

*“The great enemy of truth is very often not the lie -- deliberate, contrived and dishonest -- but the myth -- persistent, persuasive and unrealistic. Too often we hold fast to the cliches of our forebears. We subject all facts to a prefabricated set of interpretations. We enjoy the comfort of opinion without the discomfort of thought.”*

— John F. Kennedy

December is here! That means January, the start of the 2022 Bee School season, isn't far behind. I love sharing what little I know with others, and in doing so I always learn a lot myself.

One of the challenges I face as an educator is to un-learn people of all the “facts” about honey bees that they've gotten from popular media and the internet. A handful of them may be true but far more are pure nonsense. A few of the more popular ones are included here. Which of these have you encountered? What are some others that deserve stamping out?

**“That same colony of bees has lived in the wall of grandma’s house for 20 years. They are ‘survivor bees!’”**

Those bees haven't continuously lived in grandma's wall for 20 years. I challenge you to find a colony of bees anywhere that have lived in an uninterrupted line of direct genetic succession for more than a half-dozen years, even under the meticulous care of an experienced beekeeper.

What has happened in grandma's house is that a colony has occupied the wall for a season or two then died from Varroa mite pressure, starvation or other issues. The following spring, the smell of all of that empty comb attracts a new swarm. The new colony occupies the wall for a short while and the cycle repeats. Grandma sees bees coming and going in the spring and summer but not winter, which is exactly what anyone would expect. This occurs year after year. Conclusion: those bees are Super Bees which can survive without



**There is a nice-sized colony between the insulation and the floorboards of this house. Are these Survivor Bees that have defied the inevitable and thrive without beekeeper intervention? Or did a swarm from a hobbyist's hive move in this past spring? What is more likely?**

beekeeper intervention! We need their genetics in our kept hives! Nope. Not true. Sorry.

**“Your bees get to know you.”**

I love this one. Isn't it sweet? Our bees are like little flying puppies who learn that we mean them no harm and so, over time, quit stinging us every time we open the hive.

Wait. Think about this for a minute. A worker bee lives only 5 or 6 weeks during the height of the season. We inspect our hives how often? And for how long each time? How much exposure to your ever-loving benevolence does a worker bee get in its lifetime? And what is the nature of that exposure? At my place, the beekeeper puffs smoke into their home before ripping off the roof and tearing out “bedrooms” and the food pantry. There is no activity to inspire the admiration of insects, at least not that a bee would be consciously aware of.

So why would someone think that “the bees get to know you”? Instead of the bees learning about you, you learn about the bees. You learn how to do smooth and deliberate manipulations, how to apply smoke properly and effectively, how to not linger in a hive longer than necessary and so on. The result is calmer bees that are less inclined to sting.

### “Honey bees pollinate a third of what we eat/Humans would perish without honey bees”

Even though these statements and others like them are easily dismissed by a quick search for the facts, they stubbornly persist. It is more fun to repeat lies or distortions of facts than to spend a few minutes learning the truth.

The world’s human population subsists overwhelmingly on corn, rice and sorghum. Each of those is wind pollinated and none of them benefit at all from insect pollination. In the United States, well over 90 percent of the total agricultural harvest every year does not benefit from honey bee pollination. Furthermore, there was not a single *Apis mellifera* honey bee in North America before 1622. People didn’t all starve before then. See [Just the Facts, Part Two](#) for more information.

### “Honey bees are becoming extinct”

Around the world, the number of honey bee colonies has been steadily increasing over the past 50 years, including the past 20. That may not be the case for certain native pollinators, but few of us keep those. The critical thing to remember is that honey bees are agricultural livestock, not wildlife. The inventory of honey bee colonies depends on the price of honey, wax and pollination services. When those prices rise, the number of honey bee colonies rises as well. When they fall, the number of colonies falls. The overall stock of honey bee colonies from year to year has absolutely nothing to do with habitat loss, climate change, pesticide use/misuse and so on.

An important observation related to this is the often-quoted statistic that we have around half of the number of honey bee colonies in the United States now than we did in the 1940s. That is basically true, although there are some statistical adjustments that must be made to compare those numbers directly because the collection methodologies differed. But think about it... why were there so many honey bee colonies in the 1940s? The answer is two-fold. First, sugar and other agricultural products were rationed during World War Two and many



Beekeeping is a rewarding hobby with many benefits for the practitioners. But how can we be "saving the bees" when managed honey bee colonies don't need saving?

families had “Victory Gardens”, raising some of their own produce, chickens, etc. That included keeping bees for their honey. But second, and much more important, is the fact that the US government subsidized the production of beeswax to support the war effort. They needed it to waterproof munitions, tents and so forth. We had a lot more colonies because the government was paying us to have them. So instead of complaining that we have fewer colonies now than in the 1940s, we should be thankful that World War Two is over!

More on this topic is at [“Just the Facts, Ma’am!”](#)

### “Save the bees by taking up beekeeping”

This is a great slogan for a t-shirt and also can help fill a club’s bee school. But wink wink, nudge nudge, say no more? We all should know that it is ridiculous. Keeping honey bees in your backyard doesn’t “save the bees” any more than getting a puppy from the local dog pound saves the endangered Red Wolf. The bees that need saving aren’t our kept honey bees. Ours are livestock, not wildlife.

Likewise, hobbyists keeping bees don’t benefit the global food supply any more than growing a tomato plant in your backyard makes any dent in international food production.

