

Bees *for* Development Journal

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Cover photograph
20 year old Ol-Jogi bull elephant Booper has not forgotten his encounter with bees. Read more on page 12 © Fritz Vollrath

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Information is valuable

Bees for Development Journal is a valuable source of information. For readers living in remote areas and beekeeping with few resources it is often their only source of beekeeping news and information. **Bees for Development** has a lengthening list of people who would like to receive **BfD Journal** but for whom payment of a subscription is impossible: support to sponsor subscriptions is urgently needed. Please assist if you can.

Bees for Development helps with advice about beekeeping in developing countries. As far as possible we assist beekeepers and projects in developing countries without charging a fee. For those living elsewhere we make a reasonable charge.

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Bees for Development Trust raises funds to provide information to beekeepers in developing countries and in particular to provide subscriptions for **BfD Journal**. UK residents can send donations as CAF cheques or Gift Aid. Our Charity Registration Number is 1078803.

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Dear friends

More beekeeping news from all around the world! In September, Caribbean beekeepers met in Jamaica and agreed to form a Regional Association, affiliated to Apimondia, to represent and lobby on their behalf. This is necessary if beekeepers in Caribbean islands are going to contend with the issues affecting their industry: ever-spreading exotic honeybee pests and predators, introduced races of honeybees, trade issues and loss of habitat.

This *Journal* shows clearly how similar issues affect apiculture worldwide. On pages 4 and 5, Horst Wendorf describes the situation of a project in the Philippines: beekeepers are keen to use races of *Apis mellifera* (European honeybees), rather than the indigenous *Apis cerana* honeybees. Yet under the prevailing conditions, the European bees do not thrive, and there are problems to make the project sustainable. On page 10 the same problem in Nepal, where so many projects have failed to utilise indigenous honeybees: the researchers at ICIMOD are recruiting the media in their campaign to support local bees.

There remain just a few countries, such as Burkina Faso in West Africa, where beekeepers may carry on much as they have always done, untroubled so far by introduced diseases (page 9).

On pages 6 and 7 we bring you information from Russian scientist Nickolaj Bogatyrev who shows how easy it is to make homes for wild bees, so vital for adequate pollination of crops and wild plants. The importance of pollinators is now formally recognised by the Convention on Biological Diversity, as outlined by Ingrid Williams on page 8. One outcome is the creation of a new grouping, the African Pollinator Initiative, described by Dino Martins on the same page.

Read the story behind our cover picture on page 12. Bees prove their great value once again – this time protecting smallholdings from elephants.

We believe that this *Journal* plays a unique role in bringing together work underway on these issues around the world. Finding funding to send the *Journal* and other information to beekeepers who would otherwise be out of touch is a big job in which we are assisted by the **Bees for Development Trust**, a charity registered in the UK. British and European supporters of the Trust had a chance to meet at the National Honey Show, held in November in London's Kensington Town Hall. A reception was sponsored by Bee Health Ltd and provided a good opportunity for us to say thank you to our local supporters. At the end of another year, we take this chance to say thank you also to our readers and supporters worldwide. With your support we hope to continue providing more information to more beekeepers in 2003.

Nicola Bradbear



Supporters enjoying a chat at the **Bees for Development Trust Reception** © Andy Pedley

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CARIBBEAN BEEKEEPING CONGRESS 2002

This third in the series of Caribbean Congresses was held in September in Kingston, Jamaica. The Congress was organised by Jamaica's Ministry of Agriculture and the All Island Bee Farmers' Association, with support from the EU-funded Eastern Jamaica Agriculture Support Project.

Jamaica has about 1750 beekeepers harvesting annually around 750 tonnes of honey. Marketing of that honey is soon going to be improved, as the Ministry of Agriculture took the opportunity of the Congress to announce plans for a J\$14 million (US\$ 350,000) honey bottling plant, including also queen rearing apiaries and training programmes. Another important announcement was the Ministry's plans to update Jamaica's beekeeping legislation. The Congress was a friendly event that enabled beekeepers to meet, exchange views and update their knowledge. Unfortunately tropical storm Isadore hit Jamaica the same week as the Congress, and fallen trees and landslides affected the scheduled field trips. A significant outcome from the Congress was the decision to create a new Association of Caribbean Beekeepers' Organisations.

CONGRESS RESOLUTIONS

1. The Association of Caribbean Beekeepers' Organisations request the Government of Guyana to host the Fourth Caribbean Beekeeping Congress in Guyana in 2004, and that the Government informs the Association, within three months of receiving the letter of invitation, of its willingness to host the said Congress.
2. In the event that the Government of Guyana is unable to host the Fourth Caribbean Beekeeping Congress, the Government of Trinidad and Tobago be requested to host the said Congress in 2004.
3. The Association of Caribbean Beekeepers' Organisations formed at the Third Caribbean Beekeeping Congress on Wednesday, 18 September 2002, be managed by a Steering Committee comprising: Auckland Jarvis (Antigua); Randolph Furbert (Bermuda); Berenice Freeman (British Virgin Islands); Howard Bhola (Grenada); Linden Stewart (Guyana); Cecil Willis (Jamaica); Vincent Weeks (Nevis); and Gladstone Solomon - Chairman (Trinidad and Tobago). And that the activities of the Association be guided by the approved document outlining the Associations goal, objectives, structure and work programme.
4. Respective stakeholders implement the Resolutions of the First and Second Caribbean Beekeeping Congress that have not yet been addressed.

The Proceedings of the First and Second Caribbean Congresses are available: see Bookshelf page 14

For more about beekeeping in Jamaica see *BfDJ* 63

Photographs © Gladstone Solomon



A Jamaican apiary



Congress delegates debate amongst the hives

ASSOCIATION OF CARIBBEAN BEEKEEPERS' ORGANISATIONS

GOAL

To ensure the sustainability of the Caribbean beekeeping sector while developing its competitiveness.

OBJECTIVES

- To facilitate discussion, sharing and the exchange of experiences amongst members with a view to addressing the challenges and opportunities confronting the sector.
- To develop and/or contribute to the development of strategies, programmes and projects that enhance the growth and development of the sector.
- To provide advocacy services in the establishment and implementation of national and regional policies that affect the development of the sector and its stakeholders.
- To develop linkages with other institutions and other networks as necessary to support the work of the Association and its members.
- To promote the development of income-generation for greater self-sufficiency.

STRUCTURE

- The Association will be a regional grouping within Apimondia's Standing Commission on Beekeeping for Rural Development (Apimondia is the International Federation of Beekeepers' Associations).
- An Executive Committee elected from representatives of member organisations and groups will manage the Association. Members of the Executive Committee will serve for a two-year period subject to re-election.
- Officers of the Association will include a President, Vice President and General Secretary and other officers as decided by the general membership.

MEETINGS

- General Meetings and election of officers to the Executive Committee will be held at every Caribbean Beekeeping Congress.
- The Executive Committee will meet as deemed necessary by that Committee.

STEERING COMMITTEE WORK PROGRAMME (2002-2004)

- Draft constitution (to be ratified at 2004 Congress)
- Establish a Caribbean Beekeeping Development Centre
- Stage Regional Workshops on the following areas:
 - i. Identification of pests and diseases
 - ii. Sustainable beekeeping
 - iii. Value added hive products
- Commission research papers on the following areas:
 - i. Certification of honey
 - ii. Pests and diseases
 - iii. Socio-economic value of beekeeping in the Caribbean

Gladstone Solomon, BfD's Correspondent in the Caribbean

BEEKEEPING DEVELOPMENT with

Horst Wendorf, Bacolod City, The Philippines

The indigenous honeybee species of the Philippines include *Apis dorsata*, *Apis cerana* and *Apis andreniformis*; the latter present only on Palawan Island.

