

*Give  
Bees  
a  
Chance*

*honoring those who work  
alongside honeybees*

**Genesee Community Charter School  
6th Grade • 2008  
Rochester, New York**

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# Genesee Community Charter School

The Genesee Community Charter School is an Expeditionary Learning School located on the campus of the Rochester Museum & Science Center. We serve approximately 210 children in grades kindergarten through six from Rochester and its surrounding suburbs. The school curriculum is organized around six historical time periods that are explored over a two-year course of study. The six time periods are Prehistory, Early People/Woodland Peoples, Indians/Explorers/Settlers, Village to City, City Grows, and Today & Tomorrow. Each year, students at all levels study the same time period at the same time.

The sixth grade class of the Genesee Community Charter School has been researching bees throughout the year. At the beginning of the year, we decided what we were going to learn about from a series of "hot topics," at the end of that expedition we settled on bees. We are now learning about Colony Collapse Disorder (CCD) and the importance of bees in our natural world.

During the winter months our class learned about the anatomy of the bee including, the function of the head, thorax, abdomen, eyes, and legs as well as the pollination of flowers and the production of honey. We also looked at diagrams and have read many articles that discuss the causes of CCD. Our class also studied graphs and tables depicting how important the bees are to fresh produce through the process of pollination.

In March we made displays for the Hansen Nature Center to spread awareness about honeybees and their interaction with the environment. These exhibits ranged from puzzles to puppet theaters and dioramas. Other products that we have made include games that were based on bees. For example, we made card games, board games and physical games.

In Language Arts, we created poems dedicated to the honeybee. In Art, we constructed a wall hanging made from batik hexagons to represent the "bee dance." We also performed skits for our school honoring beekeepers, honeybees and the bee industry.

In this school, field studies are an important part of our culture. This year we went on many different field studies. Most of them were to visit beekeepers. Each beekeeper that we went to see had a different story to tell about their life as a beekeeper. On the field studies we took notes on what the person did, how their jobs were important, their life as a beekeeper. We also had photography crews who took all the pictures included in this book. This book was created to inform the public about the importance of beekeeping and to honor those who are stewards of the honeybee.

# Genesee Community Charter School

# Tim Pratt



*Tim Pratt manages the Hansen Nature Center and enjoys working with bees.*

When you walk down the path to the nature center you are sometimes surprised by deer eating in the fields. Behind them you see the woods. You smell the scent of pine all year round. There are beautiful flowers in the spring and summer, but on cold winter days you smell the cold iciness of mother earth's frosty breath. A little further down the path you see the cabin that is the nature center. When you walk in, you step into a big shaded room, where often times you'll find Tim Pratt teaching a class on bees; beyond that is a large exhibit room. It has lots of animal exhibits, dead and alive, among these exhibits is a bee exhibit with lots of facts about pollination and honeybees. In that same space as the bee exhibit there is a telescope. Through the telescope you can see three of Tim's hives. If you look to your right you see an observation hive. It is sandwiched between two pieces of glass so you can observe the bees at work in a functioning hive.

*"Treat  
all  
living  
things  
with  
respect."*



*Bees can identify colors and patterns. Some beekeepers paint these patterns above the hive entrance to help the "busy girls" get home.*

Tim Pratt is a hobbyist at the Hansen Nature Center where he is also the education and programming director. If you ask Tim a question he'll give you a very thoughtful explanation. Tim Pratt is a friendly person who likes nature. The motto Tim likes to live by is, "Treat all living things with respect."

Tim Pratt is not only a beekeeper but he is the Education and Programming Director for the Hansen Nature Center. His responsibilities include teaching school classes and scout programs, showing visitors around, planning events, and taking care of the exhibits at the nature center. He enjoys teaching and raising visitor awareness of the importance of honeybees. He has been at the nature center for three years and began beekeeping when he started there.

Tim Pratt believes educating the public about honeybees is very important since the honeybees are responsible for one-third of our food production. People should also be aware of the need for a healthy honeybee population. The Nature Center has a school program on honeybees and a fall harvest festival where they demonstrate how they harvest the honey from their hives. The most challenging part for Tim is trying to get the hives to survive Rochester's winters, since bees are very prone to extreme weather and starvation (honeybees will not leave the winter cluster to get honey if they need to keep the queen warm). The biggest reward for him is putting on the harvest festival.



*Modern hives are made of "supers" and "frames." Honey collection doesn't have to disrupt the bee colony.*



*The Hansen Nature Center has a very active observation hive.*

# Tom Moore



*Tom Moore is a hobbyist beekeeper. He spoke to our class in his backyard where he keeps one active hive.*

From the cracked sidewalk, the front of his house is like no other, with painted slogans: *Iraq Innocence*, and *Stop The War*. Working in his own back yard the towering maple tree hides his one hive, towers over the yard, and offers shade. The bees give this yard all the color and love it needs.

