



The Swamp Scene

friends of great swamp national wildlife refuge

ISSUE SEVENTY-FIVE
JULY 2024

Highlights

Volunteer Recognition Event	1, 8-9
Turtles of Great Swamp	1, 6-7
Wood Duck Box Report	2-4
2024-25 Duck Stamp	4
New Staff & Intern	5
<i>This Old Swamp</i>	10
Adventures in Volunteering	11
Mammals of Great Swamp	12-13
How Ferns Got Their Names	14
Nursery Poem	14

Board of Directors

Tom Gula
President

Randi Emmer
Vice-President

Paul Lauber
Secretary

Tom Cartwright
Treasurer

Jane Bell
Judi DiMaio
Stephen Herdman
Dave Katz
Robert Lin
Walter Willwerth
Kathy Woodward

Patricia Wells & Martha Wells
Editors

Mike Horne
Project Leader

Lenape National Wildlife Refuge Complex

Deadline for November 2024 issue
November 1, 2024

GreatSwampScene@gmail.com



Printed on recycled paper

TWENTY-FIFTH ANNIVERSARY OF FRIENDS OF GSNWR AND 38TH VOLUNTEER RECOGNITION EVENT, JUNE 6, 2024

Thank you for the time, energy, and skills you donate to Great Swamp National Wildlife Refuge. Your dedication and commitment helped us achieve so much this year. The projects you helped complete, the visitors you greeted and your belief in the goals of the Refuge and the Refuge system make each of you invaluable members of our team.

(Continued on page 8)



Jarod Green, Visitor Services Manager, congratulating Randi Emmer for receiving her 12,500 hour pin.

THE TURTLES OF GREAT SWAMP

Judi DiMaio, Board of Directors and Volunteer

There are several species of turtles found in Great Swamp NWR. Some may be familiar to you, some may not. They are Snapping, Painted, Spotted, Bog, Musk, Mud, Red-Bellied and Box Turtles.

Most turtles are omnivores, over-winter in the mud and are long-lived. The gender of the young in the eggs is determined by the temperature; warmer temps produce females, cooler temps produce males. Turtles are preyed upon mostly when young, by various predators including foxes, raccoons, coyotes, mink, herons, crows, owls, fish and bullfrogs. Eggs are an easy meal and are often dug up by various mammals.

Snapping Turtles (*Chelydra serpentina*) are our largest turtle, commonly seen in late spring moving around the refuge looking for a place to lay their eggs. If they look prehistoric, it is because they are! They have outlived the dinosaurs and have been around for about 90 million years. They can grow to about 24 inches in length, weigh up to about 35 pounds and live an average of 30 to 40 years in the wild.

Most of their life is spent in the water and mud, where they will hibernate for the winter.

(Continued on page 6)



Snapper laying eggs at WOC Photo by Judi DiMaio

WOOD DUCK NESTING BOXES IN 2023

By Tom Gula, President, Friends of Great Swamp National Wildlife Refuge

As we experience a succession of heat waves during the summer of 2024, I thought it might be a good time to think of colder times from the previous winter and discuss the results of duck nest box inspections from the 2023 breeding season. Anyone who drives down Pleasant Plains Road has observed some of the large duck boxes mounted on tall posts, with a cylindrical predator guard below the



Figure 1

box. Perhaps the boxes most often observed are the one in a small pond off Pleasant Plains Road (Figure 1), and another box in water next to the Sportsmens Blind at the WOC. The nest boxes are used by the two hole-nesting duck species in the refuge: primarily Wood Ducks, but occasionally Hooded Mergansers.

The duck boxes were first installed in the refuge many years ago, and a hard-working group of volunteers now maintains and inspects them during the winter months, long after the spring/summer duck breeding season is over. This year a total of 186 boxes were inspected over 11 visits between early November 2023 and early February 2024, results recorded, old nesting material cleaned out, and new pine shaving nest material added for the 2024 nesting season (Figure 2)



Figure 2

Each box is opened carefully, and inspected for any signs of duck breeding. For the records, a box is marked as **Used** if shell membranes are found, indicating that young ducklings were hatched; unhatched eggs are observed (these can be identified as from Wood Ducks or Hooded



Figure 3

Mergansers), or a nest of down feathers is observed. **Unused** boxes have no signs of occupation by ducks, but are often used by other animals, such as mice, squirrels (gray squirrels and flying squirrels), screech owls, house wrens, as well as honeybees and wasps.

Figure 3 shows a nest of unhatched Hooded Merganser eggs that was found in a box that had been occupied by honey bees. Dozens of dead bees were found in the box along with the eggs, with the assumption that the mergan-



Figure 4

ser eggs were laid sometime in the spring of 2023, and the box was later used by honeybees, which died before our team checked the box at the end of January, 2024.

