



Cove Currents

Greetings from the Executive Director

Nothing says “summer” like a flower bed in full bloom covered with enthusiastic honeybee pollinators. There is something at once fascinating and frightening about these industrious insects.

According to the State of New Jersey Department of Agriculture website, (www.state.nj.us/agriculture/divisions/pi/prog/beeinspection.html) New Jersey is home to 10,000 bee colonies representing a \$2.5 million honeybee industry which contributes to the successful production of nearly \$200 million worth of fruits and vegetables annually. Honeybees live in hives that are established and supported by humans. While bees can live in wild colonies, there are no known wild native bees. Therefore, the role of humans in the maintenance of the honeybee population and in the success of agriculture is critical to both bees and humans. Furthermore, the honeybee population has been under stress and is declining; consequently, “backyard beekeeping” has become an increasingly popular way to support honeybees and the agricultural industry.

In the summer of 2009, with backyard beekeeping in mind, Palmyra resident Dr. Mary DeJoseph contacted Kristina Merola, Cove Naturalist, to inquire about our possible interest in beekeeping at Palmyra Cove Nature Park. Mary, familiar with our mission and the mother of Palmyra High School student, Christine, thought that given our commitment to preservation and education the Cove would be an ideal place to set up and maintain honeybee hives. Christine was also a member of the Environmental Club at PHS.

Mary, Kristina, and I sat down for a meeting. After a thorough discussion we concluded that Palmyra Cove Nature Park and beekeeping would be perfect together. The question was how do we get started? Kristina reached out to Tim Schular, New Jersey State Apiarist, inviting him to come to the Cove, speak to us, and present his program on beekeeping. Mary and Kristina then took a three-day course for aspiring beekeepers, at the ECO Complex in Bordentown, NJ, facilitated by the NJ Beekeepers’ Association.

Meanwhile, Mary spoke with Jean Barber, Principal of Charles Street School (CSS) in Palmyra, questioning her interest in getting involved in the project. Jean, in turn reached out to CSS science teacher Steve Graff to ask if he and his students would be interested in taking on this new venture. Steve was also the academic advisor to the Environmental Club and to the Young Explorers’ Club.

I looked forward to Steve taking charge of this new project

and, along with his students, making the experience a strong educational one. We were asking Steve to make a significant commitment of time and energy. Bees, like all living things need care and attention, even under circumstances when one would prefer to be doing something else. I had known Steve for several years and could not think of a better person for the job.

With the enthusiasm of a first-rate educator, Steve agreed to take on the project and PCNP’s foray into beekeeping was off to an exciting start. Steve and Christine DeJoseph then participated in the same beekeeping course that Mary and Kristina had completed. We were all in for a new learning experience that was, at times, accompanied by frustration, but, more often, by joy.

An important early decision was where to place the hives. The location of the hives would play a role in the ultimate success of the project. We needed the location to be convenient enough for those maintaining the hives but secluded enough so that they would not be disturbed by constant foot or vehicular traffic. We chose a spot in a grassy area behind the Burlington County Bridge Commission’s Maintenance Building. The hives would be placed on cinder blocks close to a tree line and a foot path that leads to the parking lot of the Environmental Discovery Center.

We proceeded to purchase beekeeping suits, hats, and starter equipment including, boxes, frames, a smoker, bees, and queens. Steve’s sixth grade gifted and talented students assembled and painted the hive boxes. In April, 2011, with the help of Master Beekeeper Michael Long, the adventure began in earnest when the hives were assembled and the bees were introduced.

From the beginning, education would be a focal point of the beekeeping project which included Steve’s students and several of their parents. Steve himself admits to having had a steep learning curve which presented both challenges and rewards.

According to Steve, each season of the year requires its own list of tasks to keep the hive healthy and progressing. In early spring the hive needs to be fed a sugary syrup fortified with commercially prepared essential oils. Feeding continues until bees bring in enough pollen and nectar to feed themselves. In the summer, our beekeepers take honey off of the frames, check the health of the hive, and feed again, if necessary, to get the hive ready for winter. Seventy pounds of honey remains in the hive to support the bees throughout the winter. In early fall, the hives are checked for pests such as beetle larvae, and Varroa mites; both are treated with a natural pesticide. In the winter, without disturbing the hive, the entrance is examined for blockage caused by debris, dead bees, or snow. Also, throughout the win-



ter the beekeeper must make sure that there is adequate food present, within the hive box, to sustain the hive.