Tom Moore loves to feel and maintain the connection to the natural world through his bees. Also, he is happy to know that he is not adding onto the already huge problems our world is facing. Tom is always smiling and shows an



*Tom Moore was a commercial beekeeper before he began his backyard hives.*

*"The world  
needs  
people to  
live with  
nature."*

energetic side while speaking partly because of his personality, but also because he is so excited to talk about his hive. He keeps a smile on his face while talking about his new found friends, his bees, and just seems to be in love with working his one faithful hive.

Tom is nature loving and builds his life around helping it. Tom has love and care for our world, "The world needs people to live with nature." This philosophy has given him a mind set that he has kept for a very long time.

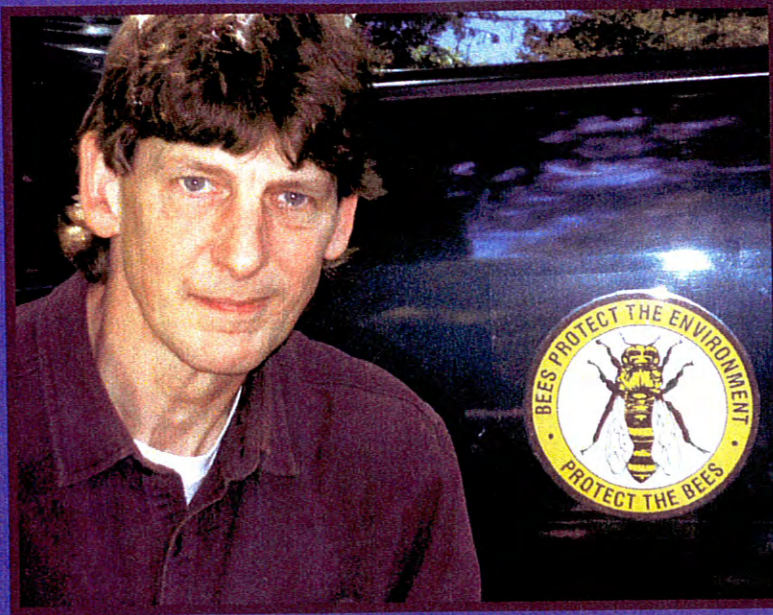
Tom Moore is a former commercial beekeeper, now hobbyist. He left the commercial beekeeping business because he wanted to be more organic in his practice.

He currently has only one hive, which he keeps in his backyard. As a career, he teaches at Cobblestone School. One of his challenges as a beekeeper is he lost a hive to starvation this past winter. One of the things he enjoys most about beekeeping is the free honey



*Only one hive is currently active. Mr. Moore is hoping a swarm will occupy his empty hive soon.*

# Chris Harp



*Chris Harp is a full-time naturalist beekeeper and bee doctor.*

*"There are two ways to learn about bees. One is to listen to people and read books. The other one is to listen to the bees. I prefer to listen to the bees."*

As Chris Harp gently pulled a honey-loaded frame from the body of a trapezoid-shaped hive, a gasp of wonder and awe passed around the circle of onlookers. They were gazing at a tall, 47 year old man working the beehive with what looked like a safari hat perched on his full head of brown hair. In the large backyard of Chris Harp, you see seventeen beehives. Chris has many different species of bees, including Italian and Russian. But the thing that you notice most about Chris's yard is a sign hanging on a tree that says "No Trespassing, Honeybee Yard."

Chris Harp works at the Sustainable Living Resource Center where he educates people about bees and beekeeping. He also manages an organic farm in his backyard. He believes his job is important because he is helping people to understand the beauty of the honeybee and the earth in general.

Chris Harp has many personal opinions about his bees. The motto that we know he lives by is "the bees are not my slaves to make profit, but are the being that gives me food, so I reciprocate." He also believes that drones are not lazy, useless bees, but are Shaman for the hive. As a last remaining message, he quoted Einstein by saying, "no more bees, no more pollination, no more plants, no more animals, no more man."

Chris Harp calls himself a naturalist beekeeper. He not only is environmentally friendly to the bees, he also has his own chicken farm, compost, and doesn't use pesticides. He is a very hard working, dedicated beekeeper. Chris owns seventeen hives in his backyard and manages 250 in other states such as New York, New Jersey, Connecticut, and Vermont.

