Pelepat: Traditional practice of wild honey harvesting

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ABSTRACT

This paper describes procession of a traditional wild honeybee harvesting practice evolve in the community of *Pelepat*, Jambi, Indonesia. For the local people, honey harvesting is not just extracting honey from the honey bee's nests; it has a strong tie with the people's socio-cultural setting. The ancestors of *pelepat* had developed and handed down the traditional wild honey harvesting practice over generations. People collect honey in such a way that respecting the honeybees in the same time strive to conserve the associated ecosystem and the local culture as well. Wild honey harvesting ritual articulates a harmonic relationship between people and the nature.

Key words: ethnoecology, folk knowledge, honeybee, Jambi, traditional harvesting

INTRODUCTION

Honey is a natural product that has been used by people for centuries, either as a food supplement or medicine. As a supplement, honey is chosen due to its natural production process, good taste (quality), and wondering fragrance (Singh, 2000). Currently, domesticated bees mostly produce commercial honey, and in smaller quantities, wild honeybees also yield honey, and they mostly use some tropical trees. Indigenous people in many parts of this planet, control and harvest most of the wild honey.

P*elepat* is a group of indigenous people who inhabit the eastern area of Bungo, Jambi, Indonesia. The people have practice traditional system of wild honey harvesting over generations. The similar honey harvesting practices are also reported in Malaysia (Kevan 1994 ; Buchmann and Nabhan, 1996), India (Paar *et al.* 2000), and Vietnam and Borneo (Mulder *et al.*, 2000, De Jong, 2000). The honey harvesting procession in *Pelepat* follows ancient traditions and involves many villagers around the honeybee host trees. It is initiated with some rituals, which at a glance illustrated a sense of magic. Buchmann and Nabhan (1996) assert that such practice in Malaysia implement an animistic ritual in order to cajole, charm, and calm the bees. Furthermore De Jong (2000) envisages that the practice is site-specific and related to the local knowledge, social behavior, restriction, and rules system.

People of *Pelepat* perceive that honey harvesting does not merely deal with extracting honey; it also involves the local social and cultural aspects. *Pelepat* ancestors had

developed a traditional honey harvesting practice that articulates their harmonious relationship with nature. Although they collected the wild honey, the still respected and protected the honeybees, their ecosystem, and the local culture as well. The harvesting practice shows that the bee is not merely "*an animal*"; it has a strong tie with the local people's ancestors.

METHODOLOGY

This research mainly focuses on understanding the local knowledge related to wild honey harvesting in the community of Pelepat, Bungo, Jambi, Indonesia. To address this issue, we undertook participatory observation (Bernard, 1995) during the honey season. We explored more deeply the findings from the observation by consulting the 'local experts' and *jeragans* through in-depth interviews. In addition, we analyzed similarities and differences from other traditional honey harvesting practices in other regions.

RESULT AND DISCUSSION

The bees

The bees that occupy the host trees in *Pelepat* are the species *Apis dorsata,* the giant common honeybee in Asia (Mulder *et al.*, 2000 ; Neumann *et al.* 2000 ; Mangun, 2002a ; Thapa and Wongsiri, 2003). The bees develop their nests on the host tree before the nectar source plants are flowering. The number of nests on each host tree varies, between 7 and 30 nests. Occasionally, up to 80 nests can be found on a single tree.

The nests are flat shaped and occurr on branches of the host tree. Each nest is occupied by a single bee colony, consisting of a queen, workers, and males. In a colony, worker bees are the most numerous, up to 50,000 and drones, which only present during a few months of the year, may number 1,000 (More, 1976). Besides building combs, rearing their young, and processing the honey, More adds that the workers collect raw material for the colony needs. They just fly around 30 minutes before the night came, still when they day was not bright (Mangun, 2002a).

Colonies of *A. dorsata* usually migrate to other regions, but come back to the old nest site, even after moving around for couple of years (Paar *et al.*, 2000). However, some colonies maintain their nest throughout the year (Mulder *et al.*, 2000). During winter, colonies migrate from highlands to the warmer lowlands to enjoy a more convenient temperature (Thapa and Wongsiri, 2003). Neumann *et al.* (2000) add that the species is able to identify the original nest through a genetic information mechanism. Using the mechanism, worker bees that were born outside the original nest are still able to find their predecessor's nest.

Some indigenous groups have developed a certain manner to invite bees to host on a 'honey tree'. *Mate-Mate Dayak*, indigenous people in Western Borneo cut tress and shrubs around the honey tree to make it more attractive for a nesting site (De Jong, 2000).

