know as much as possible about the community-level interactions of an endangered species before deciding on conservation management. For example, to conserve Trochetia blackburniana, who would have thought we would end up saying 'plant more patches of Pandanus'?"

Reference:

Dennis M. Hansen, Heine C. Kiesbüy, Carl G. Jones, and Christine B. Müller, "Positive indirect interactions between neighbouring plant species via a lizard pollinator" The American Naturalist, volume 169 (2007), pages 534--542 Note: This story has been adapted from a news release issued by University of Chicago Press Journals.

The Mauritius Wildlife Foundation has a very interesting website at http://www.mauritian-wildlife.org for those interested in this fascinating Island.

Flowers Shape Themselves For Their Pollinator

As most beekeepers realise, and as most of the general public don't realise, bees are there for pollination, both for the flowering plants and for us and our food supply. The subject of pollination and especially the evolution of the relationship between plants and pollinators of all types is complex in the extreme, but gradually we are finding out more and more about this fascinating subject. In this interesting piece of research described in a news release from the University of Miami in the USA, scientists looking at other pollinators found that flowers actually shape themselves so that their particular pollinator can 'fit' better and to better guide their pollinators to the pollen.

They began by asking why do flowers specialize on different pollinators? For example, both bats and hummingbirds pollinate plants in tropical forests; why adapt to just one

instead of using both? Biologists often assume that tradeoffs contribute to such specialization (the jack of all pollinators is master of none), yet surprisingly little evidence exists in support of this idea.

These desert flowers have shaped themselves for their chosen pollinator: The bat.

Nathan Muchhala from the University of Miami explored pollinator specialization through experiments with bats, hummingbirds, and artificial flowers in cloud forests in Ecuador. In a study published in the April issue of the American Naturalist, he reports that the fit between flower and pollinator is key: bats pollinate wide flowers better, while hummingbirds transfer more pollen between narrow flowers. Videotaping demonstrated that a poor fit fails to correctly guide the pollinator while feeding. This trade-off in adapting to bats vs. hummingbirds is strong enough to favour specialization on one or the other. While all leaves tend to look similar, flowers come in a spectacular variety of shapes and colours. This study suggests tradeoffs in adapting to different pollinators may have played an important role in the evolution of such diversity. Adaptive trade-off in corolla shape mediates specialization for flowers pollinated by bats and hummingbirds.

Reference: The American Naturalist, volume 169 (2007), pages 494--504 DOI: 10.1086/512047

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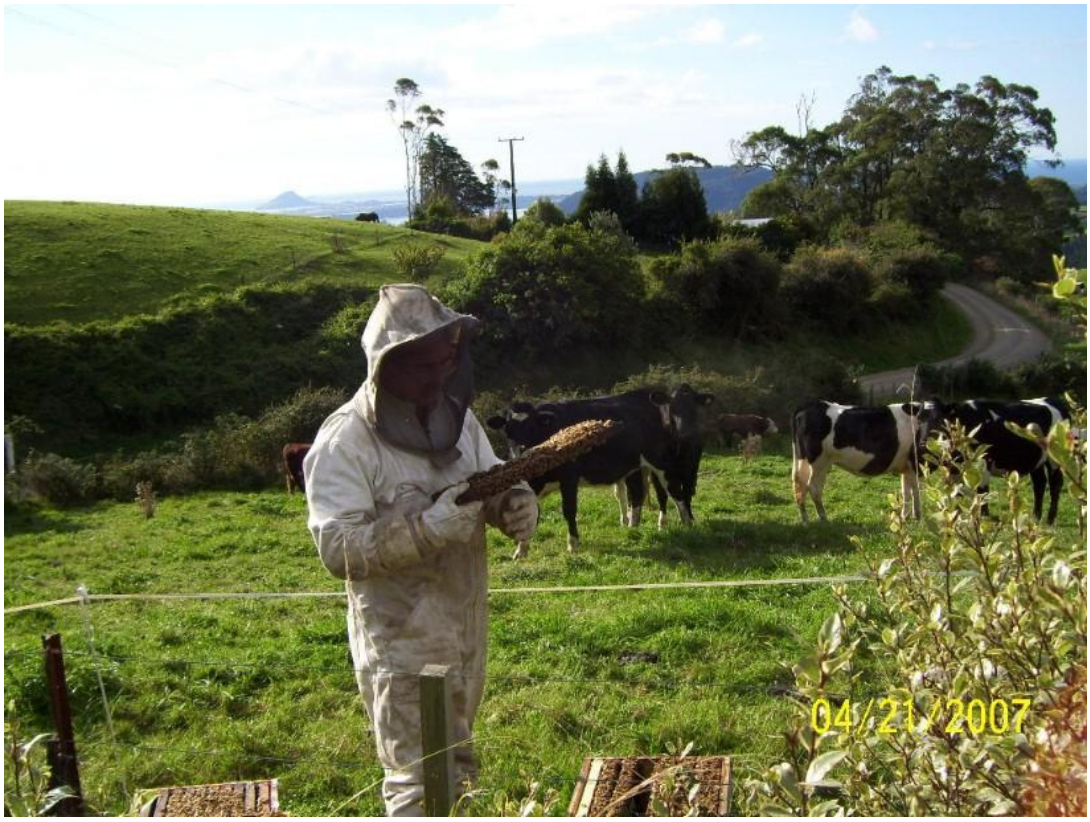
Research That Could Revolutionise Beekeeping

