



Honey: Finding Markets for Honey of Non-Mellifera Bees

“Don’t Call Me Honey!” Or: When ‘Honey’ is not ‘Honey’

Martin Kunz, UK. All photographs courtesy of the author.

I started keeping honey bees in my garden in 2013 in the misguided belief that this action would help ‘bees and the environment’ ... While it became clear rather quickly that what bees in industrialised countries need is forage – not more *A. mellifera* colonies – it opened my eyes to bees wherever I went: My work for Fair Trade takes me to South and Southeast Asia often (Borneo is the centre of genetic diversity for the *Apis* genus) – where I found a variety of other honey bees, along with wonderful activists promoting beekeeping with native species. The main benefit is the increase of harvests as a result of pollination with appropriate species, with honey being a minor byproduct. However, one of the groups I met (Under the Mango Tree, India) wanted me to help them export their small honey harvest to Europe – which under the EU honey directive apparently was not legally possible. Together with a friend we started a company in order to test whether this obstacle could be overcome.

Six years on we finally succeeded (only on the Continent – not it Brexit land) – having accumulated a pile of financial loss, and a pile of insights. But

hopefully the main benefit of Diversity Honeys Ltd. will be to demonstrate the need for biodiversity in particular when it comes to pollination.

This is the story of our six year long sting operation:

According to the UK honey regulations, honey from *Apis* species other than *mellifera* must neither be called ‘honey’, nor must it be imported and sold as ‘honey’. If you have not heard of this regulation – neither had I until 2016, when, having ‘woken up’ to the importance of bees and other pollinators a few years earlier, I visited an exemplary non-governmental organization in India called ‘Under the Mango Tree (UTMT)’, which promotes and teaches beekeeping as a tool to help subsistence farmers improve their lives. UTMT teaches beekeeping mainly with *A. cerana*, because these bees are local, colonies can still be found in the wild, it is very low cost (contrary to *A. mellifera*), and it is very effective. Honey production is comparatively low since a colony probably only produces a fifth of a commercially managed *A. mellifera* stock. However,

Above: At the end of my short visit to Thailand I was given these four jars of honey which I was determined to take home. One of these four was produced by *Apis cerana* (the other three by *A. mellifera* – an alien introduced into Thailand some time ago); any guesses which one?

the pollination ‘services’ of these local *Apis* relatives increase mango harvests by 60%, chilli yields up to 400%, and, if managed correctly, allow even a third harvest on the small fields.

At the end of my visit I was asked whether I could help export the UTMT honey to Europe “which does not allow it”. I had no clue, but said I would try to find out. And thus I found out that the EU honey directive 2001/110/EC indeed categorically states: “*Honey is the natural sweet substance produced by Apis mellifera bees ...*”. Which is different to the FAO’s Codex Alimentarius, which states: “*Honey is the natural sweet substance produced by honey bees ...*”

A ‘Directive’ in the EU context means: all member states have to take measures to turn such a regulation into national law. In the UK – at the time still a member of the EU – the national honey regulations simply copied the EU one: Only *A. mellifera* bees produce ‘honey’.

That makes no sense, and so a friend and myself founded a company with the explicit aim of importing honey from Asian honey bees – despite these regulations.

Apart from *A. cerana* (which dwells in hives and is basically a smaller sister to *A. mellifera*) there exist about 10-12 more *Apis* species in Asia, with Borneo being the centre of genetic diversity of the *Apis* family. Of this group of *Apis* relatives, honey from 3 to 4 species is harvested in 'marketable' qualities – albeit nowhere near the volumes that would make a blip in international honey trading statistics.

Apart from *A. cerana*, all of these are living in the open, i.e. their nests consist of single combs, usually in difficult to access locations. For size and inaccessibility *A. laboriosa* tops the list. They are only found in Nepal in the high Himalayas. We know of them from pictures and videos of the daring honey 'hunters' dangling from huge rock faces with little protection. I have never come across their honey outside their region. *A. dorsata*, the 'rock bee', is slightly smaller, but has a much wider distribution, from (lower) rock faces to very tall trees, and (in today's biologically impoverished environments) also man-made structures such as water towers and other tall buildings. Kipling called *A. dorsata* the 'most dangerous animal in the forest': they defend their smallish honey harvest (10 kg/colony) ferociously. But indigenous humans have been 'hunting' this honey, too, for thousands of years. They have learned to harvest at night (when the bees don't follow the raiders), and by using some smoke and veils for protection.