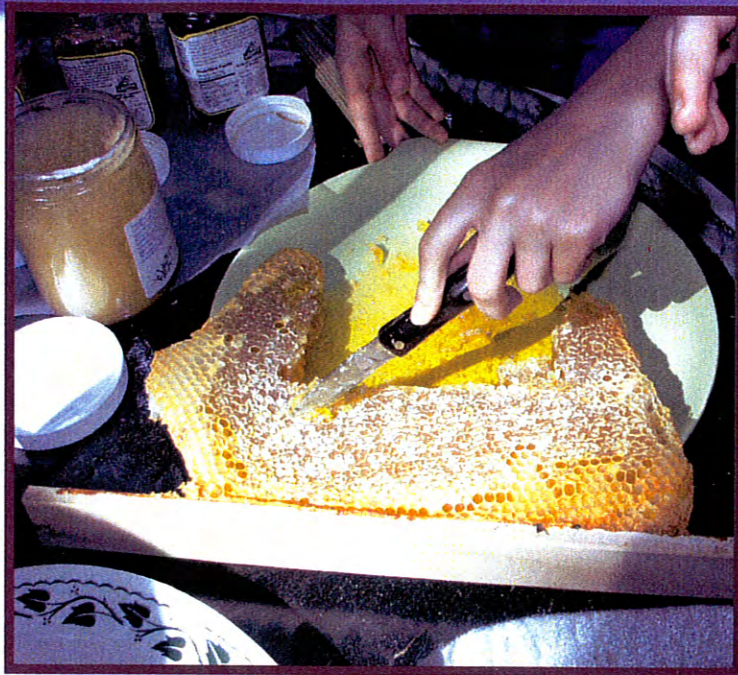


Chris's story about how he got started as a beekeeper is very interesting. He was getting his roof re-done when he discovered thousands of bees in his wall. He called an exterminator, who killed the bees. This is when he decided to start beekeeping. It has now been eighteen long and exciting years and he still continues to love his bees.

Chris calls himself a "bee doctor." He visits other people who have hives but don't want to keep them. Before he takes the hives and leaves, he talks to the owners and tells them what bees really do for us. He often convinces people to keep the bees. But if they are not convinced, Chris takes the bees home with him. Chris Harp also makes home visits to check up on the other hives that people are willing to keep, but still need help with the actual beekeeping. By helping and educating a lot of people about bees, he is increasing the amount of people who want to help.

One very important and interesting thing that Chris does is he catches swarms. He says that 70% of natural swarms don't find a home and die. So, he tries to catch as many swarms as he can and tries to give them a good home. To have a chance at catching a swarm, he uses a drum and creates a beat. This calls the bees to his empty hive. Even though Chris is not able to catch every swarm, he gives the swarms he does catch a great home.

Overall, Chris Harp is a very caring, respectful and out-going person, as well as a successful beekeeper. We should appreciate all of the hard work he does with his bees because he is making a difference in our lives even if we may not notice it.



*Honey is a sweet reward for all of the hard work beekeepers do to make sure their hives are healthy.*



*Chris is always willing to share his knowledge of bees.*

# Grai Rice



*"I approach  
the hive  
with an  
incredible  
sense of love."*

*Grai Rice is a calm and shy person who partners with Chris Harp. They operate the company Honeybee Lives.*

Down the aged and parched driveway, huddled cozily beneath towering pine trees, grass sways lazily in the breeze, as birds tweet and insects are at work. The white New Paltz farmhouse sits surrounded with lilac bushes, potted plants, and herbs galore. Hives are scattered about, but five sit in a neat little row. They tower a few feet off the ground, some taller than the next, like skyscrapers. The hum of activity is in the air. Clumps of bees cling to the front of the hives.

Grai Rice is Chris Harp's assistant as well as four-year partner. She adds comments here and there, and brings her unique talents and compassion to the experience. She is another pair of hands and set of eyes. She notices things that people do not see. Grai is gentle, and loves her bees as much as someone would love their pet cat.

Grai, who used to film at CNN, is helping Chris make a film on tools to use when teaching about bees and beekeeping. She also helps Chris teach classes about beekeeping all year long to children and adults.

Grai says, "I approach the hive with an incredible sense of love." She knows that when she gives love to her bees, they give love back.

Grai Rice is a hobbyist beekeeper, but she also calls herself a naturalist. She works with Chris Harp and together they keep seventeen of their own hives. They have 250 hives that they keep for other people throughout four states. Grai and Chris also share information about bees and beekeeping to people as part of their business, Honeybee Lives.

Grai likes her job with bees because she likes learning and teaching about how bees interact with each other and live in the hive. She also likes the products the bees supply her such as honey, propolis, and beeswax. Although what she likes most is just being with the bees: watching them work, hearing their buzz and seeing how they do things alone and in the bee community. Grai got started beekeeping when she was videotaping a documentary and that is how she met Chris Harp. Since then she has become a beekeeper in her own right.