Furthermore, the clean vegetation around the honey tree also makes the honey harvesting easier.

The '*honey trees*' and nectar sources

Honeybee (*A. dorsata*) not only occupies trees, but also hosts on cliffs, water towers and high buildings (Mangun, 2002a). In Pelepat, the species occupied only a number of species, which local people called *pohon selang or sialang* (literally means honeybee's tree). In general, *selang* trees are woody plants, quite big and tall with smooth bark.

In Malaysia, similar trees are recognized as *tulang* trees (Kevan, 1994 ; Buchmann and Nabhan, 1996), while in West Borneo the trees are called *sompuat*, or *lalau* (De Jong, 2000 ; Mulder *et al.* 2000). Local people are able to completely distinguish which trees are considered as *selang* trees and which ones are not. If they find the trees growing in their field or home garden, they will take care of the plants in the hope that some day honeybees will host the plants.

In *Pelepat*, *selang* trees mainly consist of three species: *kawan* (*Dipeterocarpus* sp.; Dipterocarpaceae), *kedundung* (*Spondias cytherea*; Anacardiaceae), and *jelemu* (*Mallotus* sp.; Euphorbiaceae). Among the honey trees, *jelemu* is the shortest, has the softest wood, and mostly grows in riverbanks and flat fields. On the other hand, *kawan* had the hardest wood, the thinnest bark, least resin, and hairy leaves. It seems that honeybees in the different regions prefer different host tree species. In Malaysia, the main host tree is *Koompassia excelsa* (Buchmann and Nabhan, 1996), while in Vietnam it is *Maleleuca leucadendron* (Mulder *et al.*, 2000). In West Kalimantan there are many host trees, but the most preferred are *Fragrea fragrans, Kompasia excelsa,* and *K. malaccensis* (Mulder *et al.*, 2000 ; De Jong, 2000).

A *selang* tree might be occupied by up to 80 colonies of bees with the nest's size between 15 and 150 cm. Mulder *et al.* (2000) report more than 100 colonies of *A. dorsata* on a single tree and Mangun (2002b) observes 200-bee colonies on a giant tree in India.

In terms of the number of bee's nests, *jelemu* rank's highest, followed by *kedundung*, and *kawan*. In terms of honey productivity, however, *kawan* produces the largest amount of honey, followed by *kedundung* and *jelemu*. Most interestingly, different host tree species of honey tree produces different tastes of honey. According to the local peoples tastes, bees that host on *Kawan* trees yield the best honey and bees that host on *jelemu* trees produce the lowest quality.

Most of the existing *selang* trees grow wild in the agricultural upland fields. Surprisingly, most of the *selang* trees occupied by honeybees are very old, more than a hundred years. According to the local customary leader, the trees have been in there before he was born. It is hypothesized that previously, trees germinated and grew up in the shady environment of the primary forest. Subsequent forest conversion to agricultural fields changed the microclimate and forced the trees to survive in the high light environment. Due to the unsuitable environment, the trees lose their capability to reproduce naturally. This is supported by the fact that there are no offspring around the trees, although the trees produce many seeds during fruiting seasons.

Honey is harvested once in a year; the harvesting term is at the same time as the blossoming season of fruit trees and woody plants in the adjacent forest. The season comes between December and January (Mulder *et al.*, 2000). The bees collect nectar and pollen from various plants such as *kayu sumpit-sumpit* (*Helicia attenuata*), *kedemek* (*Mallotus cytherea*), *kasai* (*Canarium rufum*), rubber (*Hevea braziliensis*), wild guava (*Eugenia* sp.), durian (*Durio zibethinus*), *rambutan* (*Nephelium* sp.), *mata kucing*, (*Dimocarpus* sp.) *putri malu* (*Mimosa pudica*), and *akar padi-padi (unidentified)*. Colonies of *A. Dorsata* also collect nectar from *masung* (*Syzygium claviflora*), *tahun* (*Carallia bracteata*), *tengelam* (*Syzygium* sp.) *putat* (*Barringtonia acutangula*), *kawi* (*Shorea balangeran*), *pecaras* or *bakras* (*Homalium caryophyllum*), *samak* (*Syzygium* sp.), *ubah* (*Syzygium ducifolium*), *timba tawang* (*Crudia teysmannia*) and *lebang* (*Vitex pinnata*) (Mulder *et al.*, 2000). In Nepal (Thapa and Wongsiri, 2003), the main sources of nectar are *Eupatorium odoratum, Brassica nigra, Fagopirum sagittrintum, Litchee chinensis, Nycanthes arboritis,* and *Shorea robusta.*

The source of nectar affects the quality of honey. For example, nectar collected from rubber trees produces a sticky honey and nectar from durian trees results in clear honey. Mulder *et al.* (2000) assert that nectar from trees of *putat*, *kawi*, and *timba tawang* produces a bitter honey taste.