More research on bees and poisons. This research may have some very practical applications for beekeepers and may even provide diagnostic information to the beekeeper about diseases in the hive. So in future, if you want to know what's wrong with the colony, just ask the patients! Ed.



Soon, health inspections like this will be done from the sitting room!

Everyone knows about the use of canaries in coal mines, which die in the presence of poisonous gas and so warning miners that there is a problem. Now a University of Montana research team has learned to understand the collective buzzing of bees in their hives, which can provide a similar biological alert system.

The researchers have found that bees are able to provide a lot more information than canaries. The researchers, from Bee Alert Technology Inc., have found that the insects buzz differently when exposed to various poisonous chemicals.

"We found bees respond within 30 seconds or less to the presence of a toxic chemical," said Research Professor Jerry Bromenshenk. But astonishingly, the sounds bees produce can actually tell what chemical is hitting them."

The insects also make different sounds when attacked by honeybee maladies such as varroa mites or foul brood. This may lead to applications that help beekeepers maintain healthy hives.

The researchers found that they could tell not only whether the colony has mites or not, but also the level of infestation they have. The sounds they make change with every stressor in characteristic ways. Scott Debnam, a Bee Alert field technician and self-described "bee whisperer," said people have known for centuries that hives make a different sound when the queen is removed. Now modern listening equipment and computer software have revealed a secret bee vocabulary much more intricate than previously thought.

Bees lack sound-making organs, but they buzz by vibrating their wings and bodies and pushing air through spiracles—tiny airways used for respiration. Bee Alert technicians have discovered the unique hive sounds two years ago while studying how bees react to a poisoning event. The bees were filmed, recorded and counted, and it soon became apparent that sound was the best medium for determining if something toxic had entered the hive.

"We poisoned them with off-the-shelf stuff like acetone and malathion—the types of poisons they might encounter in an agricultural situation," he said. "They responded within 30 seconds, which is amazing."

Debnam said bees recycle the air in their hives every three minutes and never sleep, so they can provide 24-hour air monitoring, seven days a week.
"With some chemicals you can hear they don't like it," he said. "With the solvent toulene, for example, you hear their buzz go to BZZZZZZZZZZ just like that."
For most chemical agents, however, a more exacting instrument than the human ear is needed. UM electronics technician Dave Plummer designed a listening device that's basically a human hearing aid on a stick. However, if you leave it in a hive for an extended period, all you will hear is "crash, crash" noises as the bees try to pull the foreign object out of the hive or plug the end of the microphone. So Plummer had to create a special screen cage to protect the microphone. The device records the same type of ".wav" audio files used for digital music. University of Montana software engineer Larry Tarver designed a mathematical algorithm that allows a computer to analyze these files. "Most of the time for bees their normal sound range is 200 to 400 hertz, when they get dosed with something, they really go to a high amplitude."

He said his program creates a running average to weed out incidental noises such as doors slamming or horns honking. Bee Alert's Colin Henderson, a faculty member at UM's College of Technology, then examines the audio samples with statistical analysis software. The end result is an electronic signature for each type of chemical or malady affecting the honeybees.

At first, the researchers thought that their investigations just weren't working, but then they realised that they were wrong. You just can't hear this stuff with the human ear."

Bee Alert uses "smart hives" filled with electronics to monitor bee colonies, and these can be adapted to monitor hive sounds. So if a hive is sprayed with chemicals or invaded by pests or diseases, the sounds can be analyzed and a signal sent immediately via satellite to a beekeeper's computer or cell phone.

