

MISPILLION MESSENGER

VOLUME 1, ISSUE 1

SPRING/SUMMER

CELEBRATING TWO YEARS

If you've not had the opportunity to visit the Mispillion Harbor Reserve, we invite you to do so! Wildlife watchers come to the Delaware Bay from around the world each spring to witness an extraordinary sight; spawning horseshoe crabs and shorebird migration. The DuPont Nature Center is an interactive, hi-tech interpretive center situated in an area where arguably the most concentrated shorebird viewing on the planet can be found. The Center lies on the banks of Mispillion Harbor, at the intersection of the mouths of Mispillion River and Cedar Creek, a location that showcases the convergence of two creatures of widely different biology life histories. To have this facility at a site such as Mispillion Harbor provides a truly remarkable experience.

The State of Delaware bought the DNC property in 2001 with funds from the Public Service Enterprise Group's Estuary Enhancement Program. The Delaware Division of Fish and Wildlife began renovations on the building in May of 2005. The DuPont Company joined the initiative in December, 2005, and provided funding and technical assistance for the Center's observation decking and educational exhibits.

The property overlooks some 70 acres of marsh and dunes bought by DNREC in July of 2006 from the Conservation Fund. Other state holdings to the west include the marshes of the Milford Wildlife area.

The DuPont Nature Center served 9,981 people from opening the doors in May of 2007 through the end of May, 2008. An additional 2,185 people visited the Center in June and July. Staff and volunteers conducted 90 outreach educational programs serving 1,304 people. We've welcomed folks from 39 of the 50 states within the U.S., Japan, Taupau, Belgium, Russia, Canada, Africa, Hong Kong, Taiwan, Germany, Finland, Malaysia, Chile, Great Britain, and Patagonia.

I would like to invite you and your family to participate in some of our educational programming or utilize the center's observation deck for some extraordinary viewing opportunities. Spawning horseshoe crabs and migrating shorebirds may be the star attraction at the Mispillion Harbor but I'm sure you'll enjoy the rich history and diverse ecology the Delaware Bay has to offer in and around the DuPont Nature Center.

Be sure to see page four of this newsletter for the Center's educational programs and events for the 2009 season. If you plan to visit, the center will be open Tuesday—Sunday, 10:00 am to 4:00 pm beginning April 1st. The grounds and observation deck are open Dawn to Dusk, seven days per week.

*Patrick Emory, Director
Division of Fish & Wildlife*



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TRASH TIMELINE

When will these items decompose?

- Banana peel: 3-4 wk
- Paper bag: 1 mo
- Cotton rag: 5 mo
- Wool sock: 1 yr
- Untreated wood: 10-15 yr
- Leather belt: 40-50 yr
- Steel can: 80-100 yr
- Alum. can: 200-500 yr
- Disp. Diaper: 500-600 yr
- Plastic jug: 1 million yr
- Styro. cup: 1 million yr
- Glass bottle: 1 million yr

*Join us March 21st at 1:00 pm to
help clean the grounds and roadway*

For more info, call the center!

WE'RE ON THE WEB!
www.dupontnaturecenter.org

FEATHERS, FOOD, AND FLYWAYS

Understanding the connection between shorebirds and horseshoe crabs during spring migration would seem quite straightforward. Horseshoe crabs lay their eggs, the eggs come to the surface as they are dug up by other spawning crabs or by wave action, shorebirds eat the eggs. At times, the eggs seem so plentiful that you would think no shorebird would go hungry.

However, when we start to measure the weight of shorebirds periodically through spring migration they don't always gain weight as quickly as they should or get as heavy as they need to be. It is then that we know there are problems. For most spring migratory seasons, the reason has generally pointed to lower horseshoe crab numbers limiting the number of eggs available. Shorebirds don't just need eggs available to them on the surface. They need a superabundance of them. This is something that has been hard to achieve in recent years. During other seasons when eggs seem plentiful, the reason birds don't gain weight isn't quite as clear. In 2008, the reason couldn't have been clearer or more dramatic.