At the other end of the (size) spectrum is *A. florea* – the dwarf bee: When some of the *Apis* tribe (all of which originally were cave dwellers) left the protection of caves and trees, they either became big and fierce (like *A. dorsata*) to protect their brood and stores, or small and inconspicuous, which is the evolutionary path *A. florea* took. Their single comb is about the size of a tennis racket, hidden in thick (often thorny) bushes: only experienced 'honey trackers' can find these bees. And if an animal (or human) predator takes the honey stores (a drum like construction around the branch, which also serves as the dance floor for their waggle dance; the brood part of the comb is suspended from this 'honey roll') these peaceful little creatures simply start to build a home all over again 10-20 meters further away, scavenging wax (if possible) from their previous abode.

What does all this have to do with EU regulations? To begin with they turn out to be a sad tale of bee discrim-



1. *A. cerana* in Vietnam - note the rice fields in the background.

2. *A. cerana* building comb.

3. A good example of animal husbandry: two wall hives in a cowshed high in the Himalayas keep the bees warm, too.



1. *A. florea* nest



2. The brood part of the *A. florea* nest is tied back to the branch after the honey has been harvested.



3. Spot the *A. florea* nest!



ination and possibly more than a hint of lingering colonialism. The technical parameters that honey has to comply with are based on beekeeping in 'temperate' zones. The only concession, even in EU regulations, actually 'acknowledges' that by allowing at least an increased HMF parameter for honeys from tropical regions.

Let's consider moisture. According to EU/UK regulations, the maximum moisture content permissible, apart from heather honey, is 20 %. How are bees with combs in the open to manage this, in tropical environments, during the monsoon season when the air holds so much moisture that it feels like walking through water? For example, an *A. dorsata* honey recently offered to us measured 22% - an amazing feat by the bees as far as I am concerned. Honey traders can gently reduce the moisture to comply with EU regulations - but (e.g. within Apimondia) there are those who cry foul: they claim that reducing water equals 'adulteration' - blissfully ignoring the fact that even *A. mellifera* themselves do this: after all: nectar has 60% moisture to begin with.

A particularly interesting parameter is C4 sugar, which does not show up in the EU directive, but is used by authorities as 'proof' of adulteration. And indeed, if C4 sugar shows up in a European or North American honey, it is likely that it has been adulterated with corn syrup, corn (or maize) being a C4 plant. C4 and C3 refer to the two different ways in which plants photosynthesize. Photosynthesis is the process by which plants combine water and carbon dioxide from the air and, with the help of energy from the sun, turn it into sugars that feed them. The key difference is that C4 plants store energy during the day, but only open their pores during the (cooler) night hours to absorb the carbon needed to produce sugar. The C4 process evolved in numerous plants in hot regions because it allows the plant to produce sugars while conserving as much moisture as possible. For plants in temperate regions, moisture conservation mostly isn't much of an issue, they can afford to open the leaf pores during the day to take up CO₂.

This being the case, there are plenty of C4 plants in tropical countries on which bees can forage. C4 sugars showing up in the honey they produce is NOT a sign of adulteration. The most common weed in rice fields visited by bees is C4 (rice, wind pollinated,



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1. Tree with *A. dorsata* colony (top right quadrant).
2. Abandoned *A. dorsata* comb and 'live' colonies.
3. *A. dorsata* colony about to be harvested, note bees have started to defend.
- 4a. Two *Apis cerana* and an *Apis florea* on a potted 'ice plant' in the middle of New Delhi; 4b. *A. dorsata* approaching a cotton flower.
5. Success - at last, after a very long campaign!
- 6, 7. The use of wax for making wraps for foods is becoming increasingly popular. The women here are using the wax from *A. dorsata* colonies once the honey has been pressed out.

but visited for pollen, is C3), as are numerous tropical tree species. In other words: C4 sugars in a honey from a tropical region are not automatically/possibly not at all 'proof' that illegal syrups have been used to 'stretch' the honey. It is necessary to check the flora of the area where the honey comes from. Sugar cane is a C4 plant and sugar cane syrup is used to adulterate honeys, but there is definitely no sugar cane grown in the Himalayan foothills, nor the western desert where our offerings of honeys come from.