Figure 4 shows a gray Eastern Screech-Owl found roosting in a box. A total of 3 screech owls were found this past season: 2 red morphs, and 1 gray morph. This compares to

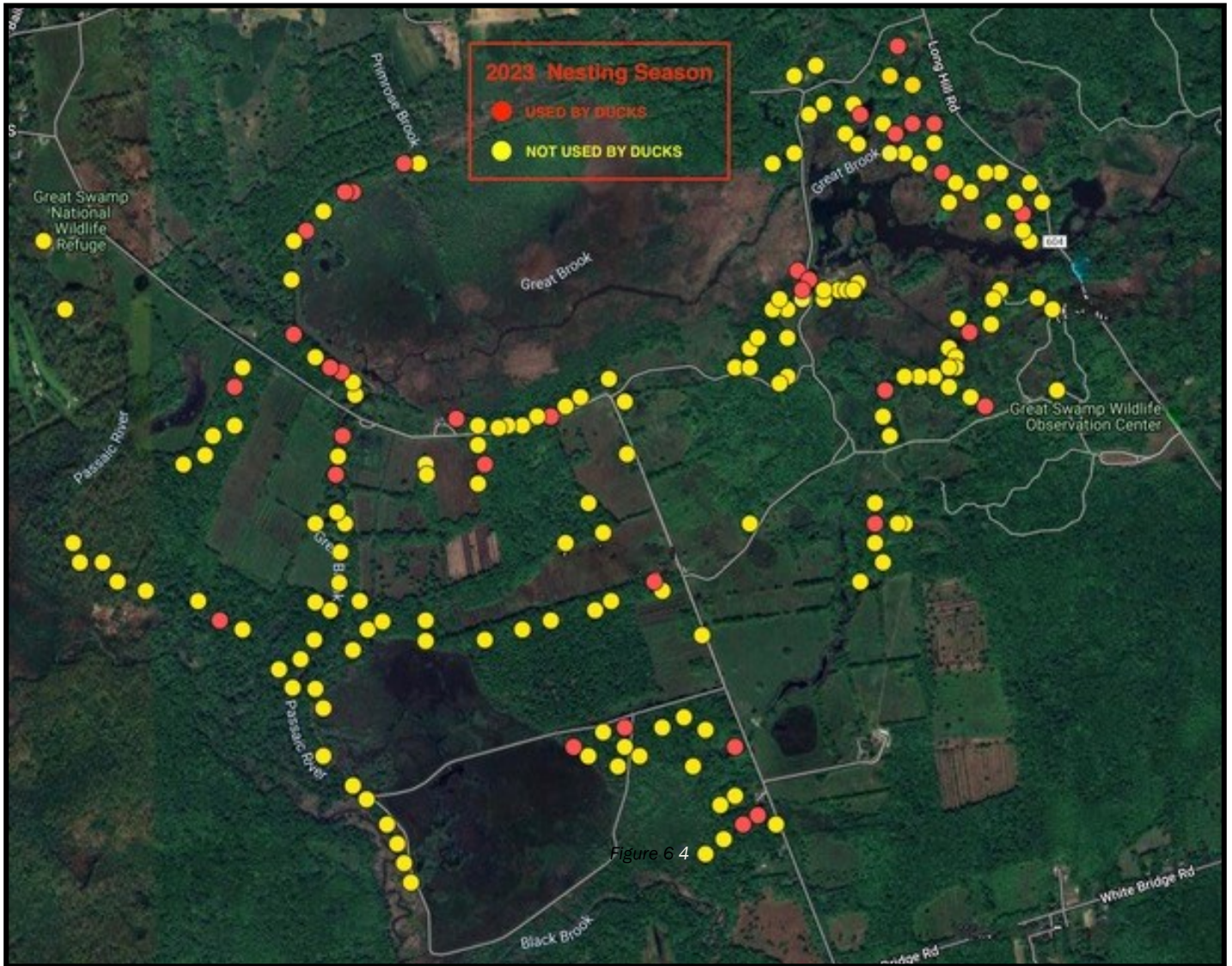


Figure 5

6 screech owls found during the 2022-2023 box inspections, all red morphs.

Figure 5 illustrates the wide distribution of the 186 refuge nest boxes, many out of sight of the general public. Yellow box symbols represent unused boxes, while red symbols show boxes that were used by ducks. In the 2023 season, only 34 out of the 186 boxes were used (18%), while 152 boxes were unused (82%).

For many years volunteer Leo Hollein was one of the leaders of the duck box inspection team, compiling data on nesting success for nearly 20 years. Using data collected since 2004 by Leo and other volunteers, Figure 6 charts the percentage of nest boxes used by ducks each year and illustrates the continued decline in nest box usage in the refuge. As Leo wrote in his 2021 report, “the multiyear trend in lower nest box usage indicates the Refuge habitat is becoming

less attractive for nesting Wood Ducks. The gradual reduction in open water is the likely cause of the decline in nest box usage.” Duck box usage is now clustered in several areas that are close to open water, while those areas that have seen increased growth of vegetation in formerly flooded areas have seen a decline in nesting.

Our dedicated volunteers continue to install newly constructed boxes to replace older damaged boxes and move some boxes to better locations.

