

Treatment-free beekeeping and feral bees

An impressive visit at Clive and Shân Hudson's on 2nd of May 2018 in Snowdonia, Wales

From Claudia Blauert, Kevelaer, Germany, May 2018

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Beekeeping in the Snowdonian landscape

The Hudsons live at the edge of the Snowdonia National Park in Wales within a landscape that is characterised by a lot of rain and its proximity to the coast, it's close to Porthmadog, approximately 10 miles from the west coast. The vegetation is rough and is shaped by its mixed woodlands (consisting of oak, maple and birch) and scrubland (with gorse and hawthorn for example) as well as the growing ivy, holly, moss and the extensive sheep pastures. A bit of agriculturally used land is stretching towards the coastal line. The climate is temperate, very moist and the warm Gulf Stream and the nearby mountains of the National Park have left their imprint on the landscape. Mount Snowdon, the biggest of them with measuring 1085 m in height has given the National Park its name. It was used many years ago for mining slate and copper.

A practical approach to beekeeping that also follows the science

We are greeted by warm-hearted, welcoming people that will share their knowledge with us respectfully, eagerly and with great dedication for the next hours. We are overwhelmed by their approach to match their experiences in beekeeping with the most recent scientific knowledge - they are really "up to date".

The focus of our meeting is treatment-free beekeeping. I stumbled across Clive and Shân Hudson during my intensive research in the internet for scientific publications and via the E-mail correspondence with bee professionals, researchers and beekeepers with treatment-free bees (as Dr. Johannes Wirz, David Heaf, Dr. Wolfgang Ritter, Albert Muller) that answered my questions very politely and with expertise. And the journey was definitely worth it, it was a great personal enrichment and mostly it was an encouragement, a hopeful vision of the future.

Shân and Clive Hudson are an experienced beekeeping couple and they have approximately 20 bee colonies at three different locations. They inform the public in a highly recommendable Youtube video with the title „**Has Varroa lost its sting?**“ (available under: <https://youtu.be/FsvFmtgmkl>) that in the year 2010 through an own survey (including 1573 colonies of bees) amongst their fellow regional beekeepers, they surprisingly came to the conclusion, that the local bees were predominantly NOT treated against Varroa mites. The beekeepers just counted and compared their winter losses of Varroa-treated and treatment-free bee colonies and came to the conclusion that they could as well just quit the treatment.

Additionally, during his professional activities Clive Hudson regularly discovered wild living or feral bee colonies in buildings, that have been without treatment for years and seemed perfectly healthy, although they had Varroa. They are also aware of wild living or feral bee colonies in trees. They were motivated by these findings and in the year 2006 they changed to treatment free beekeeping - they stopped treating their colonies against Varroa. During the adjustment period in the following two years, they decreased the amount of crystalline Thymol in some hives, then they stopped the treatment completely. And they observed their bee colonies struggling with the Varroa burden - a few did not survive without treatment – the others though survived and were then chosen to be bred. Nowadays they have been treatment-free for about 10 years.

Clive and Shân Hudson collect data in one temperature-monitored hive (see <https://beemonitor.org/>). On their website you can find more informative links like their summary of the most important points for treatment-free beekeeping (see <https://beemonitor.files.wordpress.com/2018/04/notes-on-treatment-free-beekeeping-jan-2018.pdf>).

An important scientifically-oriented fellow beekeeper and ally is **David Heaf**, with whom I also initiated contact. He was cooperating in the data acquisition and workup about the treatment-free bee colonies. He is a Warré beekeeper and you can find a number of texts and evaluations on the gathered data as well as an abundance of material about the measurement data, like honeycomb cell size and the mentioned statistical survey on winter losses on his website (see <http://www.bee-friendly.co.uk/>).

A must – read is David Heaf’s expert script about the Varroa discussion on the website of the national beekeeping trust (see <https://www.naturalbeekeepingtrust.org/natural-selection>).

From science to the Hudson's apiary

I wanted to asked Clive and Shân the following questions: What are the activities that define their beekeeping? Is there any special mode of operating? An extra-ordinary bee breed? Any other factors that increase the chances of the bees survival?

We are sitting together in the living room and both report on their findings while supplementing each other’s explanations once in a while. They create a comprehensive picture of the current situation of bees, their keepers and recent research studies. I am totally overwhelmed and enthusiastic because of their scientific interest that makes this visit for me exciting through and through – since they are in contact with numerous researchers due to their participation with their bee colonies in many studies. Because of this reason this report is accompanied with a selection of links to the respective findings and websites in the internet. You will be surprised by the enormous amount of already published studies, investigations and reports that you will find when researching the internet.

For example the study by the Salford university on the deformed wing virus (short DWV) with the title *“Superinfection exclusion and the long-term survival of honey bees in Varroa-infested colonies”* by G. Mordecai et al. is very interesting to read (see <https://rdcu.be/OdXh>). The study shows how selection of Varroa resistance or tolerance* takes place in ways that were not anticipated. Here research is carried out on treatment-free bee colonies to determine whether surviving colonies show fewer harmful variants of the viruses associated with Varroa by selection and can therefore remain healthy despite Varroa. The Hudson bees are part of this study. When I read the article and thought it through I was totally stunned. I am sure we can expect more fantastic results in the future concerning this topic!

