

A view of the pollinator habitat at That's a Plenty Farm in Hadley, Massachusetts.

by TRACY FRISCH

Arriving at my first pollinator sanctuary, I was not prepared for the exquisite jumble of color and profusion of insect life I encountered. Walking along the meadow's edge, I'm treated to a running commentary. We stop at a patch of partridge pea, a legume also known as honey plant. They inform me that when it's in bloom, "The sound of bees is unbelievable." Asclepius attracts gigantic black and brown wasps. I marvel at the spreading clumps of Maximilian sunflower, a prairie perennial that easily reaches twice a man's height. This is the enchanted world inhabited by Cathy and Michael Katz, late career professionals who became cultivators of the soil.

The idea of setting up a sanctuary for pollinators hadn't occurred to me until last year when I noticed a tour being held during the Northeast Organic Farming Association's 41st annual summer conference in Amherst, Massachusetts. I arranged for an impromptu visit. Intrigued, I drove back again in late September for a closer inspection of the ecosystem for native bees the Katzes had created from scratch.

That's a Plenty Farm and Pollinator Habitat in Hadley, Massachusetts, is a place where native bees are able to thrive and proliferate. It also functions as a demonstration site to teach and inspire the public. Its nursery yields a marketable product for the Katzes - seed for perennials that support pollinators, which they package with growing instructions for online sales.

Joan Milam, a native bee researcher at University of Massachusetts, believes that efforts like theirs contribute to pollinator survival and species richness. "It turns out that the Katzes took [enhancing pollinator habitat] to the nth level. They have really done an exemplary job," she said.

Insects pollinate about three-quarters of all plant species, and bees are the most significant pollinators. North

"Pollinator habitat is supposed to be left undisturbed. You don't have to go in and trim and weed."

America has more than 4,000 species of bees, with approximately 350 species in Massachusetts alone. But just as scientific research is demonstrating the importance of native bees to agriculture and wild plants alike, the reality that many native bee populations are in decline is gaining more attention. Some species have become rare or endangered, or are even thought to have gone extinct.

Unsurprisingly, native bees are suffering from some of the same threats as honeybees. The two problems that we can most easily do something



From left: Daughter Jenny Katz-Brandoli, Michael Katz, Cathy Katz and son Josh Katz at That's a Plenty Farm.



A bee visits lupine at That's a Plenty Farm.

about - as individuals and as a society - are toxic pesticides and the demise of habitat. High on the list of risks faced by bees is the relatively new, ubiquitous and extremely lethal and neurotoxic class of neonicotinoid insecticides, though many other types of pesticides also pose significant dangers. As for habitat, native bees need

food to eat and safe places to nest. The homogenization of the landscape in row crops and lawn and the cloaking of the earth in pavement and concrete are fueling their demise.

A GRAND EXPERIMENT

The Katzes are now in their fifth year of orchestrating an oasis of life amidst a desert of denatured land of industrialized agriculture. The results speak for themselves, but early on, they grappled with a lot of uncertain-

Perhaps the best way to get a visionary project off the ground is to find out as much as you can and then blunder into it. When the possibility of making their 3-acre piece of farmland into pollinator habitat was first presented to them in 2010, Michael and Cathy didn't have a template for implementation.

"Every big conversation we had was invaluable because it gave us some perspective on what we were getting into," said Michael. Enamored with the concept, the permaculture enthusiasts did a lot of research and forged ahead.

The couple received assistance from Tom Sullivan, a landscape designer and native bee advocate who calls his business Pollinators Welcome. He helped them deepen and expand their vision while crafting a landscape plan and providing important technical advice and referrals. Within a year, they had transformed an acre and a half into a pollinator meadow and established dozens of pollinatorfriendly perennials in their nursery.

PATH TO FARMING

The serpentine path that led Michael and Cathy to their land, and ultimately to make the pollinator sanctuary, began with their quest for a modest place to live and grow some food. But the story actually starts much earlier, when they leased out their home in rural Connecticut and followed their grandchildren around the country. Living in more urban environments, Cathy says she and her husband discovered what it was like to walk and bike, and they developed a new awareness about food safety, alternative energy and "all the alternative ways of living."

Eventually they relocated to suburban Montclair, New Jersey from California.