*You can see the hexagon pattern in the comb honey, fresh from the hive.*



*Grai loves her bees as much as she loves her cat, Arthur.*

# Paul Cappy

Our crew never had the opportunity to meet hive inspector Paul Cappy in person, but we learned a little bit about him over the phone. Paul's motto he lives by is, "Things aren't as bad as they seem, but they are not as good either." This points to his rational view on the bee industry as well as how level-headed he has to be to do his job.

Paul Cappy is the fourth apiculturalist appointed to New York in its entire history. After years as a commercial beekeeper, he moved into this position.



*Here are some basic tools used by beekeepers. They include: a smoker, hive knife, a veil, and a bee frame.*



*Paul Cappy is responsible for the inspection of every beekeeper's hive in New York State.*

Paul Cappy is the New York State Apiculturalist. He is responsible for checking all beehives in New York State for disease. Paul is an upbeat man who loves to talk about his job and what he does. Also, he shared why his job is important and the challenges and rewards of his job. He answered each question thoughtfully and made sure we had enough information about him and his job.

Paul's main reason for checking the beehives is to make sure that the bees don't spread disease to other hives, creating a huge problem that is out of control. His department's goal is to check all of the hobbyist, sideliners, and commercial beekeepers in the state during a three year cycle. He estimates that he inspects about 16,000 hives!

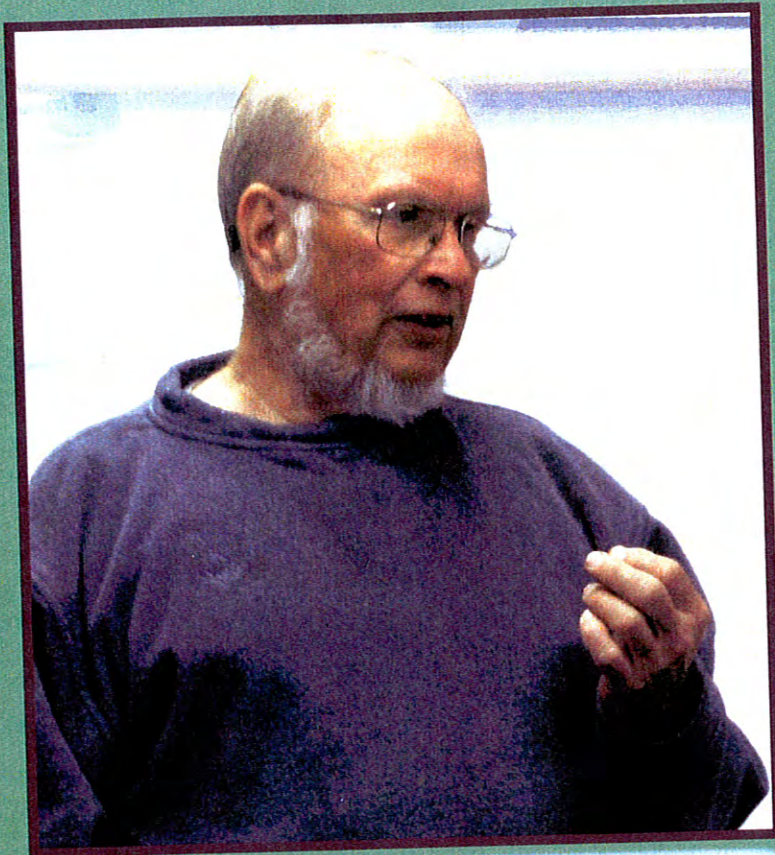
Paul got started with the beekeeping industry in 1966 (when he was twelve) as a Boy Scout. From then on he enjoyed bees. From then on he had the "bee bug." He was even enthusiastic about bees despite getting stung. Paul's job is very important because bees are the primary pollinators. Paul keeps bees and our food clean and safe. His job basically keeps our plants living and bees healthy.

There are a lot of challenges and rewards in the beekeeping industry. Paul has challenges such as choosing qualified people for the job. It's also difficult for workers because they have to have another job from October to about March because bees don't come out of their hives until spring. In addition, he needs to have enough workers to look at all of bee hives. Some rewards of his job are that he has found a decreased rate of AFB (American Foul Brood). One last reward is that people who work at the NYS department of agriculture can give beekeepers accurate information and help maintain a healthy bee culture in our state.