Honey hunting has long been practised in the tropical forest, which is increasingly threatened by human encroachment and destructive activities including charcoal burning and illegal logging. The forest cover has been reduced to less than 50% of the land area. On some islands like Negros, only 7% of forest-cover remains.

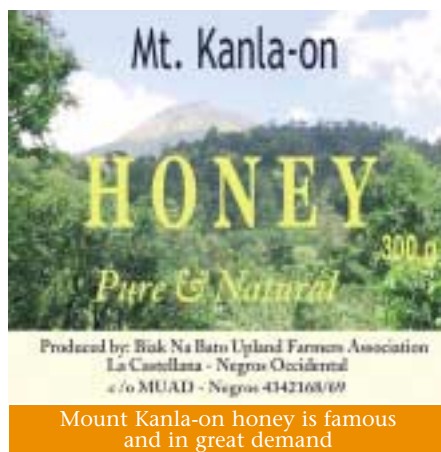


Only well-made wooden hives can survive the extreme weather conditions

In many Asian countries beekeeping with *Apis cerana* in traditional hives has been very common, yet such techniques have never been practised in the Philippines. Honey gathering, mainly from *Apis dorsata*, still takes place in woodlands and local honey can be found for sale along the roadside. Modern beekeeping emerged in the 1970s with the importation of European races of the honeybee *Apis mellifera* together with associated frame hive technology. Earlier random attempts to introduce *Apis mellifera* had failed for various reasons.

In 1987, 2,000 colonies of *Apis mellifera* were counted; today 3,800 colonies produce 76 tonnes of honey. It is estimated that an additional 24 tonnes are yielded from indigenous bees.

It is asserted that few beekeepers use *Apis cerana*. Almost all the honey sold in the supermarkets is imported from the USA. Local and imported honey fetches the same price: US\$ 4 per kg. Most beekeepers are semi-commercial private beekeepers, with few hives, who often give up after a few years. Beekeeping development projects have been started in different islands but few have survived for a long period.



CUSTODIANS OF NATURE

The Multi-Sectoral Alliance for Development (MUAD), a registered NGO working on Negros Island has been implementing various development projects in co-operation with the Department of Environment and Natural Resources of the Philippines, supported by the CPPAP-World Bank programme.

Most of those projects are associated with the protection and conservation of natural resources of the remaining forest in the natural park around the volcano Mount Kanla-on. Target groups are poor communities, whose members are organised in Peoples Organisations (POs).



Project participants underwent an introductory one-week training course

More than 3,000 households are occupants of the park and depend for their livelihood on its resources. MUAD staff together with some PO members had visited beekeeping projects and asked the German Development Service for technical assistance to start beekeeping. The major objectives were to provide an alternative income opportunity through sales of bee products and to reduce unsustainable honey hunting practices in the protected areas.

Beekeeping was to be introduced in villages along the buffer zone and would help protect the natural park by winning beekeepers as custodians of nature.

APIS CERANA ALMOST EXTINCT

Success in beekeeping development projects depends first on the prevailing bee flora and available species of bees, and also on the technology being used. Negros Island (203 x 70 km in size) is the 'sugar centre' of the Philippines. Suitable bee forage may be found only in the remaining tropical forests and in the villages, gardens and fields near the protected areas. The pollen and nectar value of rainforest plants and of many Asian fruit trees are hardly known. Other common bee plants and crops are scattered and do not provide mass forage opportunities. *Apis cerana*, like most other bees, is almost extinct on Negros. In two years of fieldwork only two colonies were seen and one of these was drone laying.

Despite widespread poverty, most people in the Philippines are very familiar with western lifestyles and ideas. The project participants visited commercial beekeepers and were stunned by the opportunities for export to Japan of cosmetics and bee venom. It was decided to work with



The wettest and longest monsoon season for 10 years proved to be a serious problem

Apis mellifera because all organisations and beekeepers involved advised against *Apis cerana* with its low yield, absconding habits and rare occurrence. The first 24 colonies were purchased from a commercial beekeeper on the main island of Luzon and brought to Negros by plane. Local carpenters started manufacturing Langstroth frame hives and other equipment. The breakeven point was calculated based on the harvest of 20 kg of honey per colony annually.

APIS MELLIFERA in the PHILIPPINES

At this rate, beekeeping would pay after two years. The major problem is the high price for three frame nucleus colonies, which cost US\$ 40-50. Hives made from alternative materials were considered. However, experiences during monsoons revealed that only well made wooden hives can survive the extreme weather conditions. Top-bar hives were also suggested, but dismissed for various reasons. To guarantee the financial sustainability of the project it was decided that 50% of honey sale revenue should be paid into an account until the capital investment was repaid. This money would then serve to buy feed and honey jars, and also for continuation after the pilot project ended. A one-week training course for beginners that included practical bee management was conducted and followed by weekly training visits and guidance in all management steps.

APIS MELLIFERA UNSUCCESSFUL

Hives were established in three apiaries, in different areas to test distinct forage habitats. A major constraint for beekeeping is the long monsoon season from June to December, in which hardly any pollen and nectar are available. Unfortunately, the first monsoon season was the wettest and longest in ten years. Trials revealed that it would be better to keep bees in the lowlands during the monsoon to keep them strong. Even so, significant amounts of honey were not generated there throughout the year.

On the hillsides (400-800 m) colonies decreased to 2-3 brood combs soon after the end of the summer. They became very weak, the permanent high air humidity led to mouldy combs and chalkbrood, and the bees were unable to build new combs. Excessive supersedure attempts by the bees led to queenless colonies because of non-availability of drones. Although sugar feeding was constant, no improvement was detected. Pollen feeding was expensive and ineffective - all the pollen went mouldy after one day and was abandoned by the bees.

In two out of the four tested areas, the bees never gained sufficient strength to generate any honey crop during the short summer. Only in one apiary 92 kg of honey were harvested from eight hives. The purchase of queens and bee colonies from the few beekeepers in the region, to replace the lost colonies, turned out to be problematic. Chalkbrood, *Varroa* and queens that

became drone laying after a short period were not unusual. So-called breeder queens from Australia appeared very small and were not special in their performance.

Note: This report refers to experiences on Negros Island and mainly to the area around Mount Kanla-on. It is possible that beekeeping with *Apis mellifera* on other islands in the Philippines with different climatic patterns and distinct vegetation may produce different results.

LITTLE SUCCESS

The search for more prosperous foraging areas went on, flowering calendars were drafted, bee plants identified and new apiaries tested.

The assessment was that bees could not survive the year, and no colony exceeded 5-6 brood combs or generated any honey in areas dominated by rainforest. Migratory beekeeping is not viable mainly because Negros Island has no extensive bee plants or orchards with bee trees. Attempts to migrate hives locally to better foraging areas were frustrated by landowners and the general fear of bees, based not so much on experiences, but rather on anecdotes about *Apis dorsata*. Also small-scale farmers do not have the capacity to engage in migratory beekeeping. Avocado, cashew and a number of indigenous trees initially appeared to be promising, but they usually have scattered occurrence so there is no guarantee of a good yield. Bees survived better under coconut trees, but the honey crop was negligible. Coffee is plentiful in the project area but seemed not to contribute. Beekeeping was promising only in areas with older established gardens and in multiple use zones of the protected area. Here no sugar planting or tree cutting is permitted and small-scale agriculture dominates with some surviving large trees, riverbank habitats and unused land.

DISEASE AND PREDATORS

The common practice of using Apistan against *Varroa* was replaced by the use of formic acid, which is cheaper and can be ordered in any chemical suppliers with delivery from Manila within days. It was noted that chalkbrood usually disappeared when colonies gained strength.

SUSTAINABILITY

The limited availability of queens and healthy colonies, plus the requirement for future re-queening created a need for queen rearing. The first attempts were not very successful. Few drones were available and the colonies only became strong enough at the end of the season. Therefore in the next season all efforts were made to start queen rearing early.

