



COVE CURRENTS

Greetings from the Executive Director

I'm having a bit of a problem this morning, a crisp, clear day in February, getting started on my article for Cove Currents, Winter Issue, 2013. I wish you were here to help me. On August 1, 2013 we will celebrate the Tenth Anniversary of the Grand Opening of the Environmental Discovery Center and I want to write 1,000 words about the past ten years at Palmyra Cove Nature Park.

So much has happened at PCNP in the past ten years that to write 1,000 words about it can't be that difficult, can it? Well, yes it can because the first thing to do is to sort it all out and then decide where to begin and what to include. That's where you would come in. If I could have all of you right here in the office with me then I could ask for your fondest (or not so fond) memories of events, programs, and "happenings" at PCNP over the past ten years. Each of you, because you are our loyal members, visitors, and friends would have a story to tell and presto! One thousand words in no time.

We have spent a decade looking toward and planning for the future; however, there are times when it is important to reflect on the past. It seems to me that our Tenth Anniversary Year is a perfect time to do just that.

I'm sure that some of you were with us for the grand opening ceremony on that hot August Friday evening in '03. The Environmental Discovery Center was brand new as were our interactive exhibits. We were proud of our facilities. Dignitaries from state, county, and municipal government were among the well-wishers, as were several of the individuals who had helped to move the idea of a nature park on the Delaware to the reality of Palmyra Cove Nature Park.

In my remarks that evening I said, "...it is interesting to note how ordinary people can accomplish extraordinary things when they take an interest in the world around them and are able to infuse others with a passion to buy into their dreams and to make those dreams a reality." We understood then as we do even more so now that, "In a world where we are becoming increasingly aware of the interconnectedness of man and nature, the importance of facilities such as Palmyra Cove Nature Park and the Environmental Discovery Center cannot be overestimated. They provide an environment perfectly suited to the study of this interconnectedness and to the practice of careful observation, data collection, and critical thinking." I invited everyone in the audience "...to come along with us on this exciting journey."

If you are among those who have experienced our envi-

ronmental education field trips over the past ten years then you know how they have grown since those early years when Ed Sanderson, Director of Education, PCNP, was writing the lessons, teaching the teachers, and teaching the students as well. Our teaching staff has evolved from a small group of volunteer teachers to a large cadre of teachers paid by the hour to give visiting students a professional and memorable experience in small group, hands-on experiential learning. It is interesting to me that in this day of high tech information saturation we have found "word of mouth" to be the best form of advertisement for Palmyra Cove educational programming. The teachers who bring their students to PCNP appreciate not only the learning that takes place on a Palmyra Cove field trip but also, the efficiency with which the programs are run. In 2003 we had fewer than 200 students participate in our environmental education field trips; in 2012 that number reached 3,500.

Perhaps you are a parent, a grandparent, or a nanny who became familiar with the Cove through Kristina Merola's Cove Caterpillars or her Nature Craft and Story Time. I have met many of you. When Kristina held her first session of Cove Caterpillars in the fall of 2006, she had a class of four children; in the fall of 2012 she had a class of 64 children, approximately 21 children per session for three sessions per week. Kristina will once again run a two-week day camp at the Cove this summer, but this year children ages 5 - 7 are invited to join us.

I don't know how many of you have met John Moore, a former Albert Einstein Distinguished Fellow at the National Science Foundation in Washington, DC. John joined the staff at PCNP as Director for Geoscience/STEM Education, in December, 2011. I'm sure you have read his columns in *Cove Currents*. John is teaching GLOBE Teacher Training Workshops and American Meteorological Society (AMS) DataStream Courses to pre-college teachers in the region. He is also developing a Master Teacher Corps and the Institute for Earth Observations at Palmyra Cove.

While our primary emphasis over the past ten years has been on education, we have worked hard to promote PCNP and the river shoreline as a recreation destination. Bird migration seasons have been very busy with the coming and going of both birds and birders. This winter's special visitor, the Rufous/Allen's Hummingbird (please see Kristina's article in this issue of *Cove Currents*) attracted not only birders but



also photographers. Spring, summer, and fall have brought kyackers, fishermen, and hikers to the park; winter, when the weather cooperates, has brought us cross-country skiers. Palmyra Cove Nature Park has become many things to many people, so it was not surprising that in 2007 when we feared we would lose treasured acreage from our 250-acre Nature Park, bird sanctuary, wildlife preserve, and outdoor classroom, many of you came to help “Save the Cove.”