The researchers also hope to create a handheld listening device that beekeepers can use on hives to instantly tell whether the bees are healthy.
"What we are trying to do is revolutionize bee technology," said Steve Rice, an electronics engineer and COT instructor. "Patents are pending on a lot of this."
The new audio technology also helps distinguish different bee species. Debnam said there already is a device that can tell the difference between 100 percent European honeybees (the agricultural standard) and 100 percent African bees (also known as killer bees). However, European and African bees interbreed, and the Bee Alert audio technology seems to detect when they have intermingled.

"You don't want Africanized bees," Rice said. "They get angry easily." There also is some evidence the audio technology can differentiate between the multiple types of beneficial European honeybees used in agriculture. This can be useful to the Montana beekeeper, for example, who needs Russian honeybees instead of the Italian variety that are more susceptible to mites. A simple swipe of a handheld device and the beekeeper knows if the bees ordered are right.

Besides doing statistical analysis to study bee noises, Bee Alert is using artificial neural networks to examine the buzzes. Information systems manager Robert Seccomb said ANN technology can recognize complex patterns on sonograms and is used a lot in voice-recognition software. "It's not 100 percent accurate, but it's a lot quicker than statistical analysis," Seccomb said. "Once we build up a sufficiently large library of recordings, I'm pretty sure ANN will give another method of analyzing the sounds."

He said if the statistical analysis method and ANN both agree on the meaning of a buzz, "we'll know pretty much what the answer is. If one says 'yes' and the other says 'no,' then we will say this is a questionable one, and you should check it out anyway."

Honeybees are vitally important to the success of humanity—not because they produce honey but because they pollinate the majority of our crops. Debnam said Albert Einstein once claimed that if all bees disappeared tomorrow, then all people would follow a scant four years later. "We think this new technology can help bees and revolutionize beekeeping," Debnam said. "If you took a picture of beekeeping from 1947, it would look just like a bee yard today—with the same smoker and other tools. Our audio technology might be one of the bigger things to come along."

Note: This article has been adapted from a news release issued by University Of Montana.

In this article Chad Reflects on Spring.
Hammering in the Spring

You may have seen the wife on Countryfile (A BBC TV program covering country issues). I personally feel a bit put out, I hung around that camera crew all day hoping they would preserve me for posterity; I made tea, provided cake, fetched, carried and stood about in the rain and cold, yet for nothing. They chose instead to film my pigs and dog.

Today was spent knocking up flat pack hive floors, I was managing to nail them together in just under three minutes each, that's 20 an hour, that's faster than the rate at which spitfires were being produced at the height of WWII. If only we'd been able to fight the Luftwaffe with hive parts.

This year my goal is to have 100 hives or more and my business has seen a marked investment of late. The internet is a wonderful thing; it really does pay to shop around. I have ordered brood boxes and roofs from Newcastle, floors from Gloucester and frames and wax from Wales. It should all be arriving next week so I'll have a blitz on assembly for three days. I was toying with the idea of buying a nail gun for the job but my wife is teaching me not to live beyond our means. I am therefore going to employ a local lad to help me with the hammering. Young people wouldn't fall into drugs and crime if beekeepers gave them more meaningful employment.

I have recently discovered the delights of 'first' equipment. I usually buy 'seconds' which according to my father in law is because I am a Northerner. You certainly get more frames for your money when they're seconds and of course, you get that warm bargain feeling that lasts all day, however, it wasn't until last week that I realised just how nice it is to deal with firsts. The joy of effortlessly pushing frame pieces together, it's like they were designed to fit. Amazing. No splits, splinters, no knots, warps: it's magical. When I am a millionaire I will buy firsts all the time, then, as I promised myself when I was eleven, I shall take a year out and collect as many different species of dragonfly as I can catch, and display them in an oak cabinet.

I heard a chiffchaff today, my first migrant of the year. It sang as I hammered, both of us enjoying the sun. I saw the long range forecast on Countryfile; uninterrupted sunshine all week, could we hope for a better start to the beekeeping season? I gave into temptation last weekend and looked through all my colonies, bit naughty really, as it was a little on the cold side. I just had to know how many colonies I had so that I

could work out how much equipment to order. Last year I only observed flying bees as an indication of winter survival and later in the spring discovered that there were 3 colonies with living workers but no queens. By opening up the brood box I was able to see evidence of laying and queen survival. My investigation was very pleasing, I have only lost two colonies and the range in amount of brood between different hives was remarkable. Two of my hives had three frames of brood each whereas a couple only had a patch the area of a 50p. Most of the colonies had a frame's worth of brood. Also, while I think of it, owing to the fact that there relatively few bees in the hives at the moment, the queen is either obvious or reasonably easy to spot. Next week I'll be back to mark them all with some nail varnish. I am not going to clip my queens this year, in recent conversation I was told that laying queens, though already mated during their nuptial flights, may try to mate again and having only one wing may hinder them somewhat. I deem it less of an evil to loose the odd swarm rather than to lose the whole colony through collapse of a non-laying queen.