Some participants, who had developed considerable skills in beekeeping, were trained as trainers and also learnt queen rearing methods. Fifteen queens were successfully mated and the group was able to give some nucleus colonies to a new participant. At the next harvest the overall quantity of honey increased, although the aim of 20 kg per hive seems to be unrealistic in the near future.

However, the groups have acquired the skills to overcome the major obstacle in so many bee projects, which is to replace lost colonies and to re-queen the hives in time. Manipulations and management methods using queen excluders have been found useful to increase the honey yield. It is now considered that eventually all colonies will be moved to the lowlands during the monsoon season, where they remain strong and vigorous. The search continues for apiaries around Mount Kanla-on with good bee forage to generate sufficient honey yields. Honey sells immediately and already the unique brand of Mount Kanla-on honey is famous. The demand is ever rising, which confirms, as is often the case in beekeeping development projects, that the bottleneck is not the market, but the production.

Horst Wendorf is a sociologist and ecology consultant. He has worked on beekeeping development projects for ten years in southern Africa and for the last three years in the Philippines. Horst's excellent video *Beekeeping in Development* about the project he worked with in Zambia shows appropriate beekeeping technology, processing and marketing of bee products, and the management of bees in top-bar hives. The video is available from **Bees for Development** price £28.80 (€43.20) (code VID16).

More about beekeeping in the Philippines in our *Zoom* in feature in *BfDJ* 57.

LOW-COST HOMES FOR

Nickolaj Bogatyrev, Siberian Branch of Russian Academy of Sciences, Russia

It is well known that 95% of the commercial value of beekeeping can be attributed to pollination and not to honey, wax or other bee products. In other words, even if we did not harvest bee products, it would still be worth keeping and breeding honeybees solely for crop pollination.

However, honeybees are not universal pollinators because of their relatively short proboscis and the limited weather conditions that are suitable for foraging. Nevertheless, almost every terrestrial ecosystem contains insects that pollinate wild plants, as well as cultivated crops. Bumblebees are among these pollinators. It seems that thanks to their long proboscis, high speed of foraging, and the ability to work under diverse weather conditions, bumblebees are efficient pollinators of many crops including vegetables, fruits, berries, fodder and medicinal plants. Now several commercial bumblebee breeding companies rear these beneficial insects to sell to plant growers. But the prices are high: US\$ 70-150 per colony per year (it is necessary to buy new colonies annually to ensure reliable pollination). It is recognised that honeybee keeping can also require serious investments of time, effort, equipment, and materials. It is well known that wild pollinators are self-dependent and do not need any special measures that are difficult or expensive.

PERMACULTURE

Is it possible to combine the benefits of intensively bred wild pollinators with cost-effectiveness, self-serving features and affordability? The positive answer could be given within the philosophy of permaculture. So, to use natural possibilities to serve our artificial agricultural ecosystems will cost almost nothing. Carefully designed measures can attract wild pollinators to the cultural plantations and assist in increasing pollinator populations in particular areas, without serious investments of materials and time.

HOMES FOR BEES

Often passive protective measures – conservation – are not enough to save wild pollinator populations and to provide 'saturated plant pollination' *ie* where every flower is pollinated completely. Therefore, more active methods are recommended: to increase the population density of pollinators one can use simple artificial homes for bumblebees and solitary bees.

SOLITARY BEES

Solitary bees occupy hollow stems of a variety of grasses. To attract them, take any dry stems of grass that have soft or hollow centres (with an inner diameter of 4-8 mm), cut them into pieces 15-25 cm long and tie them into bunches 10-15 cm in diameter. Wrap these bunches in waterproof material, for example waxed cardboard, and attach them horizontally 1-4 m above ground level to a post, a shed wall, a house or a fence in a sunny, dry place. Solitary bees willingly occupy these tubes, which can also be made of old newspapers.

CARPENTER BEES

Good nesting places for carpenter bees are old, dry and partly rotten trees. If there are no such trees in your garden, one or two old logs placed vertically will serve as an artificial nesting place for these beautiful and beneficial insects.

BUMBLEBEES

If you have noticed bumblebees searching for a suitable nesting place, it is worth providing them with special nest-boxes. These artificial homes can be made of dry, solid wood (you must be sure that the timber is untreated) or thick plywood (20-25 mm thick).

The inner cavity of the boxes must not be less than 150 x 150 mm and not more than 200 x 200 x 200 mm.

One of the walls must have a 15 mm diameter entrance hole. You must be able to open the lid (roof).

Each box should be equipped with nesting material of cotton wool, dry moss, soft dry grass or other similar material, where the queen can establish and start her nest. The mortality rate of bumblebees will decrease if the nest-box is painted with waterproof paint. Nest-boxes can be manufactured from other materials: ceramics, bricks, high density fibreboard (HDF),



Homes for wild bees

WILD POLLINATORS

waterproof chipboard, exterior board and solid brands of polystyrene foam. The outer surface of all these materials should be covered by waterproof paint or the nest-boxes need to be placed under shelter. These domiciles can be attached to trees, fences, posts, and walls and must be oriented in a southerly or south-easterly direction, see below. Protection against unauthorised access must also be provided. This means that the site is reliably protected or the boxes attached at higher level – at least 4-5 m above the ground.

These nest-boxes are suitable for bumblebee species that naturally inhabit above-ground nesting sites. But there are many species that prefer underground dwellings and, for example, live in nests abandoned by rodents. These bumblebees require nest-boxes in the ground (Figure 1). These ground homes need plastic or metal exit tubes 50-100 cm long, and it is obvious that these nest-boxes must be totally waterproof. If domiciles are installed at the beginning of the season before the occupation period by the searching queens, and the insects successfully inhabit them, no maintenance measures will be required during summer.

In the late autumn all the domiciles should be inspected. The dead bumblebees, comb and nesting material should be withdrawn and burnt. The inner cavities of the domiciles should be disinfected by blowtorch. Any cool, dry, ventilated place is suitable for winter storage of the domiciles. Attracting bumblebees with the help of these simple measures is easy, cheap and timesaving. At the same time you are facilitating and maintaining populations of wild pollinators.

This not only gives the benefit of increased yields due to pollinator activities, but also carries out the very important work of wildlife conservation - most bumblebees species are endangered.

RECOMMENDATIONS FOR CROP PLANTATIONS

1. A series of nectar and pollen producing plants should form a continuous sequence from early spring until late autumn. It is also very desirable that blooming periods overlap to give foragers the opportunity to switch from one crop to another.
2. The plantations should be quite small. Bumblebees prefer to forage within flower spots of not more than 100 m².
3. To avoid the possibility of competition it is better to grow plants with flowers of different corolla depth simultaneously to give optimal possibilities for various pollinators' foraging.
4. To leave space with undisturbed grass and soil as refuge sites for pollinators is essential. Thus total grass cutting and mowing should be avoided.
5. Crops should not be planted close to motorways and busy roads: heavily loaded with nectar and/or pollen, foragers are very vulnerable to vehicles and many will perish unnecessarily.

6. Application of any chemical treatment to crops MUST NOT be carried out during their flowering periods.
7. It should be taken into account that bumblebees do not forage within a 25 m radius of their nest. Thus colonies must not be installed less than 25 m from plantations.

If the above measures are undertaken the fauna of pollinators will have good conditions to ensure their continued existence and performance of their beneficial roles.