A remarkable aspect of the traditional knowledge held by local people in harvesting wild honey is the way they define the appropriate harvesting time. The local people use *akar padi-padi* tree as an indicator of harvesting time because these flowers will blossom later than any others. In West Borneo, people use the blossoming of *tahun* (*Carallia bracteata*) to indicate the honey-harvesting occasion (Mulder *et al.*, 2000). The blossoming of these trees designates that there were to be no more flower in the forest and therefore honey is ready to be harvested.

Socio-cultural aspects of honey harvesting

The honey-harvesting season usually takes place a week after the plant flower blossoming ends. The practice follows the lunar cycle and designates a moonless period, in the beginning and/or end of Arabic calendar (27^{th} to 5^{th}). In West Borneo, the harvesting is usually done during moonless nights in February (Mulder *et al.*, 2000). The extremely dark nights during the period help harvester control the bees. Considering that bees are very sensitive to light, honey harvesting should be finished before the sun rises, otherwise the bees will hamper the harvesting.

A harvester team consisting of four to eight men does honey harvesting. The team is lead by a senior harvester called *jeragan*. Generally, a *jeragan* is the oldest person within the team and has a lot of knowledge and experience of honey harvesting. Most *jeragans* are also shamans who provided traditional medical cures for the villagers.

There is no special training to be a *jeragan*. He gains his skill and knowledge of honey harvesting from his *senior jeragans* through an informal apprenticeship. During the apprenticeship, a *jeragan* candidate joins a honey harvesting team. Before climbing, a senior *jeragan* take command of his team by assessing the harvesting strategy and job description for each team member. Together with the senior *jeragan*, the candidate climbs up a *selang* Tree and harvests honey under the auspices of the Senior *jeragan*.

Only few people are eligible to be a *jeragan*. The minimum requirements are as follows: (i) no fear of heights, (ii) no vertigo, and (iii) no falling asleep easily. A *jeragan*, especially the well-known ones, not only harvests honey in their village, but occasionally harvests honey in other areas as well.

Ten years ago, undisturbed rainforest still covered most of the *Pelepat* area and honey was abundant throughout the region. At that time, honey had less economic value than it does today. The honey harvesting procession was an "*arena*" to perform the superior magical powers of *jeragans*. In compliance with the community's social economic changes and the rapid forest degradation, natural honey availability is becoming rare. As a result, the economic value of natural honey has increased significantly. Honey harvesting has more economically oriented rather than "*a magical power show*". However, the "*magical atmosphere*" still encompasses the honey harvesting procession.

The indigenous people of *Pelepat* implement customary laws to protect the *selang* trees. Any trees hosted by honeybees automatically become the common property of the local community, even trees that grow on private land. However, the owner still gets a share of the harvested honey. Anyone who cuts a *selang* tree will be sentenced customarily. These violators will be fined the value of a buffalo, and must wrap the tree stump with a piece of white cloth.

Considering that *selang* tree is community property, any honey harvesting should be announced to the local public. All of the villagers are invited to see the honey harvesting procession. As a reward, the visitors will get an equal amount of harvested honey. A violation to this public announcement law, results in the offender fined a lamb or goat and two rolls of white clothes. People in Nepal believe that wild honey is a gift from the forest Goddess to help and cure human health. Therefore, honey should not be sold, or else, they will get no honey in the following years (Thapa and Wongsiri, 2003).

Honey harvesting procession

Before harvesting the honey, *jeragan* undertake a rapid survey of the specific *selang* Tree to figure the appropriate apparatus for the harvesting such as *tunam*, *tali temalang, temalang, lantak* and *buluh*. The function and description of these tools can be seen in the Table 1. Based on the survey, *jeragan* also defines the appropriate date to harvest the honey. In defining the date, *jeragan* considers the lunar cycle and the nectar and pollen availability in the surrounding trees.

