

FRIENDS OF BOMBAY HOOK

Newsletter



Monarch Butterflies
Photo by Karen Dever

Friends of
BOMBAY
Hook

30 Years of Conservation
1990 - 2020

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Our Mission Statement:

The Friends of Bombay Hook is a not-for-profit corporation working in conjunction with Bombay Hook NWR and the U.S. Fish & Wildlife Service (USFWS). It supports and enhances educational and recreational programs at Bombay Hook, provides volunteer services and financial assistance and serves as a link between the Refuge and the public.

As the Visitor Center/Blue Heron Gift Shoppe re-opens, the Friends would like to say THANK YOU FOR YOUR SUPPORT and WELCOME BACK!!!!

Our readers are encouraged to share comments, provide articles for publication and/or suggestions regarding the Refuge as well as notifying us of address changes.

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WE'RE BACK!!!!!!!!!!!!!!

It has been the craziest year and a half!!!

FOBH is finally back in the Bombay Hook Visitor Center and in the Blue Heron Gift Shoppe !

Until further notice from the Refuge Manager, the Visitor Center is open Tuesdays and Fridays 8:00a-4:00p while the Blue Heron Gift Shoppe is open 9:00a-4:00p.*

The Visitor Center and Blue Heron Gift Shoppe are also open Saturdays and Sundays from 9:00a-5:00p.*

We've missed you!! Please come and see us for all of your nature gifts!!!!

**These times and days may change without notice due to volunteer availability*

Managing Impoundment Water Levels at Bombay Hook HWR



Much has been written on this topic. The science is updated each week and every year. Management priorities and strategies have evolved since 1937 and will continue to do so into the future. This is a short article covering several factors currently involved in the difficult task of managing the impoundments at Bombay Hook.

The Refuge staff manages the impoundments to provide the “**opportunity**” for resident and migratory wildlife use. Their challenge is navigating the weather, tides, and other factors that can potentially impact their efforts.

A typical yearly management cycle would start with the Refuge impoundments full of water during the winter months. These freshwater impoundments would contain an abundance of submerged plant material. Then in spring, the Refuge staff starts to draw down the water levels in these bodies of water. Changes are first seen around the impoundment edges, and then shallow flats will open up and grow in size as the weeks progress. By early summer, many previously exposed mudflats are now covered with a carpet of green plant growth. The previously full impoundments are now down to isolated pools and winding channels directing water out the sluice gates. Throughout the summer months, the Refuge staff works to maintain low water levels to encourage the natural plant seedbed to germinate and grow in the rich sediment soils. In August, the water control structures are altered to allow impoundment water levels to rise again. Shallow water flats return as the collection of water continues through the fall months into winter. This yearly cycle of drawing down and replenishing the water levels is the managed goal for providing a habitat opportunity for waterfowl, shorebirds, wading birds, and many other forms of wildlife using the Refuge impoundments.



Now let's review the hydrology of the impoundments at our Refuge.



- **Finis Pool:** Collects rainwater from the surrounding farm fields, the forest watershed, and Finis Branch west of Route 1.
- **Sheariness Pool:** Collects water from open fields and the narrow Refuge forest watershed surrounding this impoundment, as well as from a managed spillway from Finis Pool.
- **Raymond Pool:** Collects water from the fields and meadows to the west and from a narrow ditch that feeds a small amount of water from Sheariness Pool.
- **Bear Swamp:** Collects water only from the surrounding fields and forest habitat.

Only Sheariness Pool, Raymond Pool, and Bear Swamp drain into the surrounding tidal salt marshes. This drainage is manipulated with the use of water control structures in their dike walls.

If all works according to the Management Plan, migrating fall waterfowl find the opportunity to forage and rest as they pass down the eastern flyway. Some will stay the winter while others will stop for a short period and then continue flying further south. In late winter, waterfowl use the Refuge impoundments as a gathering or staging area as they move north to arctic breeding grounds. In late spring, the northbound shorebird migration starts, with many birds feasting on the important horseshoe crab eggs along the Delaware Bay shoreline. Some of these birds will also use the shallow Bombay Hook NWR impoundment edges and mudflats for roosting and feeding particularly at high tides. Throughout the spring and summer,



the Refuge impoundments provide an opportunity for a variety of resident wildlife to breed and forage in the shallow pools, flats, and channels. In August and into early September, these bodies of water once again provide an opportunity for southbound returning shorebirds to roost and forage. With impoundments starting to collect water in the fall for migrating waterfowl, the yearly cycle starts again.