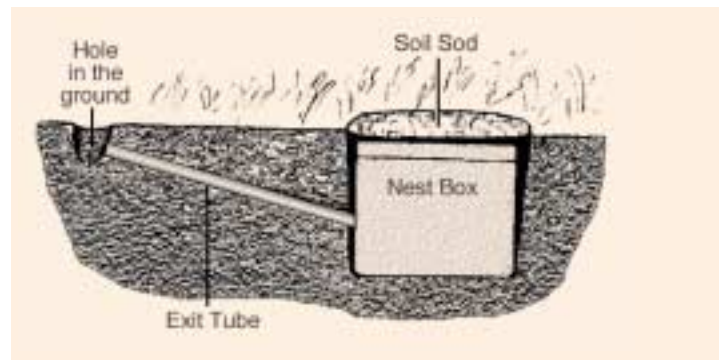


Figure 1. Underground hive for bumblebees

EXPLANATION

Permaculture – permanent agriculture – is the conscious design of artificial ecosystems that possess the high productivity of conventional agricultural systems combined with the self-serving, self-depending features of natural ecosystems.



Dr Nickolaj Bogatyrev is Senior Scientific Researcher of the Laboratory of Insect Ecology at the Siberian Branch of Russian Academy of Sciences. Recently he has worked as a visiting professor at Mons University in Belgium. Dr Bogatyrev has published more than 60 papers on the ecology and

ethology of bumblebees, as well as methods of protection, attraction and rearing of these beneficial pollinators. The details and peculiarities of bumblebee keeping are described in his book *Applied Ecology of Bumble Bees* reviewed in Bookshelf (page 15).

FURTHER READING

- MICHENER,C (2000) *The bees of the world* – see Bookshelf page 14 for our review.
- BOSCH,J; KEMPW (2001) *How to manage the blue orchard bee as an orchard pollinator*
Available from **Bees for Development** price £15.90 (€23.90) Code B475.
- DELAPLANE,K; MAYER,D (2000) *Crop pollination by bees*
Available from **Bees for Development** price £65 (€97.50) Code D130.
- DOGTEROM,M (2002) *Pollination with mason bees*
Available from **Bees for Development** price £13 (€19.50) Code D125.
- O'TOOLE,C (2001) *The red mason bee: taking the sting out of beekeeping*
Available from **Bees for Development** price £5.70 (€8.60) Code O155.
- O'TOOLE,C (2002) *Bumblebees*
Available from **Bees for Development** price £5.50 (€8.30) Code O160.
- ROUBIK,D (1995) *Pollination of cultivated plants in the tropics*
Available from **Bees for Development** price £24.10 (€36.20) Code R510.
- SOMMEIJER,M; RUIJTER,A DE (2000) *Insect pollination in glasshouses*
Available from **Bees for Development** price £30.70 (€46) Code S710.

INTERNATIONAL POLLINATOR INITIATIVE

GREAT NEWS FOR POLLINATORS

Concerns about the worldwide decline in numbers of pollinator species have now been acknowledged internationally at the highest level.

The Convention on Biological Diversity (CBD) has recognised pollination as a key driver in the maintenance of biodiversity and ecosystem function within its Agricultural Biological Diversity Programme.

The recent sixth meeting of the Conference of the Parties to the Convention approved the International Pollinator Initiative. The Plan of Action for the Initiative is a challenging one not only for pollination scientists but also for funding bodies and policy makers alike. This is a considerable achievement for the many pollination ecologists and organisations that have contributed to the development of this Initiative over recent years.

Representatives from 176 countries attended a meeting in the Netherlands in April 2002 at which 32 decisions were adopted. Decision VI/5 reads:

“Para 8: adopts and decides to periodically review, as appropriate, the Plan of Action for the International Initiative for the Conservation and Sustainable Use of Pollinators on the basis of Annex II to the recommendation.

Para 9: welcomes the leading role played by the Food and Agriculture Organization of the United Nations (FAO) in facilitating and coordinating this Initiative.

Para 10: welcomes the efforts to establish the African Pollinator Initiative in the framework of the IPI.

Para 11: invites Parties and other governments, and relevant organisations to contribute to the implementation of the IPI.

Para 12: invites Parties, other governments and funding organisations to provide adequate and timely support to the implementation of the Plan of Action, especially developing country Parties and economies in transition, in particular least developed countries and small island developing States.”

See the CBD website www.biodiv.org/decisions for more information.

The Plan of Action for the Initiative was prepared by FAO with the help of ten pollination scientists and aims to promote co-ordinated action worldwide to:

- (a) Monitor pollinator decline, its causes and its impact on pollination services,
- (b) Address the lack of taxonomic information on pollinators,
- (c) Assess the economic value of pollination and the economic impact of decline of pollination services, and
- (d) Promote the conservation and the restoration and sustainable use of pollinator diversity in agriculture and related ecosystems.

The Plan has four elements: assessment, adaptive management, capacity building and mainstreaming. Each element has detailed for it an operational objective, rationale, activities, ways and means and timing of the expected outputs: the latter are to be produced in several stages to 2010.

The IPI provides an opportunity to integrate and develop further the science and practice of pollination. It brings pollinators to the forefront of agricultural policy internationally, recognising pollination as an essential ecosystem service, upon which diversity among species, including agricultural crops and our own food supply depends. It also recognises that we can no longer assume that pollination is a free ecological service but must be nurtured by providing our pollinators with suitable habitats and environmental support within agro-ecosystems so that they thrive and continue to provide this service. Hopefully, the IPI will begin to reverse the alarming decline in pollinator diversity and populations witnessed over recent decades.

Ingrid Williams, Chairman, International Commission on Plant-Bee Relations

AFRICAN POLLINATOR INITIATIVE

Nairobi played host recently to an exciting and pioneering initiative. Members of the African Pollinator Initiative (API) held their inaugural meeting at The International Centre of Insect Physiology and Ecology. Scientists, conservationists and other stakeholders from all over the continent met and brainstormed for five hectic days.

We explored the breadth of current research within Africa in the dynamic field of pollination ecology. Presentations from Kenya included work on fragmentation in Kakamega Forest, bees in arid and semi-arid lands, the biodiversity of insect visitors to bottle gourds, and many others. Some thought-provoking studies on the effects of fragmentation from South Africa were also presented. Other presentations were given by participants from Botswana and Ghana.

API is playing a leading role in developing and structuring a network of scientists, ecologists and other groups all centred on pollination. Why pollination, some may ask? A first response would be that over 40% of the world's food crops rely on insect or animal pollinators. In addition, many terrestrial ecosystems are facing increasing disturbances due to human activities. Amongst the key processes threatened is pollination. No pollination means there are no seeds or fruit; the consequences are equally serious: extinction.

In response to the growing awareness amongst the public about the importance of pollinators, the API seeks to implement through an Action Plan, several tasks that will develop and sustain pollination as an essential ecosystem service. The economic importance of this ‘free’ service is evident in that farmers in the USA have to rent hives for pollination. Local bee and other insect populations have been decimated through careless use of pesticides and sterile monocultures.

Africa is blessed with a wealth of pollinator diversity. This is not to be taken for granted: both staple and cash crops require pollination. Avocado, citrus, cocoa, coffee, fig, mango and oil palm are just a few of the crops that benefit from animal pollination. In addition, many intriguing and marvellous relationships remain to be explored within African pollination ecology. The API having presented its goals at the Congress on Biological Diversity and at the Earth Summit is well placed to develop, support and increase awareness, research and appreciation of our long-ignored pollinators.

Dino Martins, African Pollinator Initiative

BURKINA FASO

Issa Nombre*, Moussa Sawadogo**
Joseph I Boussim* and Sita Guinko*

Beekeeping is a common practice in West African countries (Villières, 1987a) and notably in Burkina Faso where there are many beekeepers (Guinko *et al.*, 1992; Sawadogo, 1993). Materials and harvesting techniques used are not always sufficiently successful (Crane, 1990; Adjare, 1990; Hertz, 1994). At worst, harvesting results in the massacre of more than half the colony and leads to colonies abandoning hives (Kokoye, 1993).