The now infamous "Mothers Day Storm" greatly impacted the shorebird migration. The first week in May brought warm water temperatures and horseshoe crabs already started to spawn. Eggs could regularly be found on the surface of the sand even before many shorebirds arrived. Things couldn't have been shaping up better for shorebirds in 2008.

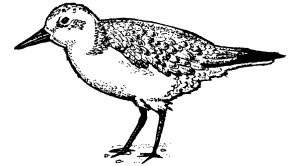
Then the storm hit. The coasts were flooded far inland and strong, near hurricane-strength winds from the northeast caused severe beach erosion. The horseshoe crab eggs that were laid before the storm were either buried too deep for birds to find or scattered and redeposited in areas throughout the Bay. More importantly, though, was that the storm lowered the water temperature below that which horseshoe crabs spawn. It wasn't until near the end of May, when shorebirds are supposed to depart to their Arctic nesting grounds, that water warmed enough for spawning. This was much too late for birds to gain enough weight at the right time for departure. Birds were about 10 grams lighter than what they should have been at the end of May. This caused them to stay in the Bay about a week longer than normal.

When shorebirds don't have the food resources they need while stopping in Delaware Bay, there could be significant impacts to their populations. Some may not survive the flight to the Arctic. Others may not even attempt the flight. In years when birds don't make it to the Arctic or are in poor condition when they get there, very few chicks are produced which limits population growth. Conditions in Delaware Bay can cause shorebird populations to decline from adult mortality or fail to grow from low reproduction or both. Either of these is bad when species such as the Red Knot are in such peril.

The Delaware Shorebird Project will continue to monitor the health and condition of shorebirds in 2009. With luck, the weather will be good and the majority of horseshoe crabs will spawn during shorebird migration allowing the birds to have the resources they need to gain enough weight to complete their migration successfully. They also need to have good weather in the Arctic and low predation of young so many young will survive. With successive seasons with increasing crab populations, good weather both here and in the Arctic so a large number of young are produced, dwindling shorebird numbers will hopefully improve.

Kevin Kalasz, Shorebird Biologist

You Can Adopt a Red Knot!



Support Research and Monitoring

You can contribute to shorebird conservation in Delaware by adopting a Red Knot. Proceeds from your adoption will support the Delaware Shorebird Project and its monitoring efforts.

By donating just \$25, you can adopt a Red Knot! You will receive a personalized adoption certificate, a fact sheet with information about Red Knots, a "DuPont Nature Center" car decal and recognition on our "Adoptive Parents" page on the website.

For more information,
contact Dawn Webb at the
Center; 302-422-1329.
Dawn.Webb@state.de.us



DINOSAURS OF THE DELAWARE BAY

Stewart Michels, Fisheries Scientist

The Delaware Bay hosts the world's largest spawning concentrations of horseshoe crabs. The spectacle of the crabs coming ashore to spawn can be awe-inspiring – a true marvel of nature. The crabs tend to spawn in greatest numbers around the new and full moons in May and June. Spawning occurs at high tide and is usually highest on the nighttime high tide. It's always tough to predict when spawning will be best, as water temperature and wave action play an important role. The crabs prefer calm water for spawning and they will typically delay spawning if wave heights threaten to overturn them.

The best spawning beaches in Delaware are generally located between Port Mahon and Slaughter Beach. A number of beach communities allow public access. Parking is usually limited and people wanting to witness the spectacle should respect local beach rules and regulations. Use only public access pathways, never walk on the protective dunes, keep voices low, and at night don't shine flashlights toward houses. Dress appropriately - never go in bare feet, consider long-sleeved shirts and pants as biting insects can be excessive and, remember, it can remain quite cool near the water in the spring, in spite of warm weather only a short distance inland.