*Before becoming the state Apiarist, Paul Cappy owned over 700 hives and pollinated crops from New York to Florida.*



# Sam Hall



*Sam Hall has a wealth of experience as a beekeeper and specialized breeder of queen bees.*

*"There is no such thing as an organic beekeeper unless you can control everything a bee pollinates in a five mile radius."*

We met Sam Hall in our classroom while interviewing another beekeeper. Mr. Hall seemed very relaxed and able to listen to what we said. He also stayed very calm when we talked to him. As he began to talk and we shared our prior knowledge, Mr. Hall became more interested and enthusiastic about our conversation. Sam Hall's calm and collected persona allows him to work effectively with honeybees.

Sam Hall was born on a farm in a very rural area. He didn't have any fast food restaurants or convenient supermarkets when he was growing up, so he had to live off the food that his family made or that they traded for. His family kept two hives and they would sometimes use the hive for personal enjoyment, by eating the honey and comb for dessert. He had neighbors who lived across the road from him that owned about ten to fifteen hives. He gained most of his beginning beekeeping knowledge from them.

Mr. Hall didn't get back into bees until approximately twenty years ago when he obtained a farm in Gorham. He decided to start up with bees again because he saw there was a lack of honeybee pollination on his farm. Until 1996, Sam Hall was a "bee-haver" where he worked with bees and their behavior.

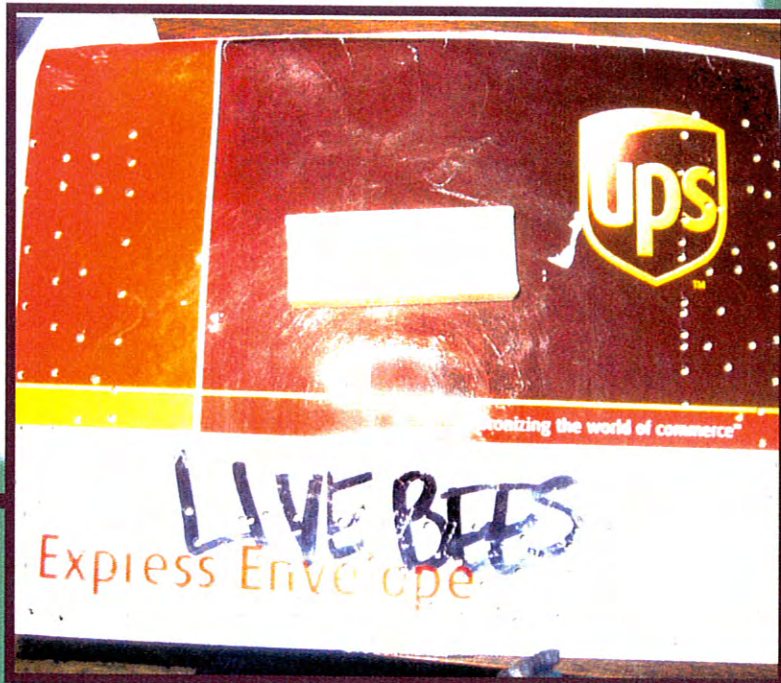
He was forced to get back into beekeeping in 1996 with the arrival of Varroa Mites in New York. Varroa mites infest the colony by punching a hole into each bee. The mites are the size of a bee's "dinner plate." These mites are a major problem for global beekeepers. Going back into beekeeping was necessary for Sam because people who worked with honeybees needed to keep track of their own bees to keep the mite count down.

If queens could give birth to more resistant bees, thousands upon thousands of hives would not die due to Varroa mites. Over the past two years, Sam Hall has been focusing his beekeeping around queen breeding to try to create queens that are able to resist Varroa Mites. Mr. Hall is on the brink of discovering new ways beekeepers will have to treat their bees. He is on the forefront of developing a Varroa immune hive.

Varroa mites are an important part in the CCD struggle. A leading theory is that CCD is more of a "death by a thousand cuts" type of problem. This means that there are many contributing factors to the disappearance of honeybees. This makes Sam Hall's job all the more important to extinguish one of the top bee killers.