These bad practices mean that honey production is low and often of poor quality. Appropriate apicultural practices using adequate materials and techniques can greatly improve the situation. Villières (1987b) identified traditional beekeepers who keep local hives and use only smoke from a straw torch, cow dung, or use their lungs as bellows to smoke hives. Ratia (1991) noticed that these traditional beekeepers did not kill bees when harvesting honey.

The purpose of our study was to make an inventory of traditional beekeeping practices and knowledge. We undertook an 'ethnoapicole' enquiry and interviewed 61 traditional beekeepers with questionnaires about:

- Different kinds of hives and materials used to make them.
- Techniques for preparing hives to make them attractive to honeybee swarms.
- Techniques for harvesting, extracting and packing honey.

Traditional hives



Conical hives are made from the plaited stems of *Andropogon pseudapricus*, *Cymbopogon schoenanthus subsp. proximus*, *Ctenium newtonii* and *Sporobolus pyramidalis*



Clay pot hives



Hives made from tree trunks

Preparing hives to attract swarms

According to Villières (1987b), it is difficult to capture swarms of *Apis mellifera adansonii*. Traditional beekeepers understand this important operation and some are specialists in attracting swarms. There is healthy competition to find improved recipes for attraction. The inside of the hive is coated with a mixture of cow dung, water and clay and left to dry for several days. This reduces the effects of temperature variation and acts as waterproofing. In a hole with a diameter equal to the hive opening, the beekeepers put different parts of plants and add dry cow dung and embers. The combustion of these materials produces scents that stick to the roughcast walls of the hives. Eleven plant species from seven plant families are used to attract swarms (see Table).

Plants used to smoke hives

Family	Species	Part(s) used
Caesalpiniaceae	<i>Piliostigma reticulatum</i> ,	dried fruits
	<i>Piliostigma thonningii</i>	
Combretaceae	<i>Combretum glutinosum</i> ,	stem with leaves
	<i>Guiera senegalensis</i>	
Compositae	<i>Dicoma tomentosa</i>	stem with leaves
Ebenaceae	<i>Diospyros mespiliformis</i>	young leaves, dried fruits
Labiaceae	<i>Hyptis spicigera</i> ,	stem with leaves
	<i>Leucas martinicensis</i> ,	
	<i>Ocimum basilicum</i>	
Mimosaceae	<i>Acacia seyal</i>	dried fruits
Poaceae	<i>Cymbopogon schoenanthus subsp. Proximus</i>	dried flowers

Honey harvesting

Harvesting always takes place at night during the dry season (March to April). Traditional beekeepers prepare themselves by rubbing their bodies with leaves of *Annona senegalensis*, *Solanum melongena* (aubergine) or *Nicotiana tabacum* (tobacco), whilst others coat their arms with honey.

The harvest is carried home where combs with pollen, brood and honey are separated. Honeycombs may be kneaded and put into sealed jars, or more often left in the sun so the wax and honey separate, or they are melted inside dry pots and then filtered using sieves.

We noticed that besides the different materials used, there is diversity in hive shape, see also Villières (1987a) and Carroll (1997). Most hives are made from two principal materials: wood and clay, and have at least two entrances.

Traditional beekeepers know where to site their hives to gain maximum honey harvest during the hot period corresponding to the blooming of *Parkia biglobosa* and during the flowering of *Pennisetum americanum* (millet). The preparations made by beekeepers before visiting their apiaries are to give to them courage and good fortune (Villières, 1987b), and also to fight against the defensiveness of the bees and reduce the effects of inflammation caused by stings.

Despite the care taken by beekeepers during harvesting the containers used, ash from straw torches and dead bees can spoil honey quality. In addition most extraction is by exposure to sunlight or heating, which according to Carroll (1997), destroys the taste and medicinal characteristics of honey. Little brood is destroyed during harvesting operations, and this preserves the bees (Ratia, 1991).

Beekeeping activities are in regression in these regions because of climatic and demographic changes, but above all, hive theft discourages most beekeepers. Bees and hives are destroyed by thieves attracted by the prospect of money from honey sales and who do not hesitate to burn hives, break them or use insecticides. Another reason is the short life of these hives. Woven hives are spoiled by rain and are often burnt by bush fire, whilst clay hives fall victim to children's vandalism.

CONCLUSION

The development of beekeeping in tropical countries can be achieved using local methods by beekeepers who like honeybees. Honey quality can be improved by training beekeepers to respect hygienic conditions and to use plastic containers during harvesting, extracting and packing honey. The plants used to smoke traditional hives can be packaged and sold for use with frame hives.

We thank ENRECA/Botanique project for their financial support.

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RECRUITING THE MEDIA IN THE FIGHT TO CONSERVE INDIGENOUS HONEYBEES

Farooq Ahmad, Uma Partap, Surendra Raj Joshi and Min B Gurung

This is the eighth article in the series bringing news about the work of the Austrian Government funded beekeeping project at ICIMOD in Kathmandu, Nepal. ICIMOD and Austroprojekt GmbH in Vienna, Austria jointly manage the project. In *BfDJ 64* we described how sketchy and superficial planning deprives the environment of eco-services, and poor farmers of their livelihoods. Here is some news about how we are tackling the problem.

ICIMOD's indigenous honeybee project is vigorously pursuing a range of approaches to persuade different stakeholders in mountain development, the press, and other people working in printed and electronic media to help and assist in promoting conservation-based apiculture in the Hindu Kush-Himalayas.

In Nepal, the press has been successful in developing a cadre of environmental journalists who are ready to work side-by-side with ICIMOD for the cause of sustainable mountain development. These and other journalists are being recruited in the fight to save the indigenous Himalayan hive honeybee *Apis cerana* by providing clear, scientifically well-founded and factual information about the situation.

The ICIMOD project organised a one-day interaction programme at our picturesque Godawari demonstration site. The idea was to acquaint journalists from the local and international press with the major thrusts of our beekeeping programme, and to provide a forum for clarifying misunderstandings, identifying sources of confusion, and discussing conflicting information. The main aims were:

- To inform the media about the gravity of the situation which has resulted from the introduction of *Apis mellifera* to the mountains of the Hindu Kush-Himalayas;
- To empower journalists with a stock of knowledge with which to counter the impact of misleading information; and
- To encourage the journalists' strengths in favour of our lobbying efforts to convince international donor agencies and local development players.

This highly interactive retreat was very successful. Efforts were made to address all the critical and pertinent questions raised by the journalists. In return the journalists promised to use their strengths to promote the strategy developed by ICIMOD.

The following press statement was released

The indigenous honeybee, *Apis cerana*, is a source of considerable actual and potential benefit to both wildlife and farmers. But its value remains unrecognised by many of those entrusted with helping people in this very marginalised area emerge from their present condition of often-extreme poverty. Particularly at higher altitudes, the very interventions designed to help these people are destroying one of the potentially most useful helpers for livelihood improvement. *Apis cerana* is threatened by land-use changes, by over-use of pesticides, and most importantly by the introduction of *Apis mellifera*. The threat to *Apis cerana* is to a great extent the

result of lack of knowledge – about the bee itself, about the role it plays within farming systems, in maintaining biodiversity, and about the impact on it of interventions.

Apis cerana is adapted to the diverse and often extreme climatic, biological, and agricultural conditions that exist at higher altitudes.

It can survive low winter temperatures, extreme fluctuations of temperature, long periods of rainfall, and continues to fly on dull days. This bee species has developed a capacity to fight, escape, and adjust to local parasites, diseases, and other enemies. By contrast, European races of the *Apis mellifera* honeybee are not suited to higher altitudes and remote areas. This exotic bee requires migration, intensive management practices, standardised equipment, and a large foraging area with monoculture-based agriculture – conditions that do not exist in mountain areas – and furthermore it is prone to diseases, parasitic mites, and wasps. High mountain areas are often poorly accessible and they lack transport and communication infrastructure; under these circumstances migratory beekeeping with *Apis mellifera* is expensive and risky.