"We lived in a nice house in a nice town," said Cathy. Spurred on by their daughter to put in a vegetable garden, they took a soil sample. Testing turned up high lead. "We were advised not to grow food. It was horrible."

Following that disappointment, they moved back into their old house in Connecticut and began growing their own food.

"It was really fun, and we felt like that should be part of our lives," said Cathy. With their children grown, they decided to downsize from their large house on 5 acres to something smaller with enough yard for a large garden. They set their sights on Massachusetts' Pioneer Valley where their son was in college, but couldn't find an affordable home that met their criteria. With no more houses left to show, their realtor thought they might be interested in ag land.

The realtor drove them to a 3-acre property on the Connecticut River, a former cornfield grown up in weeds. The adjacent parcel was 5 acres of sprayed potatoes. Classified as floodplain, the land was zoned solely for agriculture, an obvious obstacle for prospective buyers looking for a place to live. But the setting on the river captivated them, and price-wise it seemed a great deal. Michael and

Native Plants that Attract At Least Native Bee Species



Species Attracted/Common Name/Latin Name

15

Wild Bergamot - Monarda fistulosa

10

- Bigleaf Aster Eurybia macrophylla
- Spotted Geranium Geranium maculatum

Anise Hyssop – Agastache foeniculum

Purple Coneflower – Echinacea purpurea

Creeping Jacob's Ladder - Polemonium

Ohio Spiderwort – *Tradescantia ohiensis*

Common Ironweed - Vernonia fasciculata

Culver's Root - Veronicastrum virginicum

reptans

Yellow Coneflower – Ratibida pinnata

14

Black-eyed Susan – Rudbeckia hirta

5.10

Diack cycu Susaii Tuubeenia niria

13

Common Boneset – Eupatorium perfoliatum

- Swamp Milkweed *Aesclepias incarnata*
- Butterfly Weed Asclepias tuberosa
- Beadle's Tickseed Coreopsis palustris 'Summer Sunshine'
- Oxeye Sunflower Heliopsis helianthoides
- Virginia Mountainmint Pycnanthemum virginianum
- Blue Vervain Verbena hastata

000

• Harebell – Campanula rotundifolia

111

- Foxglove Beardtongue Penstemon digitalis
- Cup Plant Silphium perfoliatum
- New England Aster Symphyotrichum novae-angliae
- Golden Alexander Zizia aurea

Wild Lupine - Lupinus perennis

• Bloodroot – Sanguinaria canadensis

Source: Adapted from Heather Holm's *Pollinators of Native Plants* by Tom Sullivan of Pollinators Welcome; *pollinatorswelcome. com*; 413-325-1769.

Cathy made the purchase in 2007 and then tried to make a go of growing vegetables.

NO ORDINARY FARMLAND

That's a Plenty Farm's soil is the famed Hadley loam. Generations of farmers have hungered for its deep, well-drained, nearly level soils. Excited about their new land, Michael and Cathy took a soil sample and eagerly awaited the analysis, but once again, they were disappointed.

"We were astounded to find few micronutrients and low organic matter because those are the things expected to be present," said Michael. "There's something very special about the soil, and it's not what people think."

They have come to understand that what makes the soil so good relates to its uniform particle size and hydrological properties. "It handles water beautifully. It retains water but allows it to drain. There doesn't seem to be any other explanation."

The Katzes' property is one of the unusually long, linear farms located on a peninsula surrounded by the quirky bends of the Connecticut River. The property, though only 71 feet wide, extends at least a third of a mile back from the road to the river. These distinctive parcels, artifacts of the area's history, have implications for native bees.

Indigenous peoples farmed the alluvial soils of this river valley for thousands of years prior to the arrival of colonists. In 1659, English Puritans settled Hadley, dividing the land into a distinctive configuration strikingly different from the patchwork of properties found elsewhere in southern New England. According to the World Monuments Fund: "The colonists laid out a village, common, and an "open-field" farming system in the Great Meadow. This arrangement of slender, unfenced, elongated land parcels bounded by the river has endured since the time of the allotments to original settlers. Open-field farming was widespread in medieval and early modern Europe, but only the earliest New England settlements set up this type of agricultural system, and most had disappeared by the

18th century. This survival on such a large scale, over the centuries and through American industrialization in the northeastern United States, is incredibly improbable."