If we must be honest, the reverse is more accurate. In my experience, most brand-new beekeepers lose many if not all of their new hives through neglect and ignorance. Those colonies aren’t being saved, they are being

manslaughtered (bee-slaughtered?), although with good intentions.

Furthermore, the flood of new beekeepers every spring creates foraging competition for our existing colonies. Neglected colonies become mite bombs that infest neighboring colonies. Purely from a personal perspective, existing beekeepers would be much better off if we had far fewer “save the bees” beekeepers.

### “Large colonies are healthy colonies”

This statement is true except when it isn't. Colonies may be large because they are kept healthy, but often we see large colonies collapse in a very short time. This is a classic issue in late summer and again in late fall. By definition, a large colony has lots of brood. When Varroa mites are not rigorously kept under control, a large colony will also have lots of Varroa mites on those brood. As brood-rearing abates during the summer dearth and then later in preparation for winter, the number of mites per honey bee pupa can jump dramatically. The viral load that each pupa carries also jumps up as a consequence. The result is a lot of sick bees who cannot sustain the colony.

### “If we eat bananas before working hives, the bees will sting more”

How many times have you heard this one? Have you ever repeated it yourself? This ought to be true – there is a scientific basis for it – but it isn't a fact. This is one of those things that is extremely simple to test but nobody does so.

The reason that bees should sting more after we eat bananas is that a key ingredient of honey bee alarm pheromone is isopentyl acetate (IPA). This substance is also known as banana oil – it is what makes bananas smell like bananas. Therefore, it makes perfect sense that eating bananas before inspecting hives will cause the bees to become much more defensive.

But they don't. The reason is that while IPA is a key ingredient of alarm pheromone, it isn't the only ingredient. Honey bee pheromones are fascinating things and are made up of a complex



Try this simple experiment: Place a banana peel at the entrance to a hive. Do the bees act aggressively toward it? Do they pay any attention to it at all? Instead of attacking it, these particular bees appear to give it a wide berth.

mix of substances. The exact recipe is critical. Pheromones are one of the main ways that honey bees communicate, and the chemical components are sort of like their alphabet. Change the mix and the message is changed or lost altogether.

For example, queen bees and worker bees have many of the same pheromone glands. But the queen bee's version of the pheromone produced by a particular gland often evokes an entirely different response than the worker bee's version. The same gland produces a different recipe for queens than for workers.

That apparently is what happens with bananas. By itself, a banana is just a banana. Add in some magical ingredient(s) and it becomes a rage-inducer.

### “Bees sacrifice themselves to protect the colony”

One of the reasons people keep honey bees, in my opinion, is that there is a romanticized notion that bees are noble creatures who literally give their lives to protect their home and kin. This interpretation is easy to test, in fact we beekeepers test it often. We disturb the colony and tiny little Bravehearts willingly sacrifice themselves, stinging us and ultimately dying as the stinger mechanism rips from the worker bee's body. Listen very

carefully and you may even hear them gasp, “You may take our lives, but you’ll never take our freedom! Alba gu bràth!”

The problem is that the observation (honey bees die as they defend their home) does not mean that the bees knew they were going to die. There is no noble sacrifice. Instead of a worker bee’s last breath being, “Scotland forever!” I am pretty sure it is, “Hey! What just happened?”

Honey bees are farther down the same evolutionary path as sawflies. Sawflies have notched/barbed egg-laying appendages that they use to literally saw slots into wood, into which they lay their eggs. Our honey bees lay their eggs in wax cells, not wood, but the egg-laying appendage remains as an evolutionary artifact in the form of a stinger. A honey bee stinger has a serrated edge, left over from the wood-sawing days of her ancestors. The larger serrations serve as barbs; that’s what gets caught in our skin and causes the sting apparatus to be ripped out of the bee’s body as she pulls away. However, it is only thick, elastic mammalian skin that causes this problem. Honey bees can repeatedly sting other insects, with their nonelastic connective membranes, without any harm to the bee doing the stinging. Therefore, it seems perfectly logical that a bee will sting with every expectation of being able to sting again. (I often see eviscerated bees attempt to sting me again, oblivious to the fact that their stinging apparatus is now missing.) The notion that the bee is consciously making the ultimate sacrifice is nothing but anthropomorphic romanticism.

### “Bees make perfect comb”

I first heard this comment from my daughter’s middle-school science teacher. I didn’t want to laugh, but anyone who has kept bees for more than a few months knows that

this statement comes from lack of experience. My honey bees tend to make comb suited to worker brood, drone brood and honey & pollen storage but they often get creative. The most uniform comb is likely on plastic foundation, followed by wax foundation. Foundationless comb, and especially burr comb, can be a wild hodgepodge of cells sizes and configurations, especially if a heavy honey load causes the cells to stretch on a hot day.

The silliness of this statement about perfect comb spills over into the debate about small cell sizes. Proponents say, “natural comb is such-and-such a size.” But within a hive, freely-built cell sizes vary from top to bottom, side to side and frame to frame. In other words, a “wild” colony doesn’t have a precise single cell size for any one purpose. Bees are very adaptable creatures, and many things that we argue about simply don’t matter one bit.

### Our challenge

I’m sure our regular readers have heard many of these bee yarns. New beekeepers may believe and repeat them. A common theme for each of these is the miraculous nature of the honey bee: her altruistic sacrifice for the good of the whole, her astounding mastery of precision engineering, her selfless toil that keeps mankind fed and happy. Our honey bees are amazing creatures but let’s not lie about them when a little education empowers us to share truths rather than myths!

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