The Delaware Bay horseshoe crab spawning population is monitored through a volunteer-based spawning survey and is one of our best tools for monitoring the population. Results clearly show that spawning has been stable over the past ten years. Stability in the horseshoe crab population, however, does not necessarily mean that the dietary needs of migratory shorebirds are being met. Timing plays an important role – large numbers of eggs must coincide with when the birds are present. Spawning that occurs after about the first week in June does little to support the dietary needs of migratory shorebirds.

Interested in participating in the Delaware Bay Horseshoe Crab Spawning Survey?

Check out <http://www.ocean.udel.edu/mas/bhall/hscensus/> for more information.

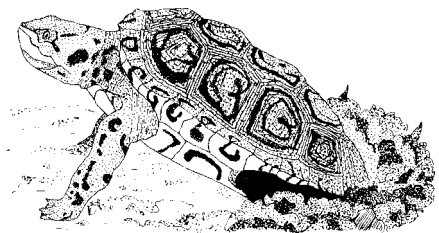
TURTLES IN THE SAND

Edna Stetzar, Biologist

Some things you can just count on, and this summer, a ritual that is played out each year will occur once again. Female northern diamondback terrapins (*Malaclemys terrapin terrapin*) will leave their brackish water habitat and make their way up onto the sandy beaches in search of a suitable site to lay eggs. If shoreline development doesn't impede their ability to reach the sand, they will often return to the same beaches year after year.

For optimum success, site conditions have to be just right...including the composition of the sand, the slope, and the protective cover provided by a specific density of grasses and shrubs. The female will carefully test the sand in several places above the high tide line before she digs a triangular or flask-shaped depression. Then in a trance-like state, undeterred by curious onlookers, noise or light, she deposits 4-18 pinkish white oblong eggs that are about 31mm long and 21mm wide. She uses her back legs to scoop sand over the eggs, and with a little 'dance' packs the sand down just right. Then she crawls back and forth across the surface until no trace of a nest can be found. Only the most adept predator, like a raccoon or a fox, would be able to find a nest so expertly hidden. Then the female quietly returns to the water, her parental obligations fulfilled.

In the nest where temperatures reach between 27°C and 30°C, the embryos inside the eggs develop into a mixture of males and females. Higher temperatures will result in females and colder temperatures will result in males. After approximately 60 to 90 days, hatchlings about the size of a quarter will break out of their shells using a small, hard projection on the end of their beak called an 'egg tooth'. The sand inside the nest boils with hatchlings as they claw their way to the surface, a task that can take days to complete. As the newborns scramble across the sand to a hiding place in an adjacent marsh, they face a gauntlet of hungry predators. Once safely hidden in the marsh, they will feed primarily on crustaceans, mollusks, and worms until cold temperatures force them to burrow into the mud and await warmer days. In 4 to 7 years, females that are part of the lucky 1% that survive to adulthood, will return to the beach and like their mother, dig a nest and lay their own eggs in the sand.



CALENDAR OF EVENTS



MARCH

11th Life by the Seashore

A book signing featuring local author Carol Psaros
6:30 to 8:00 pm

21st If You Care Leave Them There

Wildlife Rehabilitation presented by the Delaware Council of Wildlife Rehabilitators & Educators
10:00 am to 12 noon

21st Mispillion Harbor Enhancement and Clean-up

Volunteers needed! Beach grass planting and grounds clean-up
1:00 to 4:00 pm Please call the center and sign up!

25th Stories of the Delaware Bay

A book signing featuring local author Jim Hanna
7:00 to 8:30 pm

28th Living with Cold Blood

Join Mick McLaughlin of JCM Environmental and learn about and visit with some of Delaware's reptiles and amphibians.
10:00 am to 12 noon

APRIL

1st Shorebird Identification Workshop

Be prepared to enjoy the shorebird migration phenomena in the Delaware Bay by becoming acquainted with the various species of birds that stop here. Kevin Kalasz, DE Division of Fish & Wildlife, coordinator of the Delaware Shorebird Project.
7:00 to 8:30pm You must pre-register for this workshop