The World Monuments Fund recognizes the area as a globally important, at-risk historic landscape. "A floodplain zone protects a portion of the 350-acre Great Meadow" including the Katzes' farm, "but 165 acres are zoned for residential and commercial use, providing no long-term protection for the historic landscape and land use," the Fund stated.

GROWING IN THE FLOODPLAIN

At first the couple lived in town and commuted to their new farm. In 2012 they bought a tiny house on wheels online from a builder in Ohio and have been contentedly living in it year-round ever since. With their selfsufficient residence on wheels, they evade the prohibition on permanent residential structures. Their infrastructure includes a well, electricity (they have grid-tied solar panels), an outdoor shower and a composting toilet with its own enclosure. They cook and eat outside whenever the weather cooperates. If it's cold or rainy, they might retreat into their seed-processing workshop, a pleasant, light-filled space perched on blocks that they constructed for \$3,000. In the winter, when flooding is more likely and staying on the land is forbidden, they park their tiny home in a nearby town.

By choice, Michael and Cathy do not have a tractor. They quickly understood that growing by hand would make it difficult to be competitive as growers in the marketplace and sought to overcome this handicap by finding their own niche. With subsidies through the Natural Resources Conservation Service, they erected four high tunnels and filled them with heirloom tomatoes. They also grew many varieties of lettuces, but this project didn't translate into reasonable economic returns. "Everything was great except that we were making 11 cents an hour!" said Michael.

Meanwhile, they had made contact with the Conway School of Landscape Design, an independent graduate program a half hour to their north.

Can Lawns Support Native Bees?

University of Massachusetts adjunct researcher and native bee specialist Joan Milam didn't suspect that there would be much biodiversity in lawns when she teamed up with principal investigator Dr. Susannah Lerman to study native bees in lawn ecosystems. In the 17 yards monitored over a two-year period, they collected 112 species of bees, with between 20 and 50 different species found in each yard. The lawns contained 64 different flowering plants in all and an average of 20 species per lawn. Participating homeowners agreed not to use pesticides of any kind, including herbicides and insecticides.

The study monitored lawns under weekly, every two-week and every three-week mowing regimes. Reducing the frequency of mowing gave native bees a big boost, with bee abundance peaking two weeks after mowing. Lerman, a U.S. Forest Service ecologist who studies urban wildlife, envisions neighbors alternating their mowing schedules so that bees would always have a place to forage. Of course, social pressure to conform to unrealistic cosmetic standards currently makes many homeowners reluctant to consider mowing less often. Even farmers have grassy areas kept short and green. Tom Sullivan suggests making your "lawn" more hospitable to bees by raising your mower's height to 4 inches and over-seeding with clover and other plants that are attractive to bees. Go further by installing pollinator-friendly wildflower borders, preferably at least 3 feet wide, in place of some of your grass.

For more information, contact Dr. Susannah Lerman at slerman@cns. umass.edu.

"We became the design project for Zach Mermel, a student from Hawaii," said Michael. Their horticultural enterprise used only a small fraction of their farmland, and they were wrestling with what to do with the rest. They told Mermel about their interest in permaculture, and he surveyed their land and oriented them to its soil, plant communities and unusual history. He completed his project in October 2010.

POLLINATOR HABITAT CREATION

Around that time Vince Snyder, the assistant state conservationist for field operations at NRCS, informed Cathy and Michael that funding was available for pollinator habitat enhancement. He had worked very hard with their high tunnel grants, and he seemed to like what they were doing, they said. When he suggested that they apply for these funds, it struck them as a very romantic idea. It fit with their ecological values and Michael liked growing flowers. By then, the couple had realized that they were not on their way toward economic viability as farmers.

The Katzes received guidance and direction in the planning and installation of the pollinator habitat meadow. Tom Sullivan, a Conway School grad introduced to them by Mermel, offered to design their pollinator habitat nursery. With his depth of knowledge about plants and other habitat requirements to support pollinators, Sullivan proved the perfect person for the job.

Sullivan traces his affinity for bees back to a painful incident when he was eight. Retrieving a ball in a hedge, he was rewarded by a ferocious sting. His Irish grandmother smeared mud on the sting, gave him iced tea with mint, and in her thick brogue assured him that the bees hadn't meant to hurt him. When his little sister got stung, he performed the same rituals for her. Thanks to his grandmother's comforting approach, rather than developing a phobia about bees, he retained a fascination with them. In his 20s he got his first hive and learned about honeybees.