On an entirely unrelated subject to beekeeping…I have two constant reminders of the fact that I got married last summer. The first of these is my wife, who seems to be there whenever I turn around. The second is a sound system that I bought for the wedding day. I thought it would be nice to hear music from wherever you were on the farm (a range of 170 acres) the two 500W speakers I bought were just the ticket. Now, on hearing that the neighbouring farmer had employed a Ukrainian farm-hand to help him with his cows I thought it would be a neighbourly extension of goodwill to play the Ukrainian national anthem on my farm so that he would hear it on his. That was my honest intention. Sadly the true effect was less pleasing. The poor Ukrainian had been having a bad morning of it, up at 4.30am, covered in muck, troublesome cows in the parlour and what should he hear as he walked through the collecting yard? Booming down the valley from half a mile away comes his national anthem. The poor chap stood proudly in the yard, crying his eyes out, realising just how homesick and unhappy he was. Oh dear, did I ever get an earful from his employer. This particular farmer is Dutch but has excellent command of four letter expletives. I learned a valuable lesson that day.

And finally, if you ever go on the internet, look at the www.youtube.com site and look at the clip entitled *crazy bee footage* it shows an American beekeeper catching a swarm. It isn't humorous, just informative; it would have been useful for me to see this before I began catching swarms. Enjoy the spring.

Information sheet no. 8

Melbourne, Australia 9 – 14 September, 2007

That magical date of 15 May for the close of Early Bird registrations for Apimondia 2007 is fast approaching. Looking at our website www.apimondia2007.com shows the cost for registration increases after 15 May. I am sure that all beekeepers would want to save money on their registration costs by making the Early Bird cut off date.

Registration is easy online but if you do not have that facility, you can ask for a registration form to be faxed or posted to you. Contact:-

Apimondia
GPO Box 128
Sydney 2001
New South Wales
Australia

Phone 1300 799 691 (within Australia)
+61 2 9265 0890 (international)

Fax +61 2 9265 0880 (international)

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There are still sponsorship opportunities available for Apimondia 2007. Have a look at the website www.apimondia2007.com and click on "Sponsorship" to see what is available. One that could be attractive to some businesses is the opportunity to insert a double sided A4 page in the conference satchel for the reasonable price of A$1100.

It is a good opportunity to put your business before the beekeepers of the world.

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Has your group entered a lady in the Honey Queen Competition? Our website www.apimondia2007.com has the Conditions of Entry and the Entry Form can be downloaded from that site.

Trevor Weatherhead (Organising Committee) queenbee@gil.com.au

The BBKA Spring Convention

The BBKA Spring convention was held on 21/04/2007 and the the weather was good. Over 2,000 people attended the convetion and this year more people booked tickets ahead of the event than last year.

Queuing at the spring convention.

The exhibition halls were packed and UK Beekeeping suppliers were well represented, there were also three Beekeeping suppliers from Germany and one from Denmark. This years early start made the Spring Convention the ideal place to be to purchase equipment.

Northern Bee Books and Thornes Sale Items.

The Friday (members only day) was well attended and lectures were very popular. Popularity of the event carried over to Saturday and many lectures were well attended. Several were over subscribed and this meant that people were unable to attend.

Bill Turnbull attended the Spring Convention and made a video of the event. The video can be found at url:
http://tv.player.countrychannel.tv/skins/0018/nsp.aspx?player=wildlifeandanimals

To see the video:
Click Videos, then Click Insects, finally click BBKA Spring Convention (You might have to scroll the recordings to find it)

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Ronald O. Kapp's 'Pollen and Spores'

PREFACE TO THE SECOND EDITION
"How to Know Pollen and Spores" by Ron Kapp was published in 1969, by William C. Brown Publishers, DUbuque, Iowa. The volume quickly became a standard reference for the identification of auatemary pollen and it has remained one of America's favorite palynology texts, particularly among beginning students. Certainly, a primary attraction is the clarity and simplicity of its illustrations. drawn primarily by Rick Hall, then a student at Alma College, where Ron Kapp spent his academic career. Kapp credited Rick with "all illustrations except those of fungal spores," but Kapp's initials can also be seen on some illustrations.