On the exact date, when the dark night comes, *jeragan* and his team get together with the interested local people go to the *selang* Tree. When they move close to the *selang* tree, no body is allowed to turn on any kind of light. Under the *selang* tree, *jeragan* says "hello" to the bees by singing a welcoming mantra. He communicates to the bees as if they were his sweethearts. The mantra is sung in the local language, as follows: *"Sudah lamo idak ke rimbo, anak berembah dalam padi. Sudah lamo kito dak berjumpo, rupanya belum berubah kekasih di hati"*(In along time I have not gone to jungle, baby fishes hide under rice plants. In along time I have not met you, apparently you still in my heart).

Table 1. Function and description of tools for honey harvesting

No.	Name of Tool	Function	Description
1.	*Lantak*	Ladders to help *Jeragan* climb the *selang* Tree	Bamboo 20 cm X 3 cm, with sharpened tips
2.	*Tunam*	Torch, to make "fire work", attracts bees to leave from their nests	Dried stem of *Senyayah* vein (*Piper* sp.) or papaya (*Carica* sp.)
3.	*Tali Temalang*	To take down the honey tank (*temalang*) from *selang* Tree	rattan or rope
4.	*Temalang*	Container for honey	wood or plastic
5.	*Andim*	Hammer, to embed *lantak* into the *selang* Tree	root of *Bulian* tree (*Eusyderoxylon zwagerii*)[1]

Different *jeragan* may use different mantra over the course of the wild honey harvesting ritual. A similar mantra are also used in Malaysia and West Borneo (Buchman & Nabhan 1996, Mulder *et al.*, 2000), however, the mantra from West Borneo is more humorous. After singing the opening mantra, the *jeragan* moves closer to the *selang* tree and yet ready to installs the *lantaks*. Before installing the *lantaks jeragan* asks permission from the queen of bees by singing the next mantra: *"Lentik lentik kayu di kacang, kedundung kayu di rimbo. Jeragan kecik yang baru datang, sambutlah salam kito segalo"*(What wonderful the wood of *Kacang*[2] tree, *Kedundung*[3] is a wood in the jungle. I am a small *Jeragan* who just arrive, best wishes from all of us).

The *jeragan* installs *lantaks* by embedding them into the tree trunk, from the ground up to the first tree branching. He uses *andim*, a wood hammer to embed the *lantaks*. While installing the *lantaks* and climbing up the tree, he carries *tunam* on his back. The *tunam* is hung by rope, about 2 meter of rope, with the fire tip directed downward. Thus, the fire is around 1 meter under *jeragan's* foot. The dried papaya's stem and/or *Piper's* root make the *tunam* not flaming but smoldering. People in West Borneo make the *tunam* from the dried trunk of *Jabai* (*Ficus microcarpa*) (Mulder *et al.*, 2000). When he is close to the first branching, he informs the overall community of the bee kingdom that he will enter their territory by singing a mantra: *"Merembang muaro kuamang, kena anak ikan mentulu.Sambut salam dan jerembang, kami permisi numpang lalu"*(Gillnet in the *Muaro Kuamang*[4], catching *mentulu*[5] baby fishes. Please receive our greeting, and let us enter your area).

After completely installing the *lantaks*, *jeragan* informs and invites his team members by singing a mantra: *"Pasang cemeti teta jerumun, kena anak ikan Semah. Bentang lapik gulunglah*

[1] *Bulian* is the best hard wood in the area. Normally, a tree that can be used to make *andim* (a wooden hammer) should be more than a hundred years old. Nowadays the tree is very rare in the area of *Pelepat.*
[2] *Kacang* is the vernacular name of *Dysoxylum alliaceum,* the local prominent timber
[3] In this case, the host tree is *Kedundung*
[4] *Muaro Kamang* is the name of the largest river in *Pelepat*
[5] *Mentulu* is the name of a local big fish, weighing up to 1 kg.

tenun, panggilah sendara kamu naik ke rumah"(Putting a long line fishhook secretly, catching *Semah*[6] baby fishes
Open the rattan mat and rolling the woven cloth, call your brothers to enter this house).

After all of the harvester team members climb up the tree, *jeragan* moves close to the nest bee and knocks the *tunam* on the tree's trunk to produce "firework". The other harvesters follow the *jeragan's* practice and hit their *tunam*s on the tree's trunks. Together, these smoldering torches in the completely dark night of silent jungle produce an astonishing fireworks display. The downward moving sparks in the darkness makes the bees leave their nest and follow the fire enthusiastically. This method is very effective in chasing bees away from their nest. In the West Borneo people use smoke, as oppose to sparks, to chase honeybees from their nest (Mulder *et al.*, 2000).