(*The terms of resistance and tolerance are being defined in Raberg, L. et al. (2009): *Decomposing health: tolerance and resistance to parasites in animals*. Philosophical transactions of the Royal Society B: Biological Sciences, 364. See <http://rstb.royalsocietypublishing.org/content/364/1513/37.short>). They define resistance as “the ability of a host to limit parasite burden” and tolerance as the “ability of a host to limit the damage caused by a given parasite burden”.)

The good news is therefore: It doesn't matter to the bees how we call it – they can do it and will do it if we let them!

The importance of treatment free bee colonies

But back to their decision of introducing treatment-free bees. The local equivalent to the German county veterinary office is in Great Britain the National Bee Unit (short NBU). The NBU sends „bee inspectors“ to the beekeepers; they are the contact partners for bee health related questions respectively. The “bee inspector” responsible for the Hudsons and their local area in which they keep their bees judged the situation the same way as a lot of the the beekeepers that decided against Varroa treatment – so he did NOT counsel to treat against Varroa generally and unrestrictedly. Perhaps this was an important factor in how the situation turned out in Wales: That a region was created in which treatment-free beekeeping is possible without cutting down on bee health and honey yields!

So how do the Hudsons exactly keep their bees? We follow them to them to their bee hives and I get the opportunity to put my nose and my camera close to the hives' entrances. I discover friendly bees, with some of them looking like the native *Apis mellifera mellifera*, the so called “dark bee”. After all, there are secluded colonies of the native dark bee on the neighbouring Llyn peninsula. But I shouldn't care about the breed, says Clive. The breed is not crucial. More important – well, no, most important – is a bee that is well adapted to its location. Don't buy external bee queens. He is really stressing his point there ... „locally adapted bees“. Everybody should try to catch natural bee swarms instead.

I am citing from an E-mail directed towards me from the 05-11-2018: “I think our Treatment Free information needs updating - three academic papers have come to our notice over the last few days. I think the information in all three is very exciting! I pick one quote from the Blacquière paper, 'Surprisingly, 'natural selection' appears to be effective after only a few years of refraining from control of Varroa'. <https://www.tandfonline.com/doi/pdf/10.1080/0005772X.2018.1430999>

(Short parenthesis: This is the link to the plea of **Tjeerd Blacquière & Delphine Panziera (2018): A Plea for Use of Honey Bees Natural Resilience in Beekeeping**, Bee World, 95:2, 34-38. This powerful, scientifically based plea is directly aimed at the beekeepers and there is a German version also on the horizon. It contains a convincing collection of recent study results on Varroa resistance and tolerance in honey bees and most importantly how the beekeepers can achieve this – well, or how to not counteract the selection process.)

The papers completely support your conclusion: just select, as best you can, from your locally adapted bees. And don't be concerned to try and selectively breed the 'right bee', or bring the 'right bee' from somewhere else. The evidence in these papers (& our own - lucky - experience) is that it is better to leave the breeding, queen selection, to the bees!“

The Hudsons take the natural development of the bee colony and the swarming instinct into account in their breeding. They allow natural broodcomb building with starting streaks and if reasonable, they use standard foundations with their own wax (in the honey super). Clive's and Shân's bees live in commercial hives with

measurements of 40.6 x 25.4 cm frame size. Their hives' bottoms are closed and Clive installs a little ventilation grid in the cover.

Then follows an experience that was more than outstanding to me – visiting the bee-tree, that has been inhabited by a bee colony for the past 20 years. It creates a painful awareness of what we already seem to have lost and the desire to bring it back into our world: Free living, feral bees! They are not to be underestimated in their importance as nature's genetic safety reserve.

The only thing that bees need to develop Varroa resistance and/or tolerance is a bit of time and an attentive beekeeper that accompanies them without disturbing them or even counteracting the selection process with supposedly well-intended interventions.

Bee specialists and their view on treatment-free beekeeping

Thomas D. Seeley (a graduated American behavioural biologist, bee scientist, beekeeper and author of “the honeybee democracy”) guided participants to anonymously work out different topics in working groups at the beeaudacious conference in 2016 in order to prevent association memberships or interest and lobby groups from interfering with the results negatively (see <http://beeaudacious.com/index.php/beelog/>). By doing so, he puts the question up, if we are standing in our own way. He and his team worked out the probably most extensive scientific research on wild bees, swarm process and he coined the term of "Darwinian beekeeping" (see <https://www.naturalbeekeepingtrust.org/darwinian-beekeeping>).

In a presentation for beekeepers on the 18th of February 2018 **Dr. Wolfgang Ritter**, who is a biologist, varroasis specialist and author of several books for bee health in beekeeping, mentioned that in his opinion the decision after the arrival of the Varroa to treat the bees against it was presumably wrong. His statement brings up the following question: Should we reconsider our (German) official action guidelines for handling Varroa and adapt them to the current research results?