You may remember that in the winter of 2007, the NJ Department of Environmental Protection (DEP), consistent with a 1998 agreement with the Burlington County Bridge

Commission and in response to the US Army Corps of Engineers’ request for a permit to dredge in the lower Delaware and to deposit material into a dredge disposal site in Palmyra Cove Nature Park, intended to allow the Corps to clear-cut at least an additional 50 acres of forested land to add to an established 22.7-acre disposal site. The Corps wanted to create at least a 72.7-acre site in the Park for deposit of dredge material. You came to our defense with a public campaign to preserve

the park. Ultimately, in the summer of ’07, the NJDEP Commissioner at the time, Lisa Jackson, crafted a compromise which prevented the Corps from clear-cutting any additional acreage to expand its 22.7-acre dredge disposal site. At the same time, according to the Commissioner, the Cove would be responsible for allowing the Corps to prepare the site, dredge the lower Delaware, and deposit the material into the site without further interference from the Cove and its supporters. It was an excellent compromise.

Over the past five years this disposal site has received material, has had material removed for beneficial reuse, and has received material again. Palmyra Cove Nature Park staff has a good working relationship with both the NJDEP and the Corps. Both organizations have been sensitive and accommodating to our needs as an education destination and as a public park.

As we move into our next decade, we will continue to provide the excellent programming you have come to expect and appreciate from the staff at PCNP. At the same time, as an Informal Science Center we will develop and offer educational programs that reflect the most up-to-date pedagogical thinking in the world of science education.

Thank you for your help in preparing this article. I couldn’t have done it without you. Visit often, we’ll be looking for you.

Clara Ruvolo, *Executive Director*



Naturalist Notes

Winters at Palmyra Cove used to be so quiet with everyone preparing for our big spring, summer, and fall seasons. Missing the noise and action of the other seasons, three years ago I decided to start a new winter program called Nature Craft and Story Time, with the focus on books about nature, corresponding games, and crafts. Well, one class a week turned into two, add in a few weekend walks, owl prowls (see Ed Sanderson’s article), and unusual bird sightings and you have the recipe for one busy season!

Nature Craft and Story Time went wonderfully this year. We had a great turnout each day of the eight weeks of class and I was really happy with how the children responded to the books, games, and crafts. The preschoolers did an awesome job - thank you, everyone!

Our weekend hikers have enjoyed finding many bird species this season, including the rare Rufous/Allen’s Hummingbird (see article), Great Horned Owls, Red-shouldered

Hawks, Buffleheads, Common Mergansers, American Wigeons, Canvasback, Greater and Lesser Scaup, Ring-necked Ducks, Hooded Mergansers, American Coot, Pied-billed Grebes, and Winter Wrens, as well as other winter residents. For a more complete list, feel free to visit the Sightings Database in our Environmental Discovery Center.

Now it is time to prepare for the Cove Caterpillar preschool program, which starts on March 11. The schedule for the 10-week season is ready and I am very excited to get started. A few of the fun things we will be trying include catching frogs and tadpoles in our wetlands, digging through fallen logs for insects, and searching for snails in our forests. Hope everyone is ready for a great season...find your collecting bag and don’t forget your boots.

Kristina Merola, *Naturalist*



Focus on ... Rufous/Allen's Hummingbird, *Selasphorus* spp.

Whether it is a Rufous Hummingbird or an Allen's Hummingbird, we are still not sure, but this winter, Palmyra Cove had a rare visitor - a hummingbird that normally breeds west of the Rocky Mountains. In the fall these hummingbirds usually migrate to Mexico, but a few migrate elsewhere - one immature female to Palmyra Cove. She was first observed in November feeding along Park Drive in our Hummingbird Garden. Thanks to our volunteer gardeners, headed by Ward Daisey, there were still a few desert sage and tropical milkweed plants in bloom. When she was found, a hummingbird feeder was put out by the gardens. After she had been observed for a couple of weeks, more feeders were put out, this time around the building. The building site was chosen for the convenience of changing the feeders if/when they froze and for the shelter from the wind off the river. A bonus for the birders, the new feeding location offered a great viewing spot of the rare species from a sheltered location.