Kapp planned a revised edition that he began in 1985; however, this was cut short by his untimely death in March of 1990. With this edition. King and Davis have endeavored to continue the clarity and simplicity of Kapp's work while updating and correcting the text. Their goal is to provide an inexpensive introduction and guide to an area to which they are devoted, in hopes of continuing Ron's work and advancing the remarkable field of palynology.

Some conventions introduced in the second edition include a consistent format for each taxon's of Latin binomial, followed by "CN" common name, SIZE in micrometres (JIm), (geographical) RANGE, and NOTES. Keys to several groups have been expanded and the literature has been updated to reflect the many advances in palynology since the original 1969 edition.

Many palynologists have provided suggestions and ideas for this edition, which have been incorporated wherever practical. Students over the years have provided invaluable insights through their questions and comments, we thank them all. And we are particularly thankful for the efforts of Phil Jenkins, of the University of Arizona Herbarium, who edited the plant taxonomic nomenclature in this text. We gratefully acknowledge the technical support of several persons in preparing this Second Edition, including Philip D. Jenkins, Jo Ann Overs, and Becky Meyers.

Richard C. Hall is a medical illustrator whose office is near Jim King's.
Richard and his students Terence Condrich, and Ross Papalardo, repaired many of his original drawings, and produced several new ones.

The absence of a miracle cure and the necessity of using our expertise in a more rational way, have led the authors to take stock of the current knowledge through a richly-illustrated practical manual, by applying their experiences as acarologists and beekeepers

Post paid from NBB at £12.50 post paid in the UK.

RECIPIE OF THE MONTH Back to top

I found this recipe on an excellent web site (see below) and tried it almost immediately using 30+ active manuka honey. The site, 'About Home Cooking' has all sorts of wonderful recipes put into different classes and is a must for all foodies. This recipe is truly delicious and takes me straight back to Spain.

Apis UK rating: Delicious/Healthy/Fattening.

Grilled Figs With Thyme Honey and Gorgonzola Toasts

Ingredients:
1/4 cup mild or medium-strength honey, such as clover or blackberry. (I used manuka).
6 (3-inch) sprigs fresh English thyme (I used NZ stuff from my garden)
12 large ripe figs
2 teaspoons extra-virgin olive oil, plus more for brushing (Spanish is best).
2 teaspoons fresh thyme leaves
1 best-quality artisan-style baguette
6 ounces Gorgonzola cheese, at room temperature

Instructions:
Simmer honey in small saucepan, and add thyme sprigs. Let cool for 15 minutes or more while grilling the figs and bread.

Start a charcoal fire in an outdoor grill or preheat a gas grill. Cut figs in half, and toss them in a small bowl with 2 teaspoons olive oil and thyme leaves. Set grill rack 4 inches from fire. When the charcoal is ashed over and glowing, or the gas grill is medium-hot, grill figs quickly until they are heated through but not collapsed, 1 to 2 minutes on each side. Transfer to a platter.

Cut 24 1/2-inch-thick slices from the bread, and brush both sides lightly with olive oil. Toast bread on both sides on the grill away from direct heat. Spread cheese on toast, and top with figs.

Remove thyme sprigs from honey with a fork and discard, then drizzle honey over figs and toast slices. Serve at once.

Yield: 8 to 12 servings

See more at: http://homecooking.about.com

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An Idea for the Control of Wax Moths.
Most of our Historical notes have been taken from UK sources so this month I decided to look further afield and from the USA comes this offering. It comes from a very interesting US site (see below) and gives us an illuminating insight into early American thinking on how to control wax moth. I was given 7 hens on my birthday in February. The dog (a ridiculous looking poodle/terrier cross) got 5 almost straight away but two survived with which I could try this out. If anyone anywhere in the world has any historical sources which give us an insight to beekeeping in their countries in early times, please send any items to me.
Ed.

The wax moth was accused of destroying healthy bee colonies. Today we know that the wax moth is almost always controllable by a healthy bee colony, and that its presence in a hive is usually a symptom of another problem. One creative beekeeper's way of controlling wax moth follows below, quoted from a book titled "Moore's Universal Assistant" (1878):

"HENS MADE TO PROTECT BEES. - A bee raiser has patented an invention for the protection of bees from the attacks of the honey bee moth, which enters the hives at night, and rifles the stores.... Hens, he observed, retire to rest early; but bees seek repose earlier still; no sooner are they sunk into slumber, than the moths steals into their abode and devours the produce of their toil. He has now built a stand of hives with a hen house connected. The bees first betake themselves to their dwelling and settle themselves for the night. The hens then come home to roost on their perch, and as they take their places upon it, their weight sets some simple mechanism to work, which at once shuts down the doors of all the hives. When the day dawns, however, the hens leave their roost, and the removal of their weight from the perch raises the hive doors, and gives egress to the bees in time for their morning's work."