Keeping in mind the prevailing conditions, and the urgency and necessity of action, ICIMOD recommends the following strategy for integrating *Apis cerana* management into the development of mountain agriculture:

- Changes in the training curricula for beekeeping at college and university levels to include beekeeping with *Apis cerana* in mountain areas;
- Re-orientation of beekeeping trainers, development workers, researchers, and policy-makers;
- Facilitation and capacity building of networks and associations of grass roots beekeepers;
- Establishment of country-specific centres for *Apis cerana* selection, management, and breeding programmes to identify, multiply, and disseminate more productive races of *Apis cerana*;
- Development of a mountain specific extension programme on beekeeping development based on *Apis cerana*;
- Zonation arrangements for *Apis cerana* in poorly accessible mountain areas; and banning of the introduction and multiplication of *Apis mellifera* in such areas;
- Re-visiting the definition of agricultural inputs and incorporating managed pollination through

honeybees as an important input in agricultural husbandry;

- Understanding and working to mitigate challenges in the marketing of bee products;
- Policy-level changes towards removing barriers and facilitating cross-border and cross-continental trade of bee products;
- Promotion of *Apis cerana* mountain honey as an organic product.

RESPONSE

There was a strong response from the media and many articles appeared or were broadcast as a result, on BBC World, Channel Nepal, Metro FM and Nepal Television, and various local newspapers. The response was very encouraging, and we hope it will mark an important step towards changing the awareness and actions of all those involved in developing policies or activities that affect beekeeping.



EXPLANATION

ICIMOD is The International Centre for Integrated Mountain Development, an international organisation devoted to the sustainable development of the Hindu Kush-Himalayan region.

Read more about ICIMOD at www.icimod.org.np

A new book from ICIMOD, *Warning Signals from the apple valleys of the Hindu Kush Himalayas*, written by Uma Partap and Tej Partap is reviewed in Bookshelf page 14.

LOOK AHEAD

CANADA

XII World Forestry Congress

21-28 September 2003, Quebec
Further details from: www.wfc2003.org

COSTA RICA

APIMONDIA Symposium on tropical beekeeping: research and development for pollination and conservation

22-25 February 2004
Further details from: Isanchez@una.ac.cr

GERMANY

International Conference on Rural Livelihoods, Forests and Biodiversity

26-30 May 2003, Bonn
Further details from: w.sunderlin@cgiar.org

APIMONDIA Symposium: Diagnosis of bee diseases

7-8 October 2004, Freiburg
Further details from: wolfgang.ritter@cvuafr.bwl.de

INDIA

International Workshop on Sustainable Beekeeping Development and All India Honey Festival (Apiexhi 2003)

6-10 October 2003, Bangalore
Further details from: jenureddy@yahoo.co.in

PHILIPPINES

7th Asian Apicultural Association Conference

23-27 February 2004, Los Baños
Further details from: cleofas.cervancia@up.edu.ph

SLOVENIA

APIMONDIA International Apicultural Congress

24-29 August 2003, Ljubljana
Further details from: www.apimondia2003.com and on page 16.

UNITED KINGDOM

Staying Poor: Chronic Poverty and Development Policy

7-9 April 2003, University of Manchester
Further details from: cprc@man.ac.uk

If you want notice of your conference, workshop or meeting to be included here send details to



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LEARN AHEAD

UNITED KINGDOM/TANZANIA

Beekeeping in Rural Development Training Course

Further details from *Bees for Development*.

NOTICE BOARD

PROJECT SUPPORT

FAO, the Food and Agriculture Organization of the United Nations, supports beekeeping projects in developing countries.

For projects with budgets under \$US10,000, beekeepers' groups and associations may apply for small project funding from the TeleFood Special Fund. Request documents should include a brief description of the project's objectives, the proposed food production or income-generating activities, the work plan, the number of participants, a detailed list of inputs with cost estimates and the reporting arrangements. Submit your request to the office of FAO or UNDP in your country.

Applications for projects with budgets over \$US 10,000 must be submitted through your Government Ministry.
See: www.fao.org

WORLD SEED PROGRAMME 2002

The **New Forest Project's** (NFP) direct action programme was established in 1982 in an effort to curb deforestation in developing countries. NFP offers packets of tree seeds, technical information and training materials free of charge to small groups of farmers and development groups worldwide who are interested in starting reforestation projects with fast-growing, nitrogen-fixing trees. E-mail: icnfp@erols.com

HONEY FOR SALE

Small-scale exporter of pure honey requires buyers across the globe. We feel compelled to expand our services and reach out to the global market with our high quality product and services. Contact Yemi Adekele on adeleke1@nova.net.ng

APIMONDIA PRESENTATIONS

If you would like to present a paper about your work at the next Apimondia Congress that takes place in Slovenia in August 2003, then you must submit an abstract of your proposed paper by 31 January 2003. Details of how and where to submit your abstract are at www.apimondia2003.com

See also page 16 of this Journal

NOTICE BOARD

PRIZES

Third World Academy of Sciences Prizes are prizes for science in the developing world. The Academy has recently expanded the fields in which the prizes will be given and is encouraging individuals and scientific organisations to submit nominations. Prizes will be granted in: agricultural science, biology, chemistry, earth sciences, engineering sciences, mathematics medical sciences and physics. Each prize carries a US\$ 10,000 award and an award plaque. For additional information see: www.twas.org

BEEKEEPERS' HOLIDAYS

Our Safaris are holidays run in co-operation with overseas partners as part of *Bees for Development's* work to raise awareness of beekeeping in development.

Next Safaris: India 1-15 March 2003
Tobago and Trinidad 10-19 March 2003
Details from *Bees for Development*

BEE BOOKS NEW AND OLD

10 Quay Road, Charlestown, PL25 3NX UK, for your new and second-hand books. Telephone +44 (0)172 676 844 or www.honeyshop.co.uk

TRAINING SUPPORT

Bees for Development can help beekeeping projects and groups in developing countries that have no access to external funding with copies of **BfD Journal** posters and other information for use at training courses and workshops.

You must give at least three months' notice of the date of your meeting and we need to know how many people will be attending.

If you work for an organisation with some funding resources available you can order a Workshop Box. The cost is £50 per 50 participants including delivery by surface mail. Ways to pay are shown on page 15.

RAINFOREST RESEARCH

Volunteers needed for tropical forest conservation research on the Negros Rainforest Conservation Project in The Philippines. Further details from: www.coralcay.org

VALUE FOR MONEY

Advertising in BfD Journal offers a great chance to reach readers in over 100 countries.

Advertisements: quarter page, two-colour costs £65; a full page £200. Other sizes available.

Notice Board items are £0.50 per word.

Enclosures: £50 per kilogram for insertion and distribution of flyers. Our rate card is available from the address left.
(Prices subject to VAT in EC countries)

NEWS AROUND

BOSNIA HERZEGOVINA

I am writing to inform you that the League of Beekeeping Associations of East Herzegovina was established on 12 September 2002 in Gacko. A seven person Committee was elected, with Dusan Kolak as President and Blazo Vuyovic, Vice-President for the first year. Initiatives for establishing a League of Beekeeping Associations for Republika Srpska and Bosnia were proposed. The League also supports the proposal for building a beekeeping centre in Trebinje.

Goran Mirjanic

GHANA

Beekeeping Development Update

Over the last three years beekeeping development in Ghana has advanced with inputs from individuals, NGOs and some government organisations in the country. World Vision International (WVI) has incorporated beekeeping into its Area Development Projects (ADPs). Ejura and Nkwanta ADPs in the middle belt of Ghana have supported farmers to keep honeybees to improve their income. Assin Fosu and Twifo Praso, ADPs in the Central Region, have supported school children in their *Bees for schools* project: pupils are guided and supported by their families to keep five colonies each to raise money for school fees. Training and equipment is provided by WVI. These two projects started in September 2000 and involve about 75 children.