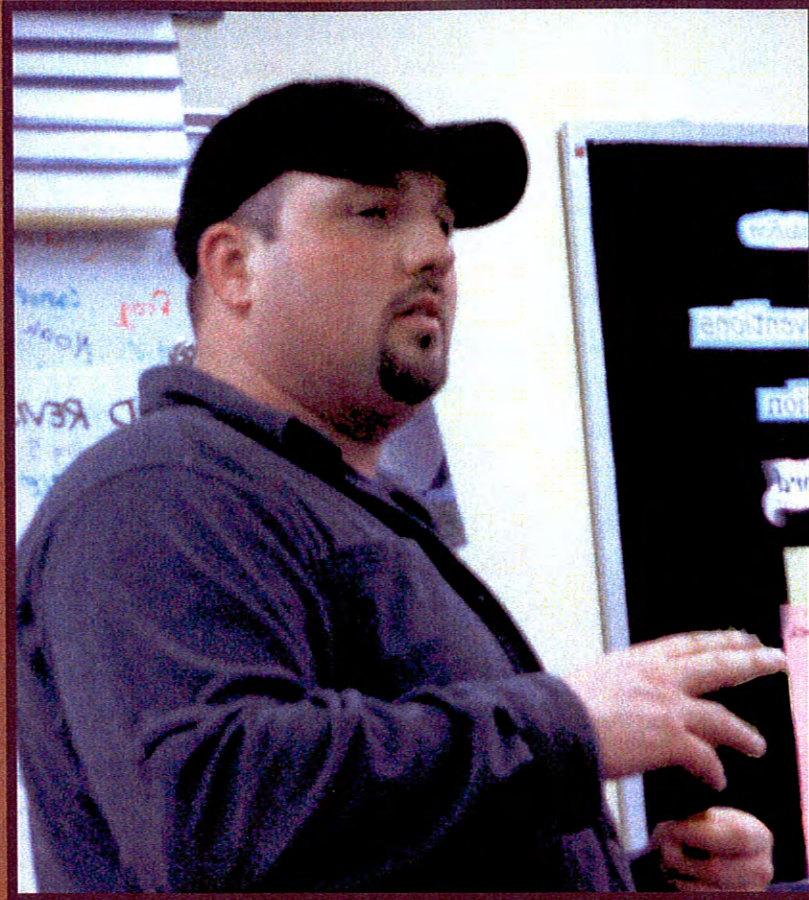
Sam Hall is an organic beekeeper and public educator. He informs the public about the CCD crisis and raises support from local Rochestarians.

Overall, Sam Hall cares very deeply for his bees. He shared with us that honeybees have made him become a gentler person. When he works with his bees he works with them carefully so he won't agitate them. He also doesn't smoke his bees or use pesticides. Clearly, Mr. Hall is a very environmentally friendly beekeeper.



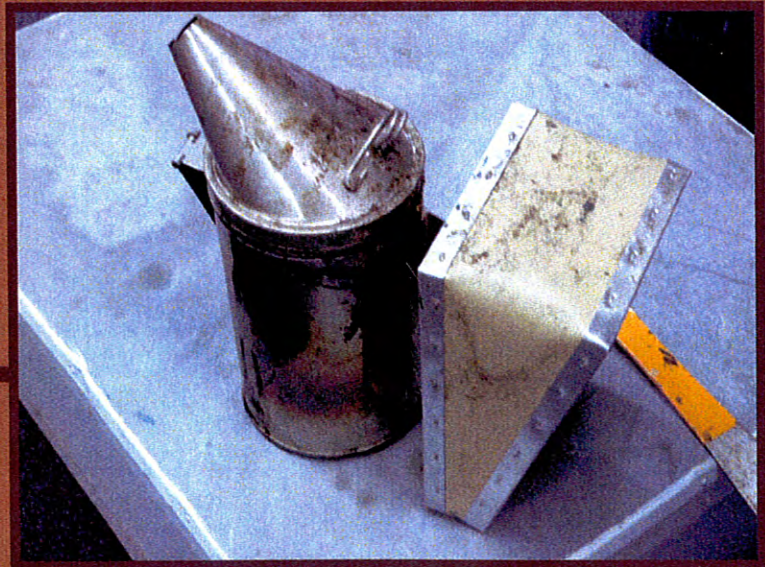
*Beekeepers use the mail to get new queens and her attendant bees.*

# Jason Sackett



*Jason spends most of his time educating the public about the importance of bees.*