Oil pots with flaming wicks were also used to attract and kill moths.

Thanks to John's Beekeeping Notebook. Created by John Caldeira, Dallas, Texas, USA

john@outdoorplace.org http://www.outdoorplace.org/beekeeping/

POEM OF THE MONTH Back to top

FAME by Emily Dickinson

Fame is a bee.

It has a song—

It has a sting—

Ah, too, it has a wing.

Emily Dickinson
Born Dec 10 1830. Amherst Massachusetts
Died May 15 1886. Amherst Massachusetts

This photo of the young Emily Dickinson taken around 1846 – 1847 was once the only known photo of the poet.

LETTERS Back to top

Dear David,

I read with interest the short alarming item on Asian hornets Vespa velutina nigrithorax the subspecies found in La belle France. I received an early indication from the email review for Beecraft also seeig a report on the European Bee forum, I nipped onto Hymenoptera.de to which I also subscribe. Here as I expected I found the unambiguous version of the facts which I am gradually translating into English. I did a short precis for Beecraft but Claire Waring decided to leave it till the next edition for more clarity.

I have an interest in hornets, I live in the UK in Kent where hornets were last seen just after the end of WW2.

We have had them back for the past 5 years now and I have regularly 3 to 5 nests each year around my home apiary. We had Vespa dolichmedian from France possibly 15 years ago, the queen looking just like a crabo worker in colouration and size. quiet to moderate in temperament, stings no worse than common wasps. V. crabo is even more docile, biting rather than stinging, they take far more more wasps than bees, they do pick off bees in flight when they are alighting but not to any detrimental effect. The first year they were on my farm they occupied and empty hive alongside one with a wasps nest in it, I was able to demonstrate the difference in temperament. I have had two nucleus hives and an empty single brood chamber used by hornets ever since.

This is on a six acre holding. Hornets fly at night just as well as in daylight. That is the first thing I learnt. I have moved a nest and not been stung, I have regularly moved wild honeybee colonies out of buildings so applied that knowledge on the hornets. I was not so successful.

V velutina is smaller than the European hornet, I think the papers have mixed it up wth the V mandarina hornet the giant japanese hornet that so decimates European colonies in Asia whereas A cerana has a specialised heat treatment to dispatch V mandarina.

Wenn Sie deutsch lesen koennen dann besuchen Sie href="http://www.hymenoptera.de">www.hymenoptera.de If you read German then visit the aforesaid websiteowned by Frau Dr. Melanie Orlow.

I'll write to you again when I have got the facts as I understand them correct and verified.

Peter Hutton

Hi David,

It’s nice to see your new improved and more interesting newsletter. I used to a very active beekeeper in Falkirk (Central Scotland). Since I suffered a heart attack in June 2005, I can not lift honey or brood chambers any more. I want to back to my normal activities but every time I examine my bees I end up in Hospital. Doctors wanted to know why I go back to hospital so often but I am scared to tell them that I am a beekeeper. Due to my poor health can anyone suggest me how to carry on my beekeeping hobby without lifting heavy weights? Or I should just spend my rest of life reading beekeeping books, magazines and your newsletters.

Regards.

Arshad Farooqui

How about writing one Arshad? Anyone else got any suggestions? Ed.

DIARY OF EVENTS Back to top

BEES FOR DEVELOPMENT.
Bees for Development Beekeepers' Safaris. For an amazing beekeeping adventure, chose from one of our four award-winning Safaris - friendly holidays run by BfD in partnership with our colleagues overseas.

12-21 June 2007 - **BEES AND FLOWERS IN SWEDEN**
Organised by Bikonsult of Sweden in co-operation with BfD. A unique opportunity to celebrate 300 years since the birth of Carl von Linnaeus, 'Father of taxonomy'. Options include watching the midnight sun north of the Polar Circle.

14-23 September 2007 - **AFTER APIMONDIA - AUSTRALIAN LIFE AND BEEKEEPING**
Organised by Bikonsult of Sweden in co-operation with BfD. See the Australia that you will not find through tour operators, and meet local beekeepers and their families.

14-28 November 2007 - **TANZANIA**
With Njiro Wildlife Research Centre, Arusha. Experience African bees, visit local beekeepers, apiaries and markets. See the spectacular Serengeti and the animals that live there.