The Advent Relief and Rehabilitation Agency embarked on a national beekeeping project in September 1999 to improve farm incomes for their client farmers. The first phase covered 250 fruit crop farmers in three regions (Brong-Ahafo, Eastern and Upper West). These farmers cultivate cashew and orange trees intercropped with staples such as cowpeas, maize and millet. When the canopies of the fruit trees closed up, beekeeping became an obvious alternative to improving fruit yield through pollination and providing additional income from honey and beeswax. A credit facility provided each farmer with five hives and other basic equipment. A report from this project indicates encouraging results. Honey sales (from the first harvest in some cases) could pay off all the credit advanced to farmers. The highest honey yield per hive is 35 kg.

On the slopes surrounding Mount Afadjato a beekeeping group formed in September 2000 takes advantage of the luxurious melliferous vegetation in the area. This project is unique for the fact that it was designed to supplement the development of eco-tourism in the village of Liate-Wote. This village is endowed with two great tourist attractions: the magnificent Tabor waterfall and Mount Afadjato (the highest point in Ghana). The village is therefore developing its potential to attract foreign and local tourists. The 10-member Liate-Wote Beekeepers' Association manages 100 colonies to produce forest honey. An advertisement for the group in the village reads, "Carry a jar of our delicious forest honey as you conquer Mount Afadjato, then cool off at Tabor waterfalls". This successful project was initiated and supported by USA Peace Corps Volunteer, Leslie Marbury. She raised funds from friends and family members in the USA to support the project.

During the second half of 2001, Heifer Project International assisted farmers in the Volta Region to develop beekeeping projects. These were to improve rural incomes for better standards of living. Many farmers have benefited from this assistance in the form of training and provision of appropriate equipment. According to Mr Godfried Narh, Project Co-ordinator, much progress has been made towards the development of beekeeping in the region. Groups have been organised to process and package good quality honey. The groups have been linked to very reliable markets in urban areas where demand for good honey is always increasing.

Many of the District Assemblies in Ghana have supported farmers to keep bees as a means of improving incomes as part of a programme to alleviate poverty in the rural communities. One such successful beekeeping project was carried out by Dangme East District Assembly for the communities at Dodowa 50 km east of Accra. A strong beekeeping group operates apiaries in a natural reserve famously called the Dodowa Forest. There are so many other individuals who have come to realise the great potential that beekeeping can offer in terms of income-generation and in the conservation of the environment. Many of these have taken up beekeeping on a full-time basis or alongside other farming. In the very near future bee products are going to contribute substantially to improving the Ghanaian economy.

Kwame Aidoo, BfD's Correspondent in Ghana

KENYA

Guardian Bees

It appears that the African bee *Apis mellifera* might assist in the increasingly important task of protecting African smallholdings from elephant damage. Although thick-skinned, African elephants *Loxodonta africana* have thin trunk membranes, ears and eyes where a bee sting can have serious effect. To test the idea that bees can deter elephants we used local log hives to 'mine' a favourite elephant foraging area of fever tree *Acacia xanthophloea* re-growth on Mpala Ranch in the Laikipia Plateau, Kenya.

Towards the end of the dry season we hung 30 unoccupied (but seasoned) hives, and six occupied hives, 1.5-2 m high, in trees of the 3-5 m size range. Nearby hiveless trees acted as controls. Over the 40 day experiment, we found that the 36 control trees (no hives) on our site experienced serious elephant damage (only three were left undamaged), the 30 experimental trees with unoccupied hives experienced some damage (12 left alone) while all six trees with occupied hives were spared. This suggests strongly that the elephants sensed and avoided the hives and their immediate surroundings, taking special care with occupied hives.

The sense of smell is paramount in elephant social and foraging decisions and it is possible that smell may have been the crucial cue. Elephants also have excellent hearing and sound might therefore have been another factor in hive avoidance. To test this idea we played a tape of the sound of bees humming to a tame bull who a few years previously had been stung badly. He backed away from a tree playing the 'bee-sound' but ignored a tree playing a Bach violin concerto. Whatever the mechanism, it seems that bees provide some protection against elephants. Hence we propose that hives might be used to protect smallholdings by placing them strategically where they could be upset easily by browsing elephants. Using bees as a selective deterrent would more than pay for itself through sales of honey, a product of the natural environment. Controlling elephants with bees is preferable to lethal measures and future large-scale experiments could determine the feasibility of this concept.

Fritz Vollrath, University of Oxford, UK and Iain Douglas-Hamilton, Save the Elephant, Kenya

D THE WORLD

KENYA

Clay pot hives – Income for potters?

Clay pots have a long history of daily use in our society for cooking, for water and grain storage. Changes in lifestyle are threatening the use of clay pots and consequently the livelihoods of the women who make them.

Recently my father told me that in western Kenya people used to keep bees in pots. This interested me because I wanted to start keeping bees but did not have funds to buy frame hives. By coincidence an old clay pot left upside down outside our home was colonised by honeybees! Armed with this knowledge and with some rundown pots at my disposal I ventured into pot hive beekeeping. I faced several challenges. A major problem was how to harvest this type of hive? You cannot harvest without disturbing the whole hive. The process destroys some comb and consequently developing bees. Also you cannot be sure when is the right time to harvest to get maximum honey without too much disruption.

With information I had gathered from **BfD Journal** I started to investigate how I could improve on this type of hive to make it more manageable and productive. I borrowed an idea from my beekeeping friend Peter Peterson and developed a pot hive with two chambers (brood chamber and super). I drilled a hole in the top pot and a small hole in the top of the brood pot (where the super pot rests) to allow the worker bees access to the super, but the size of the hole excludes the queen. The pots are fastened together by wire.

Now I can open and check the supers for honey without disturbing the whole hive. It is also easy to remove the super pot and replace it with another during harvesting.

I included six of these hives in my apiary. All the hives were occupied after a short time. To try and prevent ant attacks I put the hives on stands. Despite this two hives did get attacked by safari ants and the bees absconded. I am however confident that the bees will soon return, and I am continuing to include more pot hives in my apiary.

There are several advantages to using clay pot hives:

- Unless forcefully or accidentally broken, clay pots will last much longer than wood.
- Pot hives do not rot, are not eaten by destructive insects and are less affected by weather conditions.
- Using pot hives helps sustain the environment: no trees are cut down to make the hives and bees pollinate the trees.
- Clay pot hives will create employment for women who make the pots thus helping with their income.

Peter Ukiru Otengo



Preparing the super pots



It is easy to remove the super pot and replace it with another during harvesting

PHILIPPINES

The Philippines hosted the 8th BEENET Conference and Techno-fora on 6-8 September, 2002 in Bukidnon, situated in Mindanao Island. The year's theme was *Advocacy for the Promotion of Science and Technology*. The meeting was attended by more than 100 beekeepers, bee researchers and businessmen. Scientific and applied papers were presented. There was a workshop on the formulation of strategies for effective dissemination of bee science and technology in the region. Identified problems include climatic changes and pesticide poisoning of bees, especially in agricultural and industrial sites.

Plans for the Asian Apicultural Association Conference 2004 were drafted: see Look Ahead page 11 for more details.

Cleo Cervancia

INTERNATIONAL SUCCESS

The Grenada Association of Beekeepers took First, Second, Third and other awards in Class 3A for their honey, and **Jumla Beeswax Processing Centre, Nepal** took First Prize in the 'Display of Home-Produced Products' at the UK National Honey Show in November. If you would like to enter next year's Show keep reading **BfD Journal**.



More super pots!