Of the many challenges the Refuge staff faces in managing impoundment water levels, weather can have some of the greatest impacts. A wet spring-like in June 2015 saw 10" of rain at Bombay Hook NWR for the month. That's almost a quarter of the annual 45.3" rainfall average in just one month. Weekly summer thunderstorms and seasonal hurricanes all make drawing down impoundment water levels challenging. Conversely, fall weather events will accelerate the filling of these same impoundments. The Refuge does not feel the impact of passing hurricanes every year. However, like Superstorm Sandy in October 2012, storms can pass very close by with 70 mph winds and impact the Refuge. Then there's the extreme as in 2004 when four major hurricanes (Ivan, Gaston, Charley, and Jeanne) hit Kent County between August and September.



Fall typically is the wettest season in which the Refuge receives 27% of the annual rainfall. This works well for rising impoundment water levels. However, an abnormally dry (D0) summer or fall season, or one with a moderate drought (D1), can make raising levels very challenging. In 2002 and 2012, the Refuge saw severe drought conditions (D2) that affected Refuge habitat beyond just the impoundments.

Wind direction and tides can complicate or aid in manipulating impoundment water levels. The Refuge staff uses these natural elements to their advantage when managing the impoundments.

In the winter months, the Refuge may provide an opportunity for a waterfowl habitat, but a December cold snap can freeze over the impoundments. These weather conditions force many waterfowl species further south or to the tidal bays for more open water.



Each of the impoundments has embankments and water control structures that must be maintained to contain and control the impoundment water levels. All require periodic maintenance, repair, or replacement:

- Beaver activity around water control structures can block the water flow. Yearly maintenance is typically needed to clear the stick debris from intake grates.
- Woody plant growth along the impoundment dikes is controlled to maintain structural stability.
- In spring, spawning fish species like carp try to enter the freshwater impoundments through the water control structures. If left unchecked, these fish will destroy the aquatic vegetation that is important for wintering waterfowl. Maintaining the grate screens is a challenging activity for the Refuge staff but keeps much of the problem carp out.
- Over time, sediment buildup can prevent a uniform draining of the impoundment. This sediment material periodically is cleared and channels maintained. These clear channels also allow problem fish to flush out and minimize the death of trapped fish.

Finally, the Refuge staff must plan to manage for future changes. Rising salt marsh elevations throughout Bombay Hook NWR will present future challenges for draining the impoundments each season. Also, the uncertain impacts of cyclical or long-term climate warming must be factored into long-term strategic impoundment planning. In summary, while dealing with all these moving parts, our Refuge staff does an incredible job providing the opportunity for wildlife habitat at the Refuge impoundments. *(Photos by KD and BJL)*

Dun Skipper (*Euphyes vestris*)



Here are some fun facts about the Dun Skipper, which is commonly found at Bombay Hook NWR:

- ◆ This species is native to North America.
 - ◆ The Dunn Skipper is commonly found in the Refuge pollinator meadow.
 - ◆ It is one of 6 Skipper species that can be seen at Bombay Hook NWR.
 - ◆ Adult butterflies are common and active at the Refuge from June to August.
 - ◆ The wings and body are a very dull uniform brown.
 - ◆ The upper side of the head is a light yellow to orange in color; look for this.
 - ◆ Dun Skipper females can have light white spots on the top side of the forewing.
- ◆ This butterfly doesn't sting Refuge visitors or carry harmful diseases.
 - ◆ This butterfly is found in Refuge meadows, roadsides, and around the Visitor Center.
 - ◆ Adults like nectar from white, pink, and purple flowers.
 - ◆ They are commonly seen on Common Milkweed within the Refuge.
 - ◆ They are very photogenic but startle easily, so you should move around them ever so slowly.
 - ◆ The Dun Skipper has one brood per year in our area.
 - ◆ Females lay single eggs on host plants.
 - ◆ Skipper caterpillars feed on various sedges, like the Yellow Nut Sedge.
 - ◆ Caterpillars find shelter in rolled-up leaves.
 - ◆ At the end of the season, the last larva will winter over in rolled leaves.
 - ◆ This species' conservation status is considered secure.