During the year and a half that bees have been in residence at Palmyra Cove Nature Park they have presented both challenges and rewards. Queens died and new queens had to be introduced into one of the hives, pests were present and had to be dealt with, and one of the hives died. Steve learned that, "Beekeeping is very challenging, you have to be ready for setbacks." However, we now have a total of three active hives and over the Christmas Holiday, 2011, Steve and his students were able to raise funds to keep the project going by jarring and selling the honey from their hives.

Steve says, "having a group of students, parents, and members of the community invested in the project and being able to pass on the knowledge I have learned to young people so that they have the skills for beekeeping," is the greatest reward for his efforts on behalf of the beekeeping project at PCNP. Alex Kaiser, an eighth grader, has been working on the project from the beginning. According to Alex, "it (beekeeping) is a very different experience." "There isn't a day that I go to the hive that I don't learn something new," Alex told me enthusiastically. Ultimately, Steve would like to grow the project "so that more people become beekeepers and we develop a community beekeeping cooperative."

So, the next time you gaze at a garden filled with industrious honeybees at work, remember that there are many industrious humans keeping them alive and well. And, some of them are right here at Palmyra Cove Nature Park.

Clara Ruvolo, *Executive Director*



Earth Observations from Space

The world's first weather satellite, TIROS-1, was launched on April 1, 1960. It provided more than 22,000 pictures of the Earth from orbit. This new way of looking at Earth revolutionized the science of storm prediction. Some twenty-five years later at nearby West Chester University, PA, a grass roots effort began. A small K-12 community was the first to build and utilize imagery from receiving stations that would provide direct readout data from NOAA's polar orbiting satellites for use in the classroom. Within the same time frame, personal computers evolved, shortly to be followed by the Internet in the mid 1990's, and earth observing satellites were designed and launched into orbit. The role of the use of technology in education invaded America's classrooms. From that point on teachers and students could access a wealth of real time and archived remote sensing datasets from organizations such as NASA and NOAA. As we moved into the 21st century, the introduction of geospatial technologies such as Geographical Information Systems (GIS) and Global Positioning Systems (GPS) allowed geospatial information and data to be accurately accessed to provide decision-makers with information and visualizations in order to make sometimes difficult decisions in specific locations. This marks the beginning of a new type of laboratory, a Remote Sensing Laboratory.

Students now have the opportunity to make observations and measurements on Planet Earth and to enhance their data sets through the use of space-born imagery. They can begin to observe Planet Earth from both outside and inside the classroom; from the earth (ground) and from a space perspective. An educational model can therefore be used, i.e. SPACE to EARTH: EARTH to SPACE (SEES Model). Building on a knowledge base and skill set of sometimes very detailed field observations, remotely sensed data and imagery can be incorporated into their studies. The advantage of using remotely sensed data and imagery is that much can be learned about geographic locations, many of which cannot be easily accessed. For the first time in human history, the entire surface of Planet Earth can be viewed, analyzed, and interpreted. Scientists, educators, and students have, therefore, the capability of looking at the planet as a total global system, a sum of integrated systems, physically interacting in a constantly changing fluid and dynamic state. Furthermore, using a

geospatial reference point, the ground and space observations and measurements can be aligned through the use of a Global Positioning System (GPS), which in turn can be applied to a Geographic Information System (GIS), which becomes the language and basis for geospatial thinking.

Even though the computer and space borne technological advancements in the United States provided unprecedented opportunities in education in the 1980's and 1990's, our nation now faces a serious shortage of students being prepared for work in Science, Technology, Engineering, and Math (STEM) related fields. As we face future natural and human generated hazards and disasters, the Geosciences have a critical role to play in public awareness and safety. The need for information and data in the Geosciences has never been as evident as in the recent past with earthquakes, tsunamis, volcanic ash, wildfires, hurricanes, tornadoes, drought, flash floods and the Gulf oil spill, not to mention ongoing issues such as climate change, and land-use issues that will require great efforts to be made in sustainability. These "earth related" issues present serious challenges and impacts on our nation's economy and national security and broaden the scope of environmental interpretation to include remote sensing and satellite imagery.

Therefore the establishment of a subset of the national STEM Education policy discussions, GeoSTEM, needs to be part of the emerging policy discussions at the national, state, and local levels. GeoSTEM addresses key concepts in both STEM and the Next Generation Science Standards. GeoSTEM has achieved a "tipping point", i.e. the point of what and how we teach these interdisciplinary topics is about to change in dramatic ways. The Institute for Earth Observations, the creation of the GeoSTEM Master Teachers Corp, and the establishment of the "clubhouse" at PCNP, have emerged in response to these concepts, discussions, and lessons. The Institute for Earth Observations is a place where these discussions and learning can occur and the practical applications can not only be developed, but also implemented in the classroom.