21-31 January 2008 - **TRINIDAD & TOBAGO**
With Gladstone Solomon, Presidentof Tobago Apicultural Society. Enjoy sand, sea and Africanised bees. See European bees, stingless bees, pan yards and humming birds.

For details visit our website at: www.beesfordevelopment.org
E-mail safari@beesfordevelopment.org ~
Phone +44 (0)16007 13648

Sunday 10th June 2007

YORKSHIRE BEEKEEPERS' FIELD DAY.

Sunday 10th June 2007.

Location – 5 mins walk from York station
Themes – Bee Health and Bee Products

Speakers – Dr David Aston, Richard Ball - National Bee Inspector,
Norman Carreck, Paul Metcalf, Heather Robson

Subjects – Integrated Bee Health Management,
Bee Disease Research, Microscopy,
Resistance Testing,
Bee products.

Tickets - £12.
Book early to select options.

Contact:

Colin & Debbie Hattee
Email: hatteehouse@talktalk.net
Tel: 01430 860972

IBRA International Conference on Recent Trends in Apicultural Science

Mikkeli – Finland, 10 - 14 June 2007

Further details from / *Plus de détails* / Más información / *nähere Auskünfte*:
University of Helsinki & IBRA, Tel.: +358 44303 2212 (GSM) Fax: +358 152023 300
Email: **kamran.fakhimzadeh@helsinki.fi**
Website: **www.mtkk.helsinki.fi/beesunder/english/**

9th International Pollination Symposium

Iowa State University – USA 24 - 28 June 2007

Further details from / *Plus de détails* / Más información / *nähere Auskünfte*:
Email: **maharris@iastate.edu**

1er Congreso Antillano de Apicultura

Guayanilla - Puerto Rico, 28 Junio - 1 Julio 2007

Further details from / *Plus de détails* / Más información / *nähere Auskünfte*:
Apiarios de Borinquen, Tel.: 787.267.4256
Email: **coordinadores@aol.com**
Website: **www.apiariosdeborinquen.com**

6th NATIONAL BEEKEEPING CONGRESS
Organised by Bangalore University in Association with All India Beekeepers' Association, India

Bangalore – India, 15-18 July 2007
Further details from / *Plus de détails* / Más información / *nähere Auskünfte*:
Dr. M.S. REDDY
Organising Secretary, 6th National Beekeeping Congress
Centre for Apiculture Studies, Department of Zoology
Bangalore University, Jnana Bharathi, Bangalore - 560 056 INDIA
Tel.: +91 80 22961565, 22961551, Fax: +91 80 23219295
Email: **jenureddy@vsnl.net** Website: **http://beecongress2007.com**

Tuesday 24th, Wednesday 25th and Thursday 26th July 2007 - New Forest & Hampshire County Show. The New Forest & Hampshire County Show is the

highlight of Hampshire's social calendar featuring all the attractions that have made it so popular for the best part of a century, bringing traditional country pursuits, new exhibitions and demonstrations to this unique event. Put the dates in your diary now.

There is a full range of horse and livestock competitions plus a rabbit section, cage birds, and honey bees. The Countryside area features woodland activities and demonstrations of rural sports, plus terrier and ferret racing. Other favourites include the horticultural marquee featuring many nationally acclaimed flower entries, and the Southern National Vegetable Association Championships.

With over 600 trade stands there is a wide choice of stalls to visit many offering goods never to be found in the shops, including antiques, crafts, and the best of Hampshire food and produce.

We also have the Forest Fun Factory arena, a haven for children with all day entertainment. These are just a few of the many attractions you will find at this year's show – you will be spoilt for choice.

A pay as you go shuttle bus service runs from Brockenhurst mainline station right into the showground, so let the train take the strain.

Discounted tickets available on line at http://www.newforestshow.co.uk/ or on the credit card hotline 01590 622409 from June 1st 2007.

Additional information Show opens 08.15 to 1800 Web site full of information – http://www.newforestshow.co.uk/ Full Title is New Forest & Hampshire County Show.