(Photos by BJL)

Martin National Wildlife Refuge, Smith Island, MD By Karen Dever

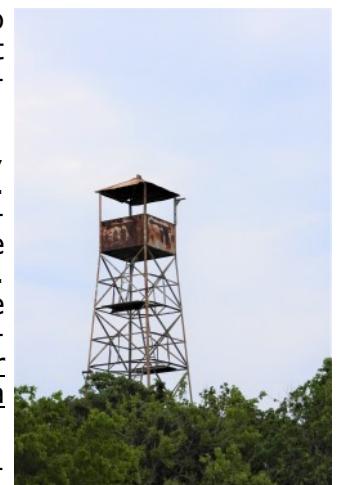
Although some National Wildlife Refuges are closed to the public, they do some important stuff by conservation and management of habitats! At Martin National Wildlife Refuge are tidal coves, creeks, and ridges that provide rest areas and winter homes for thousands of migrating birds.

I recently took the Delmarva Birding Weekends tour to Smith Island, MD, and was pleased to get a peek at Martin NWR. This refuge was created in 1954 after a donation of 2,569 acres of land donated by the late Glenn L. Martin and today covers 4,548 acres. Martin NWR is managed by the Chesapeake Marshlands NWR Complex, located in Cambridge, MD, which also oversees Blackwater NWR, Eastern Neck NWR, and Susquehanna NWR.



Great Egret and Babies

It was a great day to get a glimpse of this protected area and spot some birds near the shore. Fun to see the silhouette of the Blue Goose on the old sign.



Martin Tower

If the opportunity arises, I recommend the Pelican Island Tour at Delmarva Birding Weekends. Here is the link: <https://delmarvabirding.com/smith-island-pelican-tour/>

Do you have any refuge stories from your travels? We'd love to hear about them and publish them in the newsletter! Please submit to fobh@comcast.net. (Photos by Karen Dever)

*Visiting Other Refuges
Lostwood NWR in North Dakota
By Rodney Murray*



Several years ago I read somewhere that more Americans visit Paris each year than they do North Dakota (that's one of the current fifty states of the United States just north of South Dakota...you can look it up.) I wonder why. Really, I do. I know that Paris has its charms and probably some really good birding spots, but North Dakota has more National Wildlife Refuges than any other state in our union. (I'm pretty sure about that.)

It's been a while since I wandered ND, but I remember that once you get west of the Missouri River, which roughly bisects the state, you get out of the monotonous farm/ranchland and enter some more enchanting scenery. Not far from the Montana border lies the Theodore Roosevelt National Park (TRNP) which

is definitely the scenic highlight of ND. I once woke up there in an old, horrible little pup tent and was completely surrounded by snorting buffalo (or were they bison?).

TRNP is just one of several birdy spots in western North Dakota. Another great spot is the remote Lostwood National Wildlife Refuge in northwest ND. Although it is only ranked #20 on the ND top hotspots list, this was one of the most accessible and productive of the National Wildlife Refuges that I visited here. Hopefully you know that winter is not the best time to visit the Peace Garden State, but spring through fall produces over 250 species at Lostwood NWR.

Two of those much sought-after species are the secretive Baird's Sparrow and Sprague's Pipit, usually found in ND and Montana, but there is also a bounty of waterfowl to be found as well.

I plan to return to Lostwood and other ND birdy spots in the near future so I can do justice to my ND eBird list, since I birded there before I knew of the benefits of eBird. Oh well.....

ND Fun Fact

- State Bird: Western Meadowlark.

Famous People Born in ND

- Ex-Philadelphia Phillie Chris Coste (back-up catcher on World Series winning team in 2008).
- Iconic rocker Lawrence Welk (if you ever get to Strasburg, ND check out the red barn at his old homestead).