Eventually Sullivan became a landscaper and moved to the hill town

RESOURCES

"Using the 2014 Farm Bill Programs for Pollination Conservation,"

Natural Resources Conservation Service: bit.ly/ 2bJZgLs Tom Sullivan, Pollinators Welcome: pollinatorswelcome.com

North Creek Nurseries: northcreeknurseries.com Applewood Seed Company: applewoodseed.com Xerces Society: xerces.org/pollinator-resource-center



The farm's diverse mixture of plants includes Eryngium yuccifolium, a herbaceous perennial plant of the parsley family native to the tallgrass prairies.

region of western Massachusetts. For a while he ran a nursery. After taking a permaculture design course with two Conway graduates, he applied to the landscape design school himself, receiving his Masters in 2008. From there, he pursued his interest in native bees, studying identification of these insects with scientists in the Northeast.

Today Sullivan's work invites people "to make room for pollinators in their community" while giving them tools to do so. His priorities are increasing nesting sites, providing appropriate plant resources for native bees and connecting habitats across property lines so they will find ample opportunities to forage and reproduce. His design work and consultations combine aesthetic and biological considerations. Sullivan also does a lot of educational outreach.

PLANTING THE MEADOW

In 2010, the Katzes signed off on a 3-year pollinator habitat enhancement plan with NRCS. Their contract called for them to plant a windbreak of 125 arbor vitae trees in year one along the west side of the farm as a barrier against pesticide drift. Now, six years later, the trees are almost touching. Under the provisions for year two they installed the meadow, and in the third year they were simply responsible for its growth. As its share of the project, the federal government covered 75 percent of the cash budget for the original installation - about \$7,000.

Michael and Cathy went far beyond what was stipulated in their NRCS contract. To prepare the 1-acre field they were converting into pollinator meadow, they hired a farmer

to plow up the old cornfield and seed winter rye. The following year, they connected with Christian and Andrea Stanley, who were starting Valley Malt, an artisanal malt house using locally grown grains. They combined the rye for grain and left behind the straw for mulch. The Katzes amended the soil with stone dust and then in September broadcast the Eastern Pollinator mix containing hyssop, columbine, butterfly milkweed, wild indigo, Siberian wallflower, Chinese forget-me-not, coreopsis, purple coneflower, gaillardia, sunflower, blazing star, sweet alyssum,

"Native bee biology dictates the principles that inform the Katzes' pollinator habitat project. One of the reasons they strive for so much plant diversity is that many native bees are oligolectic, meaning that they rely on just a few species of plants for pollen. Some are even more selective, with their survival hinging on the presence of a single species of plant."

perennial lupine, lemon mint, upland aster, corn poppy, black-eyed Susan, smooth aster, crimson clover and other wildflowers from Applewood Seed Company throughout the field and waited.

The Katzes had no idea what to expect from the meadow planting. Perhaps the biggest surprise is that it has been in continuous flux since the first seedlings emerged. Cathy describes it as a composite of "all these little islands of flowers planted by nature."

On a yearly basis the meadow takes on a totally different look. The first year red and pink poppies dominated. "We adored those poppies," said Michael. "Then meadow went its merry way. It's like magic." The floral parade continued. "The next year, we had lots of Coreopsis and the following year, it was Rudbeckia. This past year, the entire field turned purple with Lupines and then stayed purple. There were 8 gazillion spiderwort plants."

Their limited mowing also prompted an unforeseen shift in plant species. For access through the wildflower meadow, Michael cut a meandering 6-foot wide swath at the beginning of the year, which they maintain with a walkbehind string trimmer. Last year, they were amazed to find Rudbeckia colonizing the entire length of the winding path.

This year, they aim to mow throughout the meadow. Cathy is assuming the 'mowership' of the field, using a scythe, which cuts twice as fast as their string trimmer. They

want to see if cutting down and removing some of the intact plant residue in spring will allow less vigorous, early plants like lupines to better compete. "We're observationalists," Michael said.

The Katzes are rightfully proud of their accomplishment in establishing a vibrant pollinator meadow. But having chronicled the shifts in species composition occurring from year to year, they understand that a meadow does not stay static and thus cannot be restored once and for all. No, a meadow is destined to forever be a work in progress.