EAS (Eastern Apicultural Society) Conference
Organised by Bangalore University in Association with All India Beekeepers' Association, India

University of Delaware - Newark - Delaware - USA
6 - 10 August 2007
Further details from / *Plus de détails* / Más información / *nähere Auskünfte*:
Web: **www.easternapiculture.org/programs/2007/**

Melbourne - Australia
9 - 14 September 2007

Further details from

Web: www.apimondia2007.com

Apimondia International Federation of Beekeepers' Associations

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Conwy Honey Fair

Conwy - North Wales – UK, 13 September 2007

Further details from / *Plus de détails* / Más información / *nähere Auskünfte*:

Email: **peter@honeyfair.freeserve.co.uk**
Web: **www.conwybeekeepers.org.uk**

The National Honey Show

The RAF Museum - Grahame Park Way - Hendon - London
18 - 20 October 2007
Further details from / *Plus de détails* / Más información / *nähere Auskünfte*:
Web: **www.honeyshow.co.uk**

A VERY USEFUL WORKSHOP ON A VERY TOPICAL SUBJECT
Please find attached information for our forthcoming Biodynamic Bee Workshop:

" The Mystery of the Disappearing Bees - A Warning to Humanity"

Thursday 24th to Saturday 26th May 2007 £85 (Including all meals)
Horsley Mill, Old Bristol Road, Nailsworth GL6 0LA

The Mystery of Disappearing Bees A Warning to Humanity!
Bee keepers in North America are facing a strange new challenge. Large numbers of bees are simply disappearing from the hives never to be seen again. It is occurring across 22 states and no one knows why. It does not appear to be related to Varroa or any other known disease. They seem to have lost the desire to live in their colony. The stress on bees of coping with long distance travel, large scale intensive systems and the burden of chemical and GM pollutants is surely a major contributing factor. The threat to honey bee survival is not only worrying for bee keepers, it affects everyone since a large number of our food plant crops depend on bees for pollination. Albert Einstein is reported to have said that "If honey bees become extinct, human society will follow in four years."

Respect for the nature and integrity of these remarkable insects is essential for anyone wishing to be a successful biodynamic bee keeper. In this workshop Michael Weiler will share his imaginative and practical understanding of bees and how they should be cared for in a species appropriate and respectful way. There will also be a presentation on the various pests and diseases that can affect colonies and suggestions of how to treat them. The workshop will take place at Ruskin Mill and include a visit to the hives on site. A specially designed (and nearly completed) bee house will also be on view. Newcomers as well as experienced bee keepers are very welcome to attend.

On Friday evening there will be a public talk (included in the workshop) on
"The Mystery of Disappearing Bees - a Warning to Humanity"

Michael Weiler was born in Germany in 1956. He studied agriculture and after graduating in 1986 worked as an agricultural advisor. He then undertook a training course in Waldorf education and taught for several years at a school for children with

special needs. He has a family with five children.

He has managed his own apiary since 1982 and regularly gives lectures and courses on biodynamic bee keeping. Since 2003 he has been living near Stuttgart in the context of a village community (similar to Camphill) and runs a health food shop alongside being a biodynamic bee keeping advisor.

PROGRAMME
Thursday 24th
17.00 Registration
19.00 Welcome
19.30 "Bees, Flowers and the Bee Keeper"

Friday 25th
9.00 "Bees at Work in the Summertime"
10.30 Break
11.00 "The importance of Swarming"
12.30 To Gables Farm and lunch
14.00 Visit the hives and the new Bee House
16.00 Break
16.30 "Hives and Housing Structures that reflect Bee Integrity"
18.00 Supper
19.30 "The Mystery of Disappearing Bees – a Warning to Humanity"
A public talk at Ruskin Mill (Can be attended separately £5.00)

Saturday 26th
9.00 "Recognising and Treating Diseases in the Hive"
Presented by Justus Klaar (Beekeeper from Stourbridge)
10.30 Break
11.00 "Ways of Strengthening Health and Disease Resistance"
12.30 Lunch
14.00 "Principles of Demeter Bee Keeping"
15.30 Break
16.00 General Discussion
17.30 Conclusion

Recommended reading
Michael Weiler has written a fascinating and accessible book: "Bees and Honey from Flower to Jar" (available from BDAA £8.99).
Rudolf Steiner's nine lectures on bees published as "Bees" offers some remarkable and very unusual insights (available from BDAA £10.95)

Please contact us for a registration form on: "BDAA Office" <office@biodynamic.org.uk>

QUOTE OF THE MONTH Back to top
A very well known person who was shot dead uttered these words. Who was he?

"When I hear a man preach, I like to see him act as if he were fighting bees."

Last month's quote came from that great and well respected French beekeeper Pierre Jean-Prost whose inspirational writings started me off on my University post grad researches into Drone Congregation Areas. Here it is again.

"Observation, experimentation, improvement of one's knowledge as well as physical prowess, acceptance of practical realities – all accomplished with precision, conscientiousness and rectitude – have ensured that apiculture, like other branches in which science and technology are combined, has provided material for multidisciplinary instruction and intellectual and moral training."


Pierre Jean-Prost