When all of the bees have left their nest, the *jeragan* then starts to harvest the honey. He cuts the honeycomb using a bamboo-knife with no metal. People of West Borneo also do not use metal knife, which might injure the bark and they believe that using a metal knife causes the honeybees to never return. Moreover, the use of a metal knife might accidentally hurt other harvesters in the extremely dark night (Mulder *et al.*, 2000). Some of the harvesters climb up the tree; the others keep waiting under the tree to handle some ground working.

People of *Pelepat* believe that during the honey harvesting, the king of the forest, the tiger, (*Pathera tigris sumatrae*) is also observing the event from a distance. Although *jeragan* does not see the tiger, he usually throws away some pieces of comb contain honeybee larva in the hope to be found by the tiger. Similar to this practice, people of West Borneo lay down a piece of honeycomb in order to avoid any bad spirit (Mulder *et al.*, 2000).

The amount of honey harvested is unpredictable and uncertain. Occasionally, *jeragan* is able to get a lot of honey; other times he just gains a small quantity. The people who are waiting under the tree can distinguish the amount of honey by interpreting the *jeragan's* mantra. In this way, they will not be upset if only a little quantity of honey lands down. One mantra indicates that the team is harvesting a lot of honey: *"Anak itik anak undan, anak balam duo sebandung. Setitik hari indak hujan, air dalam melintih tanjung"*(A baby of wild duck, a pair of twin baby *balam*[7]. Drops of water leads to rain, the heavy water flow floods the cape)

The honey is placed in a *temalang* (container) and is brought down using a rope. After completing the honey harvesting, *jeragan* and his team climb down from the tree and distribute the honey to the land owner of the 'honey tree', the harvester team member(s), and the people who attend the harvesting. The honey is divided into three parts; 1/3 for the tree's owner, 1/3 for *jeragan* and his team, and 1/3 is equally distributed to the people who came to the harvesting. After the distribution, the local people, *jeragan* and his team leave the tree to go home. *Jeragan* is the first one who came and now is the last person to

[6] *Ikan semah* (*Labeobarbus tambra),* a prestigious and delicious local fish.
[7] *Balam* is the name of a local beautiful bird

leave the tree. Before leaving the tree, *jeragan* sings a farewell mantra: *"Kalau palik paliklah dulu, jangan sekali dahan betupang, bedaun pun jangan sekali. Permisi kami dengan adik yang bungsu, kalau adik nak balik permisilah dulu, jangan balik bertaun, berbulanpun jangan sekali, tumpang menumpang balik jugo"*(Once *Palik*[8] remains *Palik*, do not let the stem branching or even leafing . O my youngest sister let I leave you for a moment, not a year or even a month, someday I will back to you)

CONCLUSION

Honey harvesting from *Apis dorsata* is practiced by a number of indigenous groups, especially in tropical Asia regions. Although the practice is quite different from one site and another, in general, the evolved wild honey harvesting practice expresses a harmonious relationship between people, plant, honeybee, and their environment as well.

The traditional wild honey harvesting practice needs a whole understanding of honeybee ecosystem. In this case, local people of *Pelepat* have observed natural phenomena over generations and integrated the local culture and belief to develop traditional ecological knowledge, customary laws, and practices related to the traditional honeybee harvesting.

Unfortunately, although local customary laws protect the existence of *selang* tree, traditional honey harvesting is under threat due to drastically declining of host tree populations. The high deforestation rate, as the case in Malaysia (Buchmann and Nabhan, 1996), especially due to logging and the forest conversion to palm oil plantation, drastically drops the population of host trees and nectar sources. Moreover, the existence of wild honey harvesting is also threatened by the limited distribution of traditional honey harvesting knowledge. Only a few local people, mostly elderly, who were interested and gained the knowledge from their ancestors, possess this skill and knowledge.

ACKNOWLEDGMENTS

I gratefully acknowledge to Yosfebian and the people of *Pelepat* who were very keen to share their knowledge and taught us about honeybee harvesting. Two anonymous reviewers much improved the readability and the significance of this article; thank you all. We also thank to the University of Jambi who provide funding for this research via DRK.

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[8] *Palik* is the local name of *Cryptocarya ferrea,* a common hardwood species in *Pelepat*

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