Now at the 5-year mark the question of containing aggressive plants to avert their dominance may be coming into the forefront. Michael and Cathy have noticed a couple small incursions of grass into the meadow, but overall that problem appears remarkably minor. On the other hand, Sullivan has been warning about goldenrod, with its vigorous spreading rhizomes, since at times it already dapples the field in large paths of deep yellow. Benign neglect might not be a sufficient response in the long run if sustaining the meadow's value to diverse species of native bees is the goal.

WHY NOT A NURSERY?

Michael and Cathy hadn't conceived of putting in other pollinator habitat plantings besides the meadow restoration before Sullivan came on board and proposed adding a nursery. They loved the idea, but requested he avoid straight lines, in emulation of nature. In Sullivan's design winding paths bisect curved beds arranged in a circular pattern.

Out of the large universe of possibilities, he prioritized those standout flowering plants that attract the greatest numbers of native bee species. He stuck to open-pollinated plant varieties so they could save seed and propagate more stock. For the most part, he also steered clear of named cultivars, however appealing their appearance. "Cultivars don't have a great track record for lasting," he explained.

Though only a tenth of an acre in size, the nursery contains 54 species of flowering perennials. Locating the nursery between their home site/living area and the meadow keeps the plants most in need of farmer attention nearest to the farmers. Having an unheated high tunnel adjacent to the nursery site makes it convenient to start the nursery plants from seed. They continue to add other varieties acquired from Northeast nurseries, and each year they transplant additional plugs into the habitat.

It's also been a good place for them to get acquainted with each of the different perennials under cultivation – to become familiar with their habits and seasonal cycles and to learn when they flower and set seed.

POLLINATOR NEEDS

Early in their research, Michael and Cathy made contact with the New England Wildflower Society, and its plant propagation arm, Nasami Farm Nursery, located in South Deerfield, 13 miles from their farm. From this group, they received excellent information, but they also got advice that felt discouraging. "We were admonished that this was going to be a very difficult project," Michael explained. "They were visualizing us keeping an area in a landscape

design." Implicitly, this would involve keeping on top of the weeds.

"We discovered that we didn't have to deal with any of that. In fact, the pollinator plants that we seeded got along just fine with nature's pollinator plants," said Cathy.

Michael says that pollinator habitat is supposed to be left undisturbed.

"You don't have to go in and trim and weed." The only incident in which he was bothered by a bee occurred when he was doing something he shouldn't have been. "I was messing around with her home, pulling weeds and she let me know by stinging me." Most native bees do not sting, and those that do don't cause much harm.

FOOD & SHELTER

Researchers are just beginning to discover some of the consequences of depriving native bees of their preferred or required food plants. A Cornell University study published in the journal *PLOS ONE* found that a common ground-nesting bee that is the most important pollinator of strawberries is smaller in size in heavily farmed areas. The researchers suggest that in such land-scapes the female *Andrena nasonii* bees may not be able to find sufficient pollen to adequately nourish their offspring. The smallest bees can only carry 40 percent less pollen than the largest bees, and a large bee is able to forage twice the distance as a small one.

Native bee biology dictates the principles that inform the Katzes' pollinator habitat project. One of the reasons they strive for so much plant diversity is that many native bees are oligolectic, meaning that they rely on just a few species of plants for pollen. Some are even more selective, with their survival hinging on the presence of a single species of plant.

They learned from Vince Snyder and the NRCS Pollinator Habitat Committee that at least three species of flowering plants attractive to pollinators should be in bloom during the early, the middle and the late parts of the growing season. That way, most bees will never come up short. Planting each species in clusters helps bees conserve energy when they're foraging. The Katzes far exceed that minimum. "We might have 80 or more different flowering plants," said Michael. These blooms attract birds as well and according to the Katzes, birdwatchers frequently visit their land.

Besides needing the right floral resources, native bee specialist Joan Milam notes that many native bees require some bare soil for nesting. Native bees also appreciate "a little messiness."

I had read that grasses are an essential element of pollinator habitat. I found the answer in a write-up about one of Sullivan's workshops at That's a Plenty Farm.

"The lives of the mouse and the bumblebee are intertwined," said Sullivan. "Mice make their homes under those bent grasses, and bumblebees use old mouse holes as



The monarch nursery.

nests. If we can let go of that need to make every corner of our yard look neat and tidy, we help protect the seventeen species of bumblebee that potentially live in Massachusetts."