Do you have any refuge stories from your travels? We'd love to hear about them and publish them in the newsletter! Please submit to fobh@comcast.net.

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|---|--|
| A photograph of a Neotropic Cormorant perched on a metal post. The bird is dark brown with a long, pointed beak and is looking to the right. The background is a clear, light blue sky. | <p><i>Neotropic Cormorant:</i> A First State-record bird was discovered at Bombay Hook. On the morning of April 14, 2020, I spotted a Cormorant on the north end of Bear Swamp. It looked very dapper and a little different than our usual Double-crested Cormorants. I wondered if it was just really looking good for breeding season! When I got home to edit my images, I looked in my field guide and thought it might be a Neotropic. That would make it way out of the normal range for them. Their normal range is parts of Texas, Mexico, and South America. I posted on Delaware Birding and my thoughts were confirmed. I also found out it was a First State record, meaning my sighting was the first in the known history of Delaware. <i>(Photo by Julie Memmolo)</i></p> |
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HOW CAN YOU SUPPORT FRIENDS???

Donate or Become a Member!

Last year, the **FRIENDS OF BOMBAY HOOK (FOBH)** celebrated its 30th Anniversary! Without memberships, donations, and proceeds from the Blue Heron Gift Shoppe, we surely would not exist today. Throughout the years, we have been able to aid Bombay Hook NWR by supporting environmental education programs, fund transportation for field trips to the Refuge for school children, purchase audio/visual equipment, secure grants, paid for internships, purchased new chairs for the auditorium and for outside programs to name a few. Because of our supporters, we continue with our mission!

TO DONATE OR BECOME A MEMBER:

Please fill out the form below and mail your check to **FRIENDS OF BOMBAY HOOK, 2591 Whitehall Neck Road, Smyrna, DE 19977.**

Or go to www.friendsofbombayhook.org and follow the prompts to either donate or obtain membership. And you can always stop by the Visitor Center during gift shop hours to do it in person! We would love to see you! The Blue Heron Gift Shoppe is operated by volunteers and is only open when the volunteers are present. If you are uncertain of days and hours, please call ahead.

MEMBERSHIP BENEFITS include voting privileges at the FOBH Annual Meeting; 10% discount on merchandise sold at Blue Heron Gift Shoppe; and eligibility to join the Dover Federal Credit Union.

ALL donations are tax deductible.

FRIENDS OF BOMBAY HOOK, INC. is a 501(c)(3) non-profit corporation founded to promote conservation, environmental education, and a better understanding of and appreciation for Bombay Hook NWR.

MEMBERSHIP / DONATION APPLICATION

Submit completed application at the Visitor Center
(payment by cash, check or credit card) or Mail (with check) to:

*Friends of Bombay Hook
2591 Whitehall Neck Road
Smyrna, DE 19977*

Membership Donation

Date: _____

Name

Address

City, State, Zip

E-mail

Newsletter Preference:

Print E-mail (require E-mail address)

Method of Payment

- Cash (payment at Visitor Center only)
- Check (payment by mail or at Visitor Center)
- Credit/ Debit Card (payment at Visitor Center only)

| <u>Membership Plan (Check One)</u> | <u>Amount</u> |
|--|---------------|
| <input type="checkbox"/> Student (under 18)* | \$5.00 |
| <input type="checkbox"/> Individual | \$15.00 |
| <input type="checkbox"/> Family | \$20.00 |
| <input type="checkbox"/> Sponsor*** | \$25.00 |
| <input type="checkbox"/> Sustaining | \$50.00 |
| <input type="checkbox"/> Corporate** | \$100.00 |
| <input type="checkbox"/> Lifetime*** | \$200.00 |

*Student membership: under age 18.

**Corporate sponsorship includes link to FOBH website; no voting privileges or store discount.

***Sponsor and Lifetime memberships include family.

| <u>Donation (Check One)</u> | <u>Amount</u> |
|---|---------------|
| <input type="checkbox"/> Miscellaneous | \$ _____ |
| <input type="checkbox"/> Allee House | \$ _____ |
| <input type="checkbox"/> Capital Improvement Campaign | \$ _____ |
| <input type="checkbox"/> Memorial for: | \$ _____ |