In December, a number of cold fronts moved in, so a heat lamp was placed inches away from one of the feeders. The heat lamp kept the feeder from freezing even on the coldest nights. To help her keep her body temperature up, the sugar water solution was changed from the normal concentration of one part sugar to four parts water, to a concentration of 1:2. Every morning, including weekends and holidays, the feeders were checked for freezing and were exchanged with extras when needed.

After one of the longer cold spells broke, an attempt at banding was made. Bob Yunick, a hummingbird bander from New York, came down to band January 29. Though she flew

around the trap, sat next to the trap, and even perched on a shrub next to Bob holding the release to the trap, she would not go into the trap, and after two and a half hours, Bob had to call it quits...one of the only birds he ever tried to band without success. She's a feisty one! So, though chances are higher that she is a Rufous Hummingbird (*Selasphorus rufus*), we still do not know for sure which species she is. Female Rufous and Allen's Hummingbirds are nearly identical and the only way to get a true identification is by measuring the tail feathers and bill length relative to body length.

One thing is for sure: whether Rufous or Allen's, she has had many admirers over the past several months. She has livened up what can be a lull in birding around the park and has helped introduce the park to a number of birders who have not been here before. For our part, we've done everything we could to help her make it through the winter. I just hope she can get enough fuel in the spring to make it back to her breeding grounds, thousands of miles west and back over the Rocky Mountains.



Photo by Barry Cranmer

Kristina Merola, *Naturalist*



Education Corner

Ten Years at Palmyra Cove: February marked the beginning of my tenth year at Palmyra Cove Nature Park. Initially, there was no curriculum or written lessons for our educational programs. Fewer than 200 students visited by the end of 2003 (excluding the Cinnamon Water Festival), and we had a handful of volunteer teachers. One of the original volunteers was Al Shinn, who presently leads our seining activity.

Realizing that a volunteer teacher program was not workable, we switched to paying part-time teachers and a requirement that all teachers go through a training process. A curriculum was developed that emphasized small-group activities, with a student-teacher ratio of 10:1. Hands-on lessons were created to be used at specific sites in the park. We now have more than 3,500 students visit Palmyra Cove each year and have a staff of 18 part-time teachers.

Winter Activities: Our major wintertime activities have been owl prowls (night hikes to see owls) in December, January, and February. The highlight was the January 24th program. We invited Cedar Run Wildlife Refuge to do a presentation using live owls. Sixty-five people attended and many also hiked in the park looking for owls in the wild. Two groups did see an owl, and several groups spotted turkeys roosting in trees and beavers splashing around in a pond. During winter our river area continues to accumulate trash and debris from every incoming tide. Fortunately, Haddonfield High School students observed Martin Luther King Day by cleaning up a segment of Cove Trail near the first observation deck. We welcome the help of volunteers at various times throughout the year, but particularly at our annual spring and

fall cleanups. Our spring cleanup will be on Saturday, April 13, 9 AM to 1 PM. Palmyra Cove invites all able-bodied individuals to help. We will supply bags and gloves. Check our website for more information.

On Saturday, March 2, we hosted a program about the re-introduction of the America Bald Eagle. The featured speaker was Amelie Harris. In 1988, in Cumberland County, NJ, she was a member of a four-person team that nurtured eight eaglets to the fledging stage. The team was responsible for housing, feeding, and monitoring the eaglets until they were self-sufficient. Part of her team included Kathy Clark, who now is responsible for banding our Peregrine Falcons on the Tacony-Palmyra Bridge.

Amelie's experience showed how a few people can make a big difference. In 1982, there was one nesting pair of Bald Eagles in New Jersey. Today there are more than 100, quite a success story.

Spring Schedule: February is the beginning of spring training in baseball and also at the Cove. We are in the process of adding and training some new teachers. As of Valentine's Day, we have 23 schools and approximately 2000 students scheduled for spring visits. Our staff is anxiously awaiting our first school, Moorestown Friends, on March 15th. We still have some open dates and hope to add a few more schools to our spring calendar.

Trail Maps: Our new trail maps now have a grid pattern that makes it easy to identify a location in the park. The idea was actually suggested by the police of the Burlington County Bridge Commission. The police can use a caller's



cell phone to pinpoint a location. The police locate the call origin on the grid map and dispatch an officer to assist the visitor.