*“If you  
let the bees  
be,  
they will  
let you  
be.”*



*The smoker keeps bees calm when beekeepers are working in the hive.*

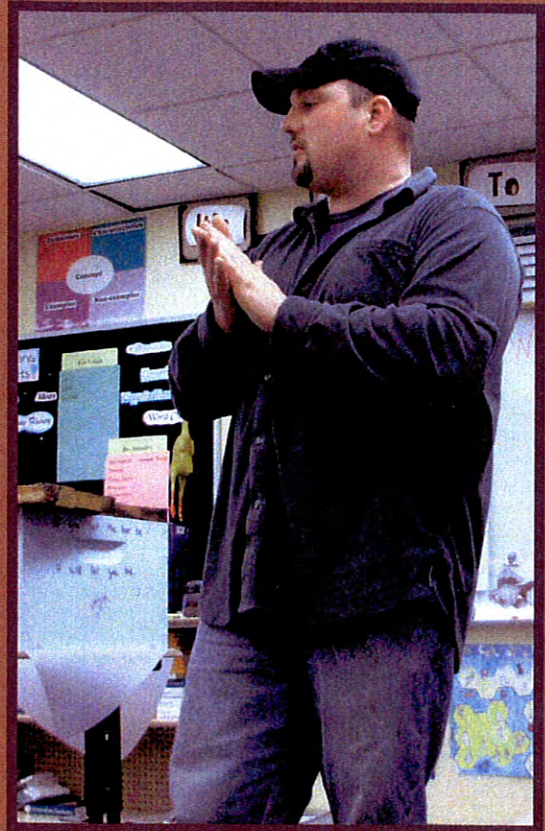


Jason Sackett is a former organic hobbyist beekeeper that now educates the public on “bee friendly” gardens. In his mid thirties, Mr. Sackett is no longer a beekeeper after his hives died. He had several reasons why he did not purchase more bees this year. This was partly because it is expensive to keep bees. However, his decision is mostly due to his belief that it would be unsafe and unfair for the bees if he had to medicate them or use other chemicals to treat them. When he had bees he did not treat them for Varroa Mites. Rather, he let the bees take care of themselves.

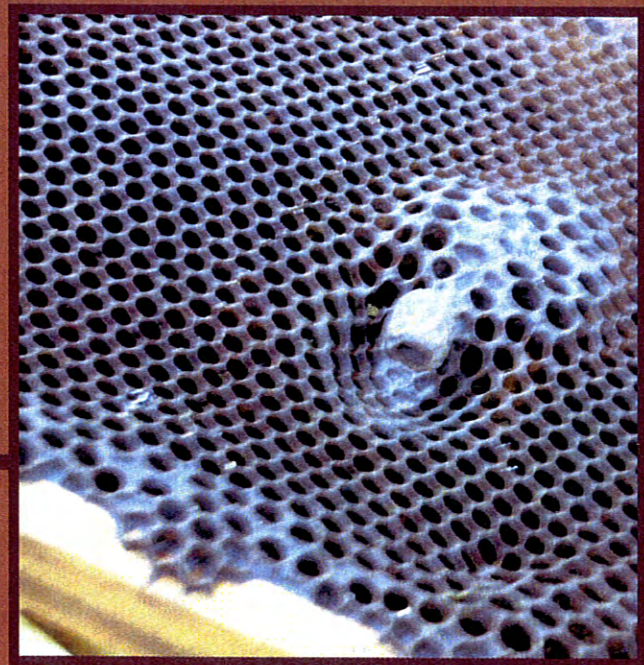
Now Mr. Sackett also owns his own “bee friendly” gardens and gives garden tours. Recently, he spoke to people at the Brighton Public Library about bee habitats and gardens. He spends most of his time teaching people how to create gardens that are good for the bees.

Jason Sackett became interested in bees at an early age by watching his friend’s father keep bees. He shared several stories with us when he visited our classroom. One interesting story he told our class was how he got a call from his friend (the same one who’s father got him into beekeeping) who said, “I need you to drive me to the hospital. I got stung and am puffing up.” Jason could hardly understand him and thought it was a joke. But as all good friends do, he went to check up on his friend. When he arrived, he found him blown up to the size of a blimp! Fortunately, he made it to the hospital in time and his friend was all right.

Mr. Sackett told us this to teach us the importance of being safe around bees and about Epi pens. This story enforced his motto, “If you let the bees be, they will let you be.”



*Jason Sackett was a guest expert on beekeeping. He spoke in our classroom.*



*The worker bees build a cell that is vertical and is larger than the rest. This is called the Queen Cell.*

# Charlie Augrom



*Charlie Augrom presented bee information at the Seneca Park Zoo Environmental Fair.*



*Mr. Augrom almost never uses a veil when working with his bees.*

*“Cucumbers that are not pollinated by honeybees are smaller and sometimes even deformed. These cucumbers usually are turned into pickles.”*

Buzz...He was surrounded by angry swarms of bees as he silently searched his hive for the queen. “Queens often look a lot slimmer, longer, and paler than normal worker bees,” he said. After countless bee stings he finally found her. Workers who were feeding the queen royal jelly surrounded her. “I don’t often have to wear my veil,” he said, “but today they are unusually aggressive.”

Charlie Augrom is a local beekeeper living in Batavia. He is a hobbyist and has very few colonies. As an extremely experienced beekeeper he likes to share his knowledge with kids. For example, he shared with us the fact that cucumbers that are less pollinated by honeybees are smaller and sometimes even deformed. These cucumbers usually are turned into pickles. This is one example of how honeybees are extremely important to the healthy development of fruits and vegetables.