Dr. Johannes Wirz, Institute Director at the Research Institute of the Goetheum (Switzerland) and microbiologist, wrote in an E-mail on 2nd April 2018 to me in German: “I also think, like you, that we can not continue with handling the mite problem forever as before!”. His article “Understanding Bees, Biodynamic Beekeeping” (German title: „Bienen verstehen, wesensgemäss imkern" from Elemente der Naturwissenschaft 101/2014 (see <https://www.mellifera.de/angebote/downloads.html>)) inspired me through its enormous scientific data collection to do my own research, to travel to Wales and not least for a personal reconsideration of the Varroa treatment.

Albert Muller invented the Muller board (German: Mullerbrett) as an alternative for chemical treatment of Varroa. Now he reported in a presentation for beekeepers on 14th of April 2018 in Grefrath (Germany) on a recently started study concerning treatment-free beekeeping at the University of Wageningen (Netherlands) which – attention please! – includes five different, treatment-free beekeeping groups in the Netherlands. He himself has been keeping his bees without treatment for the past five years and doesn't have any use for his own invention, the Muller board, anymore because his bees are now Varroa-resistant / -tolerant.

In Poland, there is a group of beekeepers that have worked out a very encouraging concept on balancing out the colony losses in a solidary way (see <http://wolnepszczoly.org/about-us/>).

There are also reports on treatment-free bee populations in France, Belgium, the United States of America, Norway, Sweden, the Netherlands, Ireland and obviously Great Britain - Ron Hoskins has to be mentioned here,

he has been keeping his bees without treatment for 20 years now! - as well as more eastern countries in which there simply were not enough funds for treating against Varroa. I am very happy that my little list here is surely incomplete!

For conventionally working beekeepers the following research study is very interesting – it shows that a selection of Varroa resistant bees is even possible under commercial beekeeping conditions (see <https://www.tandfonline.com/doi/full/10.1080/00218839.2016.1160709>).

Clive reported on the brothers **Joseph and Chris Ibbertson** and their inspiring treatment-free beekeeping strategies. I would like to recall some thoughts from Joseph's E-mail on 29th April 2018 loosely: "How do we want to keep our bees in the future? Our view on the bees should be redirected from the illnesses to their well-being and how we beekeepers influence them with any interventions." According to current studies, it takes just 3-5 years until a completely treatment-free colony is obtained! Joseph says: "Importantly, resistance to Varroa/DWV is a balance between mite/bee/disease. It can not sustainably be achieved by trying to make one 'better' than the other. They have to find a balance [...] **It might be worth pointing out that every successful attempt to breed for Varroa resistance and every population of Varroa resistant bees has used natural selection.** We are also sceptical of Mite counting. We have seen colonies with high and low Mite counts perform completely different. Swarms from wild colonies with really high Mite numbers, live perfectly healthily for 4 years. There seems to be little correlation between Mite numbers and colony health. [...] We think adaptation to your local environment and seasons is very important because of this and using local bees is the best option. We see a big difference in behaviour between our survivor colonies and ones that aren't as resistant/locally adapt. [...]"

I can say the biggest thing we have had to deal with, is ourselves. We have had to learn to have faith in the bees and faith in the science. It is difficult as a human being to let nature take its course, we want to be in control. It's also a scary thought to imagine losing all your bees, or that there will be colony collapses or disease. That is all part of the process and losses are 'good'! You are left with survivors. Sometimes we see a colony struggle and the challenge is not to panic. It may very well recover and deal with the situation. If it doesn't, you are there to take control. The very best advice I can give you, is **to adapt.**

Keep discussing your methods and try new things. Every location is different so find which methods work best for you and your bees."

We need an open discussion about treatment-free beekeeping

My personal impression is that in the interest of the bees two consideration levels have to be separated in the public discussions: **The debate about the different kinds of beekeeping and the decision to treatment-free beekeeping.** Apparently there is only a negligible overlap between those that each beekeeper has to find out for him- or herself - and hopefully together with his or her bees - and then to decide on it based on personal and dedicated study of the current, convincingly positive level of knowledge and experience.

The lower the hurdles the more beekeepers are going to be thinking about it thoroughly. The more beekeepers think about it and discuss it openly, the better the outcome for the bees!

Above all differences stands our common interest in which we are all united:

The true value of our honey bees is invaluable to humankind!



Above and centre right as well as below: Bees and naturally built honeycombs of Clive and Shân Hudson



Top left: An empty swarm catching box is placed at a position that is very attractive to swarming bees





Left: This old, hollow tree served as a home for wild bees for the last 20 years. Clive watched it the whole time- There never was a total die-off with a following resettlement. This winter though a big piece of bark broke off and this led to the death of the colony. External bees are still getting the last supplies.

Below right: In Snowdonia and Wales are free living bees, on the Lleyn peninsula with partial conservation areas that host the dark bee (*Apis mellifera mellifera*) in numerous known and undiscovered „bee trees“ and also in many old, partially empty buildings. Clive and Shân are especially excited when they are called to secure a swarm that presumably stems from a wild living colony – those are mostly very healthy and resilient.

Below left: A bee near Beddgelert