Around the Park: Winter is a great time of year to enjoy the park. While many species may hibernate or hunker down during the colder weather, deer, foxes, beaver, birds, and many other animals remain active throughout winter. Some

animals, such as raccoons, are cat-nappers. They tend to sleep or remain sheltered in the cold weather but will be out and about when temperatures moderate. Many of the animals are crepuscular (most active around dawn and sunset). This is usually the best viewing time for most of the park animals. We are fortunate this winter to have a pair of Great Horned Owls nesting in the park. Usually, they nest before Valentine's Day and the owlets hatch near the middle of March. Thanks to one of our perennial members, Spence Bennett, we were able to locate the Great Horned Owl nest on February 21. We anticipate seeing the owlets branching by mid-April; however, there are no guarantees. Great Horned Owls are top predators, but the eggs and owlets can be vulnerable to some predators and even weather conditions. In the years that we have found Great Horned Owl nests, there have been a few years where the nesting process was unsuccessful.

Edward Sanderson, *Director, Environmental Education*



Student Climate Change Studies Introduced to the Cove

Scientific record keeping, both quantitative and qualitative, creates datasets for Climate Change Scientists, Climatologists, and Weather Forecasters that allow them to make crucial decisions in terms of both policy and practice ... and the applications are wider than one may realize. While much of the public conversation concerning Climate Change is generally related to weather, melting polar ice caps, or sea surface rise, a discussion of what the impact of a changing climate will have on our ecosystems is of high importance. Understanding how the Earth functions as a system, and the changes in our ecosystem, will have dramatic ecological impacts, which in turn may result in economic impacts ... and many others. In order for one to scientifically document change, there first needs to be a database or historical record. Environmental Scientists, Naturalists, and for that matter, anyone who loves the outdoors, have been doing this for decades, i.e. making observations, recording data, and documenting their field experiences.

However, have you ever considered how the next generation is being prepared, or even introduced to take on these tasks in the future? Many schools do not support Earth and/or Environmental Science classes. For many, the only exposure to these types of topics is while in middle school. That hopefully is about to change. The final version of the Next Generation Science Standards will be released in the near future, and these Geoscience topics are a part of the Framework. New Jersey is what is called an "Early Adopter" along with 25 other States. An Early Adopter means that NJ has already committed to the NGSS being implemented throughout the State. Not only are Geoscience related topics a part of the new recommendations, but the educational pedagogy is changing as well to one of a more Project Based Learning (PBL) approach.

As a new initiative of PCNP, three Geospatial Technology students from the Burlington County Institute of Technology (BCIT) Medford Campus will be spending their spring semester working on a Climate Change Investigation at the Cove. It has long been acknowledged that the Palmyra Cove Nature Park provides an excellent outdoor laboratory for students of all ages who wish to develop and conduct studies or research. Using GLOBE Program scientific protocols,

and applying their Geospatial Technology skills, students are developing and conducting a Climate Change Investigation. For the past two years, the Global Learning and Observations to Benefit the Environment (GLOBE) Program has engaged K-12 students around the world in the Student Climate Research Campaign (SCRC). Using established GLOBE scientific protocols, students have been conducting climate studies to begin documenting evidence of change, and/or addressing specific regional impacts that are observable. In the case of the BCIT students, they are also developing and putting into practice valuable hands-on skills in a real life application of their career choice, Geospatial Technologies, that perhaps give them an edge when furthering their education, or transitioning directly into their career field. Using scientific equipment, the team makes daily observations and measurements including Atmospheric, Hydrologic, Soils, and Phenology. The Team has set up four study sites at vari-



"BCIT students Scott McKeaige (right) and Sean Murray (left) monitor water quality"

ous points throughout the Park. Once the measurements are collected, they are recorded and added to an international GLOBE database. Global climate data can be viewed online on the GLOBE website: www.globe.gov. The students are photographing study sites as part of their protocols. One protocol they are using is called “Bud burst.” Another Winter/Spring activity is observing “Green-Up.” The purpose is to observe plant green-up and report data that will be used by scientists to validate satellite estimates of the beginning of the plant growing season. Students monitor “bud burst” and growth of leaves of selected trees, shrubs, or grasses. Species chosen should be native, deciduous, and dominant in the area. Having identified a specific tree to be observed, they observe the swelling of the buds and will document when “bud burst” occurs. Documenting these observations in conjunction with meteorological observations, gives scientists the opportunity to study the impact of a changing climate.