John D. Moore, *Director for Geoscience STEM Education*



Famous and Infamous Birders

Are you a closet birder? Are you afraid to reveal your hobby to family and friends because their image of a birder is Miss Jane Hathaway from the Beverly Hillbillies? To help you gain self confidence, I have compiled a short list of some famous birders you can be proud to be associated with and one you may want to keep secret.

Do you want to hobnob with royalty? Prince Phillip of the United Kingdom is an avid birder and photographer. In 1962 he published a photo collection "Birds from Britannia".

Maybe the world of entertainment is your thing. Actresses Darryl Hannah and Jane Alexander are birders as is actor and comedian Steve Martin.

Are you a hardcore rocker? Then you will be glad to know that Sir Paul McCartney, Rolling Stone Charlie Watts and Rush drummer Neil Peart are all birders and they don't care who knows.

Are you into politics? American Presidents Teddy Roosevelt and Jimmy Carter were/are birders. Carter and his wife Rosalyn are reported to have over 1,500 birds on their combined life list. Roosevelt, hero of the battle of San Juan Hill, loved birds so much he established 51 federal preserves for their protection.

Do you like to read? Sir Ian Fleming, author and WWII intelligence agent was a dedicated

birder. He took the name for his most famous character from a birding book in his collection, "Birds of the West Indies" by the American ornithologist James Bond. Sir Ian and the real James Bond would become good friends in later years. Mystery writer Agatha Christie was likewise a birdwatcher.

Up to now you are in good company. This last name you may want to keep under your hat. You won't find this person on a list of famous birders. I came across the information while researching a different subject. Nathan Leopold the infamous "thrill killer" of the notorious Leopold and Loeb case was a birdwatcher. He even tried to use birding as an alibi. When the police asked him why his glasses were found near his victim's body, he claimed he had lost his spectacles while birding in the area. The alibi didn't hold up and he spent the next 33 years in prison. Upon his release from jail, Leopold moved to Puerto Rico, where by all accounts he was a model citizen. He resumed birding and published "A Checklist of Birds of Puerto Rico and the Virgin Islands."

So there you have my brief list. I hope it encourages you to enjoy your hobby out in the open. You can now point proudly to a society of distinguished fellow travelers. You don't have to mention Nathan Leopold.

Clyde Croasdale, Guest Contributor



Education Corner

Educational Activities: Our spring season concluded on June 14 after hosting three thousand plus students. Summer visits started on June 26 and, by the middle of August, we had more than five hundred children participate in our summer programs. Summer visitors hail from a variety of venues, including camps, schools, recreation centers, and day care centers. Compared to the spring, summer groups are smaller in size and usually stay for two hours in the morning. We were fortunate to have an additional visit from Liberty Lake Day Camp. They brought more than 50 volunteers to help clean up our shoreline. They were here into the afternoon and cleaned up trash along one mile of riverbank. We have an annual fall and spring river cleanup, but this was an unexpected bonus. Trash in the river is an ongoing problem, and we appreciate the time and effort given by the Liberty Lake crew.

Summer Staff: To help with our summer programs, the Burlington County Bridge Commission employs college students to work as interns at the Cove. This summer we were fortunate to have two experienced returnees. Caroline Mackie and Devin Jeffers were back at the Cove for a third year. They were able to step in



quickly and lead some of our activities with schools and then transition into our summer programs. We also had a new intern, Christiana Fattorini, a sophomore at Gettysburg College. Christiana has proven to be a quick learner and is very comfortable working with children. She has taken on the same duties and responsibilities as her veteran colleagues. Our interns are a vital part of our summer workforce and many are with us for several years. This is the final summer for Caroline and Devin since both will be graduating from Widener University in the spring of 2013. Caroline will pursue a career in elementary education while Devin looks forward to entering the field of nursing. We appreciate their years of excellent service to Palmyra Cove Nature Park.

Around the Park: We have had some interesting sightings in the park this summer. Red foxes are more numerous than the summer of 2011. The kits (babies) were spotted near Redwing Blackbird Trail this past spring and several foxes have been seen near Saw-Whet Trail in recent weeks. In July, the same bald eagle was seen four times in a two-week span. While bald eagles do not nest in the park, they often forage for food along the river and



around our ponds. Beavers, wild turkeys, frogs, toads, snakes and fawns are commonly seen in the summer months. Peregrine falcons can be seen on the monitor in our center, and, if a little lucky, you may catch them hunting over the river. The best wildlife viewing times are early in the morning and

in the evening just before sundown.