Sullivan also encourages us to remember tunnel-nesting bees, which are "great pollinators of early-blooming fruits." They lay eggs in hollow tubes (bamboo, paper tubes and drilled holes will do) and pithy stems, so grow plants like staghorn sumac, raspberry and elderberry.

OTHER POLLINATOR HABITAT

Following Mermel's farm plan, Michael and Cathy have been developing more habitat along much of the length of the east side of the property. This takes the form of two 1,000-foot strip plantings on either side of the farm road.

Sullivan alerted the Katzes that the slight rise along the eastern edge of the property makes "an amazing nesting site" for native bees, as long as there is some ground free of roots. The elevation difference is an artifact of centuries of plowing across the farm's narrow field. Over time the throwing action of the plow built up soil into small mounds on both sides of the floodplain property. The soil is looser in the mounds, and the increased height offers some protection to the nests from flooding.

There the Katzes are growing a 5-foot-wide strip of hard-to-contain plants, such as mint, nettle and comfrey — the latter grown for composting, as well as elderberry. They're also building unmanaged compost piles there, using green and brown material from their high tunnels and nursery and some of the previous year's plant residues from the meadow. Turning, screening and moving these compost piles hasn't been necessary. After a year, they just remove any large pieces that haven't yet decomposed — they become the base for new piles — and then plant directly into these "lazy composted beds" without any other inputs.

On the other side of the farm road, next to the meadow, they've put in more nursery beds for perennials. They're also growing crops there for their nectar and pollen resources and as raw material for composting. They've

also increased habitat complexity by planting a small orchard north of the meadow. It contains plums, a few other tree fruit, grapevines and a wide variety of small fruit. Around the orchard, they kept some soil open. Wood snags are retained for nesting bees. As one of several outdoor rooms they have scattered around the farm, they built a shade gazebo out of living curly willow.

Clover plantings and dandelions serve as a source of "gap sustenance" when other flowers are scarce so they sowed the orchard understory with low-growing Dutch white clover and yellow clover and seeded the white clover in the nursery paths. But over time, quackgrass has crowded out the clover. They also grow a variety of medicinal herbs around the farm.

MEASURING SUCCESS

In 2013, UMass researchers identified 37 species of native bees at That's a Plenty Farm. Among them was an Andrena barbara bee, caught by Milam and identified by Dr. John Ascher, who's affiliated with the National University of Singapore and the American Museum of Natural History. It was the first and only record of this species in the state, though that doesn't mean it isn't present elsewhere, Milam explained. "We're just not looking very hard." She remarked that few people know how to identify native bees down to the species, and many bees have not been adequately described in the literature.

There are 1,300 species in the Andrena genus. These ground-nesting bees are also known as mining bees. Like most bees, Andrena bees are solitary. (As a social insect that lives in colonies and has a division of labor, the honeybee is an outlier among bees.) Every Andrena female builds her own nest, lays eggs and provisions them with pollen and nectar. After the eggs hatch, the larvae develop, spending the winter in the pre-pupal stage. In early spring they pupate and then emerge as adults.

As the Katzes are spreading the biodiversity gospel, seed by seed, Michael has taken the lead in gathering seed from the plants they grow. As a



Monarch caterpillars at work.

seed saver and plant propagator, he's entirely self-taught.

"When you think about it, that's the only way you learn anything," he said. Cathy provides this perspective: "His learning style is definitely experiential."

Michael described one of his eureka moments as a seed collector.

"For the last two years, we couldn't find any Monarda seeds. Then I discovered that in each tube, there are two seeds, but you can't get at them until they dry."

For Cathy, immersion in the pollinator sanctuary project has been "thrilling." Working in offices in taskoriented positions for 35 years, she's been accustomed to moving quickly all the time. Life on the land offers a welcome corrective.

Asked what advice she has for readers, Cathy stresses that anyone

NEED MORE INFORMATION?

For more information on That's a Plenty Farm, visit thatsaplentvfarm.com and yayforeverything. com/thatsaplentyfarm

with a piece of land, even a small yard, can help pollinators.

" O n e doesn't have to know anything or do much except broadcast some seeds of these beautiful

flowers and leave it alone in order to provide pollinator habitat. If everybody did it, the bees would be in much better shape!"



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