18th Volunteer Orientation

Interesting in volunteering at the DuPont Nature Center? Join us to learn how.
9:00 am to 12 noon You must pre-register for this orientation

18th The Fluorescent Pebbles of Slaughter Beach

Join Mark Marquise and learn about the unique pebbles adorning the shoreline at Slaughter Beach. We will begin at the DuPont Nature Center and end at Slaughter Beach. Dress appropriately!
7:00 to 9:00 pm

25th Wildlife Kayak Paddle

Return to Nature will provide instruction and guidance as you paddle the Mispillion. You may rent Kayaks or bring your own.
8:00 am Fee charged, pre-registration required

MAY

20th Turtles In My Sandbox

A book by Jennifer Keats Curtis presented by Edna Stetzar will teach and reinforce the act of caring for the world and the animals that inhabit it. Come learn about the diamondback terrapins that live in and around the Mispillion Harbor.
7:00 – 8:30 pm

23rd Happy Anniversary Celebration at the DuPont Nature Center! Activities to be announced.

JUNE

21st Wildlife Kayak Paddle

Return to Nature will provide instruction and guidance as you paddle the Mispillion. You may rent Kayaks or bring your own.
5:00 pm Fee charged, pre-registration required

AUGUST

4th, 5th, & 6th Basic Hunter Education Course

6:00 to 10:00 pm each evening; must attend all three evenings to receive certification
Seating limited, pre-register by calling the Hunter Education office at 302-735-3600

SEPTEMBER 5th

OCTOBER 4th

Wildlife Kayak Paddles

Return to Nature will provide instruction and guidance as you paddle the Mispillion. You may rent Kayaks or bring your own.

9:00 am Fee charged, pre-registration required



WITH A LITTLE HELP FROM MY FRIENDS...

Greetings from the Mispillion Harbor Reserve!

Spring is just around the corner and with it comes many exciting opportunities to get involved with the DuPont Nature Center. The newly formed Friends' mission is to support the Nature Center through enhancement of their educational programs. It is our goal to be on the forefront of environmental education in the state of Delaware by offering programs for the entire family that will instill an appreciation of what this fabulous resource has to offer .

Join Us! There are many ways you can become involved; removing trash from our roadways, staffing the welcome desk, assisting with programs, participating in fundraising activities, grounds and building maintenance, or becoming an advocate for legislative support.

As a Friends' member you will receive a 10% discount on all items in our store, invitation to annual membership meetings, annual newsletters, and voting privileges. Plans are currently underway for exclusive "Friends only" programming.

Remember, the peak viewing season is just around the corner so take a ride out to the DuPont Nature Center and see what we're all about.

Look for us on Facebook!

Laura Madara, President

VISIT THE FRIENDS STORE

Logo t-shirts, hats, pins, and vinyl stickers

Sylvan Dell Children's Books

Wild Byrde Jewelry

Stories of the Delaware Bay by Jim Hanna

Shorebird Carvings by Harold Van Dyck

Photography and Paintings featuring the Mispillion

Notecards

DVDs Featuring Waders, Warblers, and Sparrows

Wildlife Identification Guides

Fundanas for kids

Posters

Proceeds benefit the Center's educational programs

Become A Friend of The DuPont Nature Center

Annual Membership:

- | | |
|---------------------------------|----------|
| <input type="checkbox"/> Single | \$20.00 |
| <input type="checkbox"/> Couple | \$30.00 |
| <input type="checkbox"/> Family | \$50.00 |
| <input type="checkbox"/> Life | \$250.00 |

Corporate Partnership Levels:

- | | |
|--|------------|
| <input type="checkbox"/> Red Knot | \$1,000.00 |
| <input type="checkbox"/> Ruddy Turnstone | \$750.00 |
| <input type="checkbox"/> Sanderling | \$500.00 |

Total: _____

Name

Address

Phone

E-mail

Method of Payment:

- Check
- Visa
- MasterCard
- American Express

Credit Card #

Exp. date

Signature

- I am donating a gift
in memory of: _____