Who is Amelie Harris? This fall, you will have the opportunity to learn about Amelie Harris. Amelie emailed us last winter describing her work with bald eagles. She expressed a desire to share her experiences with the general public. I suggested that Palmyra Cove would be interested in hosting some type of program focusing on the comeback of the bald eagle in New Jersey. With the very capable assistance of Barbara Farnsworth, a Cove staffer, we were able to create a presentation that illustrates her efforts to bring back the eagle. Palmyra Cove will host her presentation, free of charge, on Thursday, November 7, 7 pm. For more information refer to our website at www.palmyracove.org.

Edward Sanderson, *Director, Environmental Education*



Naturalist Notes

There are many warnings about the large number of bugs around after a mild winter. However, with the pest species that are plentiful, like mosquitoes and biting flies, we are lucky to have a plethora of butterflies this year. These beautiful insects can be observed flying from early spring through late autumn, and even on warmer days in the winter. Anyone visiting the park in late June would have been shocked at how the Red Admiral caterpillars decimated the Stinging Nettle plants: then later in the summer, the adult butterflies swarmed along Fox Run and Honeysuckle Trails.

Palmyra Cove Nature Park is home to over 40 butterfly species due to the number of host plants growing in the park as well as the nectar plants available to the adults. A host plant is a special plant which certain caterpillars can eat. Some species will only eat one kind of plant: Monarch caterpillars will only eat milkweed leaves. Other butterfly species are less specific and can eat a variety of plants: Eastern Tiger Swallowtail caterpillars eat leaves of Eastern Cottonwood, Tulip Poplar, Wild Cherry, and others.

How do the caterpillars find the correct leaves to eat? The job of getting the caterpillars to their host plant falls on the mother butterfly. She finds the correct plant on which to lay her eggs. She can lay up to a few hundred eggs, but only puts a couple on each host plant leaf. The caterpillars hatch from the eggs and start eating. After the caterpillar grows, it will go through a metamorphosis, or big change. It hangs upside-down and sheds its skin, forming the chrysalis, or pupa, stage in the lifecycle. A butterfly chrysalis is different from a cocoon. A

cocoon is a pupa surrounded by a woven house made up of leaves and silk. The chrysalis is the outer skin of the butterfly. Inside this hardened skin, the internal structures of the caterpillar liquefy and change: the chewing mouthparts of the caterpillar change to a siphoning tube; the prolegs used to keep the caterpillar attached to a leaf are absorbed into the abdomen; wings and the mechanisms to move them form in the thorax. When the butterfly is fully formed, the chrysalis splits along a weakened seam. The new butterfly climbs out, hanging upside-down to pump liquid into the veins of its wings to dry and straighten them and zips together the two halves of the siphoning tube to be able to drink. The adult butterflies must now find a mate and lay eggs of their own.

Most butterflies drink nectar from flowers. Verbena, coneflowers, milkweeds, and Phlox are a small example of butterfly-attracting nectar plants. In early September, author Pat Sutton ran a wonderful presentation on "How to Create a Butterfly and Hummingbird Garden". Also, the topic for September's Family Hike was "Butterflies of Palmyra Cove" and all ages were invited to catch butterflies and look for caterpillars. Speaking of caterpillars, our Cove Caterpillar Preschool Program, open to children ages two through five, begins the week of September 10. Please look to our website for more information and upcoming events. Reservations are required for all of our programs, so please call 856-829-1900 x 267 or e-mail kmerola@bcbridges.org to register.

Kristina Merola, *Naturalist*



Unexpected Pleasures

On the weekends one of my favorite things to do is walk my little dog “Molly.” In my opinion, dog walking is one of life’s simple pleasures that is highly underrated. I frequently change the route that we travel, allowing us to view many different neighborhoods and their landscapes or gardens. I am always amazed at the unique gardens that homeowners create: what was once bland space becomes their personal expression of beauty.

I have seen butterfly gardens, container gardens, vertical gardens, herb and vegetable gardens. One of my friends has a meditation garden which incorporates a rock garden. Another has a hosta garden. The whimsical garden with pixies and gnomes is probably the most enchanting, and a personal favorite! I have noticed that garden gnomes have become extremely popular. I think displaying a garden gnome is an expression of the quirky and playful side all human beings possess. I say, Celebrate it !