In addition to the field observations, students are applying their Geospatial Technology skills through use of identifying locations using GPS, and creating satellite snapshots of the study sites using LandSat Imagery, and Google Earth. Meteorological observations that are conducted are being compared to a series of satellite overpasses. Without a working knowledge and history of field experiences, it is difficult to paint a picture or create a dialog of what is happening. Therefore, “ground truthing” continues to be a critical component of a student’s studies.

Combining the skills of being “in the field” and remote sensing are providing scientists with a look into regions that



“Sean Murray enters data, photographs, and satellite imagery into a computer database”

are not easily accessed, or very expensive to travel to, and a snapshot of the entire planet, in most cases, in near real time. The Institute for Earth Observations’ mission is to plan, enhance, and provide opportunities to apply these skills to teachers and students all while providing a place where ideas can be exchanged and innovation can take root.

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



Photos credited to Bennett Landsman, Steve Greer, Jonathan Maccornack and Barbara Farnsworth. Palmyra Cove Environmental Education Foundation thanks Ed McCabe for his assistance in editing Cove Currents.

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.

Families/small groups: to reserve a private hike contact Ed Sanderson at (865) 829-1900 x 263 or esanderson@bcbridges.org.

April 8	10:00 a.m. – 11:00 a.m.	Cove Caterpillars Program	Preschool
April 8	1:00 p.m. – 2:00 p.m.	Cove Caterpillars Program	Preschool
April 9	10:00 a.m. – 11:00 a.m.	Cove Caterpillars Program	Preschool
April 13	9:00 a.m. – 1:00 p.m.	Adopt-A-Beach Cleanup	All Ages
April 15	10:00 a.m. – 11:00 a.m.	Cove Caterpillars Program	Preschool
April 15	1:00 p.m. – 2:00 p.m.	Cove Caterpillars Program	Preschool
April 16	10:00 a.m. – 11:00 a.m.	Cove Caterpillars Program	Preschool
April 20	9:00 a.m. – 12:00 noon	Beginning Birding for Adults	Adults
April 22	10:00 a.m. – 11:00 a.m.	Cove Caterpillars Program	Preschool
April 22	1:00 p.m. – 2:00 p.m.	Cove Caterpillars Program	Preschool
April 23	10:00 a.m. – 11:00 a.m.	Cove Caterpillars Program	Preschool
April 29	10:00 a.m. – 11:00 a.m.	Cove Caterpillars Program	Preschool
April 29	1:00 p.m. – 2:00 p.m.	Cove Caterpillars Program	Preschool
April 30	10:00 a.m. – 11:00 a.m.	Cove Caterpillars Program	Preschool
May 4	7:00 a.m. – 12:00 noon	Burlington County Bird Quest	All ages
May 6	10:00 a.m. – 11:00 a.m.	Cove Caterpillars Program	Preschool
May 6	1:00 p.m. – 2:00 p.m.	Cove Caterpillars Program	Preschool
May 7	10:00 a.m. – 11:00 a.m.	Cove Caterpillars Program	Preschool
May 13	10:00 a.m. – 11:00 a.m.	Cove Caterpillars Program	Preschool
May 13	1:00 p.m. – 2:00 p.m.	Cove Caterpillars Program	Preschool
May 14	10:00 a.m. – 11:00 a.m.	Cove Caterpillars Program	Preschool
May 18	9:00 a.m. – 12:00 noon	Beginning Birding for Adults	Adults
May 27	Palmyra Cove Environmental Discovery Center Closed for Memorial Day		
June 1	9:00 a.m. – 11:00 a.m.	Family Hike	All Ages
June 15	9:00 a.m. – 12:00 noon	Beginning Birding for Adults	Adults
July 4	Palmyra Cove Environmental Discovery Center Closed for Independence Day		
July 6	9:00 a.m. – 11:00 a.m.	Family Hike	All Ages
July 8	9:00 a.m. – 12:00 noon	Cove Campers Summer Camp Week 1	K – 8th grade
July 15	9:00 a.m. – 12:00 noon	Cove Campers Summer Camp Week 2	K – 8th grade



Photo by Brian Kushner

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Palmyra Cove

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