Charlie presented at the World Environmental Fair at the Seneca Park Zoo and worked with pride for his bees, sharing what they do. As he was speaking, he showed how his bees help the environment. He mainly explained how pollination plays an important role in the development of fruits and vegetables.

Charlie talked about the different flavors of honey, and even let us have a sample. He told us that the darker the honey, the stronger the flavor. The flavor of honey also depends on what type of plants the bees pollinate. Honey from hobbyists is generally better than from commercialists because the bees have pollinated a wider variety of plants.

Coming to the World Environmental Fair was an example of how he cares about teaching other people about bees. He was excited to hear that we have been studying honeybees for a year and know how important it is to spread the word about their influence on the local economy. As we got further into the conversation, it was clear that we have the same mission: to share knowledge of honeybees.

Overall, Charlie Augrom is a very private individual who shares more openly about beekeeping when he sees others have a common interest with him. We honor him as an important contributor to our local beekeeping industry.



*Paper wasps are a lot like bees, but are natural predators of the honeybee.*



*In addition to making honey and wax, bees pollinate a variety of fruits and vegetables. Mr. Augrom had a few things on display at the Environmental Fair.*

## *Colony Collapse Disorder*



Beekeepers across the globe are experiencing the same phenomenon. They are calling this CCD or Colony Collapse Disorder. Beekeepers notice that the queen starts laying more eggs in the fall, the workers stop gathering pollen, and then adult bees are abandoning their hive, leaving the brood and honey behind. The abandoned honey remains untouched by other bees and scavengers. Some theories about the causes of CCD include: travel stress, mites, pesticides, viruses, cold weather, fungus, the use of antibiotics, and low quality food. As scientists have dissected the bees, they have found nearly every disease that has affected bees over the last century. This points to a disease infested bee population. Kim Flottam, the former editor of Bee Culture Magazine coined the theory we believe is most plausible. The bees are dying “a death of a thousand cuts.”

There are many things bees do, one of the most important is keeping the economy on its feet. This is evident because the bee industry contributes fifteen billion dollars to the United States economy. The almond crop alone is 100% dependent upon honeybees for pollination. If that is not enough, consider the fact that bees pollinate 1/3 of the food that we eat. Food is one of the economy's greatest and most consistent sources of income and has been for decades (second only to foreign oil). Without bees as pollinators, the cost of food would increase and we would have a very limited diet, the entire food chain would be disrupted, and plants and flowers would not be as abundant. This could be a reality if Colony Collapse Disorder is not addressed in a comprehensive way.

## *The Importance of Bees as Pollinators*



Bees keep our world spinning, they are the reason we can enjoy our delicious fruits and vegetables. As a matter of fact, bees pollinate 33% of our food. But bees don't only pollinate food, but also trees, which produce oxygen. Bees go from flower to flower withdrawing then depositing pollen and that is the process of pollination. Pollination is what keeps the plants alive and able to produce fruits and vegetables.

Commercial beekeepers are one of the main reasons why we have honey, beeswax, and wax products, such as candles. Bees produce honey, wax, and pollinate many of the world's fruits, vegetables, and flowers. Commercial beekeepers move bees to various crops to help the farmer's job. When making wax for a hive bees have to measure how much space they have left to build in. But as you might guess, bees don't have rulers. So they use teamwork by linking legs to measure.

Honey is a natural byproduct of bee existence. The whole process of just getting honey starts with pollination and gathering nectar from flowers. Bees then ingest the nectar to produce food for the hive. The excess honey is taken (sometimes referred to as "rent") by the beekeepers.

Bees have to fly miles and miles just get to one flower. Imagine trying to get to a million! As a result, bees don't only keep fruits and vegetables alive, but they also keep us alive... thank you bees!

## *Our Purpose*



The Seneca Park Zoo is embarking on a new project to teach the people of Madagascar how to be beekeepers to boost and sustain their local economy. To compliment this project, The Genesee Community Charter School interviewed local beekeepers in and around the Rochester area so our local community can be familiar with those who help to boost our own economy. These beekeepers and educators are just a sampling of the many representatives of the bee industry in Western New York. As a result, this book and display boards were created for the Seneca Park Zoo and the Rochester community.

We would like to thank the Seneca Park Zoo for inviting us to explore the bee industry and our local beekeepers for taking the time to share their knowledge with us. The Sixth Grade at the Genesee Community Charter School dedicates this book to the Seneca Park Zoo and our local beekeepers that work tirelessly to give bees a chance.