BOOKSHELF

The bees of the world

Charles Michener



2000 913 pages
A4 Hardback
price £116.40
(€174.60)
Code M200

This is the definitive reference work on the identification and classification of bees. All families, subfamilies, tribes, genera (1200) and subgenera of bees are described by means of keys and comments to assist towards identification. This is not a book about apiculture, defined here as the study and practice of honeybee culture, all aspects of which are excluded from the text. Rather the book is about *melittology*: the taxonomic, comparative and life history studies of bees. The first 110 pages provide introductory information essential to understand the study of bees. This includes the evolution of bees from wasps, the various bee families, nesting behaviour of solitary and social bees, and the structure of bees.

The subsequent 800 pages are an account of the classification of all bees of the world. This work is beautifully illustrated with 48 colour plates and more than 500 black and white illustrations depicting behaviour, morphology and ecology. Charles Michener is Professor Emeritus of Entomology at the University of Kansas, USA, and one of the world's great authorities on bees.

Proceedings of the Seventh International Conference on Tropical Bees and Fifth Asian Apicultural Association Conference

IBRA/AAA

2002 437 pages
A4 paperback
price £30.90 (€46.30)
Code I100

In March 2000, more than 200 scientists and beekeepers met in Chiang Mai in North Thailand for these two International Conferences held in conjunction. Over 70 of the papers presented are now published and together they make a substantial and useful text. Topics include hive products, the biodiversity of honeybees, biology, management, bee pests and diseases, crop production, conservation, genetic advances and development. The focus of the papers is academic research of honeybee biology, although there are some papers relating to practical beekeeping and development.

Proceedings of the Second Caribbean Beekeeping Congress

Peter Ngunjiri

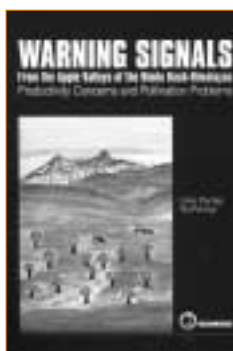
2002 112 pages A4 paperback
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The texts of papers presented at the Caribbean Beekeeping Congress that took place in Nevis in 2000. Well presented and full of pictures, formal and informal, the book gives a good flavour of the Congress it documents. Technical papers, especially concerning honeybee disease and parasite control in the Caribbean, and country reports for the region are presented in this attractive new publication.

SPECIAL SUBSCRIBER OFFER

Buy your copy of the *Proceedings of the Second Caribbean Beekeeping Congress* (£22.50 or €33.80) and obtain a copy of the *Proceedings of the First Congress for the special price of £10 (€15)*. Usual price £15.20 or €22.80.



Warning signals from the apple valleys of the Hindu Kush Himalayas

Uma Partap and Tej Partap

2002 104 pages
Paperback price
£16.80 (€25.20)
Code P160

People living in mountainous areas around the world face danger from conflict, environmental degradation and cultural loss. Examples of the types of problems faced by mountain people can be seen by looking at just one crop – the apple – that has been a widespread and worthwhile cash crop for people of the Hindu Kush Himalaya region, widely cultivated over parts of Bhutan, China, India, Nepal and Pakistan.

During the recent past, apple has been a high value cash crop: a temperate fruit whose export from the mountain areas provided income security to farmers living in marginal areas. Most recently however, farmers have experienced crop failure and a fall in productivity. Inadequate pollination, as a consequence of reduced biodiversity is one reason that has been identified. This text describes ICIMOD's (International Centre for Integrated Mountain Development, Nepal) research concerning apple pollination in five countries of the Hindu Kush-Himalaya region, including survey findings and summaries of the issues arising. A consistent theme is the need to maintain biodiversity by conserving indigenous bees and encouraging farmers to practise sustainable beekeeping. A unique and valuable text, providing documented evidence for the need to conserve pollinators.

The video *Warning signals from the apple valleys* (reviewed in *BfDJ* 61) is also available price £27.80 (€41.70) Code VID22.



The beekeeper's pupil

Sara George

2002 314 pages
A5 hardback price
£14.50 (€21.80)
Code G110

An enchanting story gently revealing the character and work of Francois Huber, against the backdrop of his family and everyday life in the 18th century. Francois Huber was a Swiss beekeeper and scientist who made careful and original observations of bees – inventing a 'leaf hive' (60 years before Langstroth) so that he could observe the bees on their combs. He observed and documented for the first time for science that queens mate outside the hive, that it is the old queen that leaves with a swarm, how wax is produced by workers and used by them for comb construction, and many other facts of honeybee behaviour.

Yet Francois Huber was blind, and his manservant, the humble and sub-servant Francis Burnens in fact made all the careful observations. This book tells the story from the perspective of Burnens. An excellent idea for a novel, expertly told by Sara George, and especially interesting for beekeepers.

BOOKSHELF

Coppice

Chris Mottershead



2000 296 pages
A5 paperback price £8
(€12) Code M650

A bee-based science fiction novel! Drone Bee Twenty-One battles his way out of his wax cell to join the wonderful world of the honeybee colony. Joined by

Twenty-Two he soon has a more sinister battle to fight against the 'Blues'. These mysterious bees will apparently stop at nothing to take over all the colonies in the area – what is driving them on and why? Imagination combined with an interesting angle on the life of the honeybee creates a thoroughly entertaining read for children of 9+ and adults with an interest in the world of bees.

Maladies et nuisances de l'abeille mellifera (Honeybee diseases and pests)



Cynthia Scott-Dupree

French edition S205 or
English edition S200
£7.30 (€11.00) each

The French translation of the 3rd edition of this useful publication is now also available.

Most beekeepers do

not want to know more than they need about honeybee disease. Yet these days the control of disease has become an unavoidable part of honeybee management.

This book provides just what most beekeepers want: a short and straightforward guide to all the diseases and pests with which we have to contend. The 26 pages of text and excellent colour pictures will help you to diagnose readily any of the usual problems affecting honeybees. Up to date advice is given on how to control the problem, and if possible how to prevent it in the future.

Varroa control and treatment is of course included. Colony abnormalities like chilled brood, dysentery and pesticide poisoning are also covered.

AUTHORS

If you would like your book, video or CD reviewed here, then send a review copy to the Editor, **Bees for Development** (address right)

Illustrated dictionary of honey bee

Hassan Talib Mohammed Darwish Al-Lawati



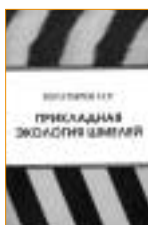
2002 148 pages Hardback
price £16.80 (€25.20)
Arabic/English edition
Code D115

This dictionary explains 280 beekeeping terms in both Arabic and English with

Arabic-English and English-Arabic alphabetical glossaries. In addition to the succinct text are more than 150 colour pictures to illustrate the definitions of many of the terms. A useful and easy to use textbook.

Applied ecology of bumble bees

Nickolaj Bogatyrev



2001 158 pages Paperback
price £15.60 (€23.40)
Code B110

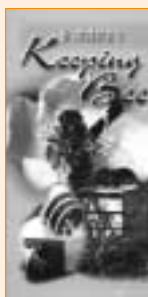
This book is in Russian language, but with the contents list, all picture legends and chapter summaries in English.

Plenty of very clear illustrations for bumblebee houses. Also a long bibliography makes this a useful book even for non-Russian readers.

VIDEO SHELF

An introduction to keeping bees

Second Sight Productions



2002 70 minutes PAL/VHS
price £15.90 (€23.80)
Code VID24

Leiston and District Beekeepers' Association in the UK share their knowledge in this clearly produced video that provides an interesting introduction to temperate-zone beekeeping. The film

begins with a description of honeybees and the life cycle of the colony. A brief history of the development of the different types of frame hives is followed by information on the clothing and tools you will need, the importance of a good site for your hives and access to forage for the bees. Next there is explanation of what to expect in a season's work including dealing with swarms, parasites and diseases, preparing for winter and honey harvest and extraction. Finally how honey and wax can be used to produce skin cream and oils, and the Associations recommendations for grabbing the public's attention at local shows. Excellent for beginners and for teaching.

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