HMF, too, is of course on the EU list as an attempt to check whether honey has been heated for (illegal) processing steps. While fully understanding and accepting the need to take all possible measures to prevent honey fraud (after all honey is only just behind milk and olive oil on the list of 'popular food items to be adulterated'). Discriminating against honeys from small scale, genuine artisanal production settings in biospheres that have no resemblance to Europe nor Northern America does not strike me as fair.

Obviously, bearing in mind that the important missions of this journal are to encourage the production of natural and sustainable beekeeping (using diverse species of bees) and to help rural countries in developing countries to find markets both local and abroad for their products, we see our attempt to import 'exotic honeys' as an important trend.

Of course there are possible illegal ways around the trade barriers, but this is not a course anyone should be taking; important ventures like this should be above board and completely ethical. The UK ministry in charge of honey imports stated in a query we sent to them in 2016 that regarding the regulation referred to above that "*There are no specific requirements relating to the species of bee. As long as you can comply with the import conditions, the honey can be imported.*"

Despite problems with our attempts to import honey (Vietnam initially didn't accept the validity of the UK ministry pronouncement) a shipment of honey was delivered safely to a packer in Wales. This was to be held in storage until we had procured other honey varieties. Unfortunately, subsequent attempts to import other types of honey led to four years of frustration - insufficient volumes from a specific supplier, honey contaminated with miticides, refusal of forwarding a shipment of *A. dorsata* honey by the EU due to high C4 sugar measurements, problems with paperwork which prevented the export of honey, a horrendous episode of the honey having to be returned from a UK harbour as it was in one sticky mess having been stored in Mumbai warehouse, and problems with faulty paperwork during Covid lockdown, meaning the destruction of the product at the importer's expense. We further learned from all this is that 'advice' given by the UK Ministry isn't acceptable in a legal case when we tried to find some compensation for the charges we were facing.

Recently, using a 'sister' company in Germany (the country so beholden to rules and regulations had left a small legal option, unlike the UK bureaucracy) we were enabled to import one *A. florea* and two *A. cerana* honeys from India. On Tuesday 4th of January, 2022, in the late morning hours, an unmarked van delivered seven drums of honey to an unobtrusive warehouse in the north of Germany. We had at last found a way to legally import non *A. mellifera* honeys into Germany, despite the scientifically untenable and, in effect, discriminatory EU regulation. The *A. cerana* honey was from the lower regions of the Himalayas, and the *A. florea* honey was from the Western desert region of Khuch (India). Packed and ready for marketing we found that honey



consumers were hit by the fallout from the pandemic and the War in Ukraine. Rising inflation and exploding costs of living made consumers draw their purse strings tight, there being only room for basic goods in the shopping basket; new, exotic and exciting products remain on the shelf.

We can only hope that this will change again - not just because of our little business: we want to keep drawing attention to the fact that Asian honey bees and the pollination services they provide are essential for the food security of millions of people. Honey is a sweet and delicious way to convey this message. That's why we have nevertheless purchased some more honeys in South Asia - because these Asian bees, too, have a season when honey can be purchased, and that is from March to May.

One of the new honeys being packed right now in India is from a rubber plantation in South India.

After forty-five years in Fair Trade, fifteen in Fairly Traded natural rubber, and now six of Fair Trade 'exotic honeys', I've learnt that bees collect honey from rubber trees, but not from the flowers: When the tree produces new leaves in spring, the supply of sugar sap from the tree to the new leaves is not (yet) in balance - a bit like the limbs of dangly teenagers. And so, a sugary sap at the joint of the leaf oozes out of so-called extra floral nectaries.

We do hope that Diversity Honeys will survive the current difficult market situation - and grow beyond its own teenage stage, while never losing sight of its main aim: to highlight the threat to our (global) environment, one pollinator at a time, one jar of honey at a time.

Although I'm not Catholic I have always liked St Jude - the patron saint of 'hopeless causes' (depicted with a nice strong wooden cudgel). At the next opportunity I'll light a candle (made of bee's wax of course) - because now we have to sell those jars that did make it into Germany, legally, preferably before the next shipment arrives ... and for that we need all the help we can get.

Note 1. From left to right: Wildflower honey - Apis mellifera; wildflower honey - Apis cerana; lychee honey - A mellifera; longan honey - A mellifera. Did you guess correctly?