A garden gnome is a figurine of a small humanoid creature, usually wearing a pointy hat, produced for the purpose of ornamentation and protection from evil sorcery, typical of gardens and lawns. These figurines originated in 19th century Germany, where they became known as *Gartenzwerg*, literally “garden dwarf.” In the second half of the 1800’s, German sculptor and potter

Phillip Griebel started a business molding ceramic into life-like busts of animals. Inspired by the gnome myths of his home in Thuringia, he began fashioning small pointy-hatted ceramic gnomes for gardens. Nowadays, garden gnomes can be found in a wide variety of attitudes and poses.

The common garden gnome’s adorable tackiness and extreme portability has also inspired the popular prank, gnome-napping. The premise is simple: A neighborhood garden gnome is stolen and sent on adventures. The gnome-nappers usually photograph the gnome’s exploits along the way and then return the gnome to its owners with photos. This prank may sound familiar due to the popularity of the film *Amelie* released in 2001. The film’s heroine inspires her quiet father to travel by stealing his gnome and sending him on trips with a flight attendant friend, and the Travelocity Roaming Gnome.



According to urban legend, the first documented case of gnome-napping took place in the mid-1980’s, when an Australian family’s gnome was taken from their front yard. A few days later, the family received a postcard from the gnome, claiming he was vacationing in Queensland. He returned two weeks after he went missing, sporting a wicked tan (actually a coating of brown shoe polish.)

I have mentioned the topic of fairies, gnomes, and pixies to my friends when referring to this article. They told me about their much older relatives who lived abroad, and believed in the wee folk. Their relatives would leave honey and milk out every night in hopes of receiving blessings. My research revealed very similar stories. The native Indians in America often referred to little people that existed in many of their legends as well.

Those of you who spend your creativity, hard work, time and money on your gardens, “Thank You.” It does not go unnoticed!

Kim & Molly Addiego

Kim Addiego, Cove Assistant



Upcoming Events

Registration is required to participate in Palmyra Cove Nature Park programs.

For more information please contact Kristina Merola at (856) 829-1900 x 267 or kmerola@bcbridges.org.

September 23	8:00 a.m. – 3:00 p.m.	Apraxia Walk	All Ages
September 24	10:00 a.m. – 11:00 a.m.	Cove Caterpillars preschool program	2-5 years with adult
September 24	1:00 p.m. – 2:00 p.m.	Cove Caterpillars preschool program	2-5 years with adult
September 25	10:00 a.m. – 11:00 a.m.	Cove Caterpillars preschool program	2-5 years with adult
October 1	10:00 a.m. – 11:00 a.m.	Cove Caterpillars preschool program	2-5 years with adult
October 1	1:00 p.m. – 2:00 p.m.	Cove Caterpillars preschool program	2-5 years with adult
October 2	10:00 a.m. – 11:00 a.m.	Cove Caterpillars preschool program	2-5 years with adult
October 6	9:00 a.m. – 11:00 a.m.	Family Hike	All Ages
October 6	1:00 p.m. – 5:00 p.m.	Oktoberfest Fundraiser	All Ages
October 8	9:00 a.m. – 4:00 p.m.	EDC Closed for Columbus Day	
October 8	10:00 a.m. – 11:00 a.m.	Cove Caterpillars preschool program	2-5 years with adult
October 8	1:00 p.m. – 2:00 p.m.	Cove Caterpillars preschool program	2-5 years with adult
October 9	10:00 a.m. – 11:00 a.m.	Cove Caterpillars preschool program	2-5 years with adult
October 15	10:00 a.m. – 11:00 a.m.	Cove Caterpillars preschool program	2-5 years with adult
October 15	1:00 p.m. – 2:00 p.m.	Cove Caterpillars preschool program	2-5 years with adult
October 16	10:00 a.m. – 11:00 a.m.	Cove Caterpillars preschool program	2-5 years with adult
October 20	9:00 a.m. – 12:00 noon	Beginning Birding for Adults	Adults only
October 22	10:00 a.m. – 11:00 a.m.	Cove Caterpillars preschool program	2-5 years with adult
October 22	1:00 p.m. – 2:00 p.m.	Cove Caterpillars preschool program	2-5 years with adult
October 23	10:00 a.m. – 11:00 a.m.	Cove Caterpillars preschool program	2-5 years with adult
October 29	10:00 a.m. – 11:00 a.m.	Cove Caterpillars preschool program	2-5 years with adult
October 29	1:00 p.m. – 2:00 p.m.	Cove Caterpillars preschool program	2-5 years with adult
October 30	10:00 a.m. – 11:00 a.m.	Cove Caterpillars preschool program	2-5 years with adult
November 3	9:00 a.m. – 11:00 a.m.	Family Hike	All Ages



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