The brightly-colored male Wood Duck on the entrance sign to the Great Swamp NWR (Figure 7) is one of the first things many visitors see. We hope that the volunteers’ efforts at maintaining nest boxes will help the ducks continue as a symbol of the refuge’s success at protecting vital habitat for the Wood Duck and the many other species of animals and plants.

(Continued on page 4)

WOOD DUCK NESTING BOXES IN 2023 *(Continued from page 3)*

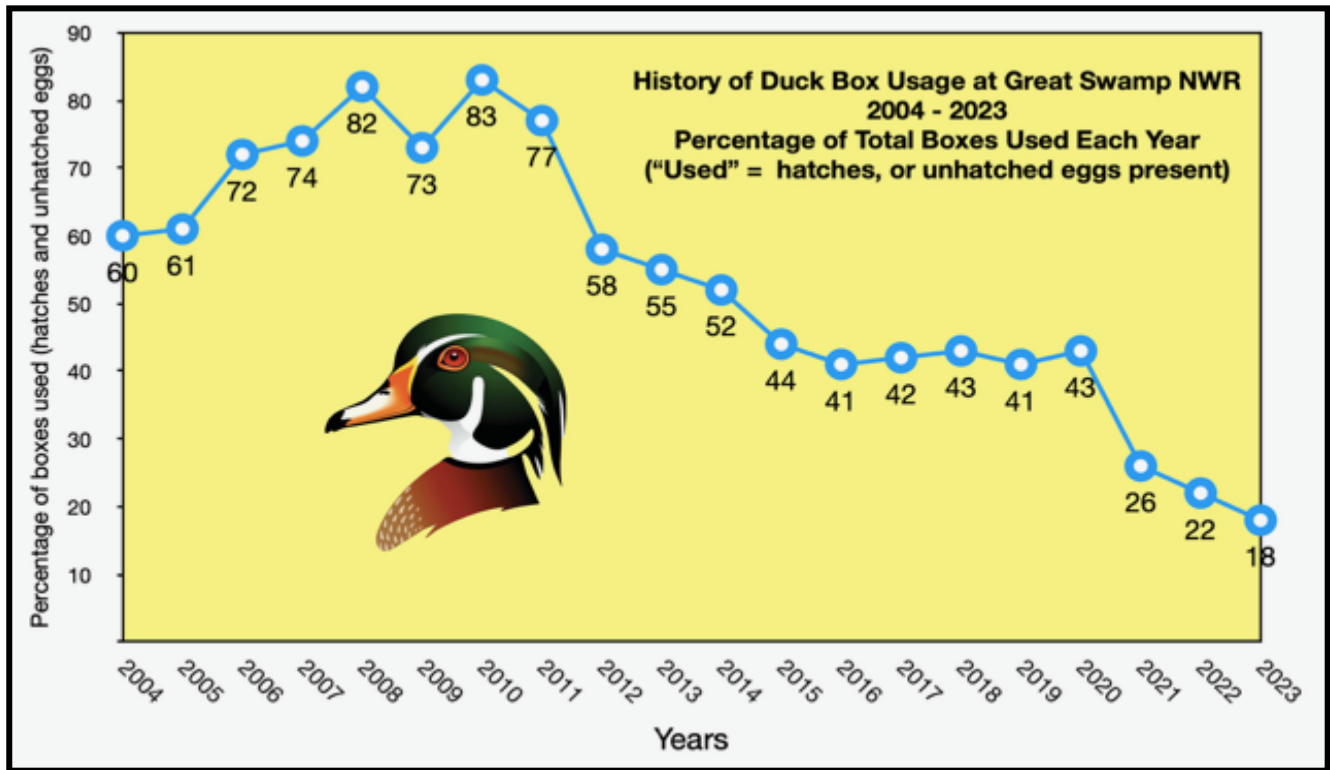


Figure 6

Thanks to the volunteers who participated in nest box inspections last winter, often under difficult conditions, wet and cold. And thank you to Leo Hollein, for showing us the way. The current volunteers are Tom Gula, Richard Hiserodt, Paul Lauber, Christine Pirog, Jim Mulvey, and Nancy Sturm.



Figure 7

2024-25 FEDERAL DUCK STAMP: NORTHERN PINTAIL DUCK



The competition for the 2024-25 Federal Duck Stamp painting was won by Chuck Black of Belgrade, Montana.

Hunters of migratory waterfowl who are 16-years and older are required to purchase a duck stamp. The funds raised by the sale of duck stamps are used to purchase federal lands that support migratory ducks and geese.

Bird lovers can purchase a duck stamp in the Friends Gift Shop for \$25.

Northern Pintails can be seen in New Jersey during the winter. They spend the summer in eastern Canada and parts of the northeastern U.S.

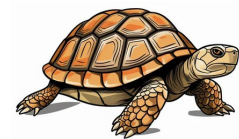
NEW EMPLOYEE MATT FALTEICH



Hi, I'm Matt Faiteich, the Lenape Refuge Complex's new Administrative Support Assistant. I am a native of Bethlehem, Pennsylvania

I'm 24 years old and am very excited to be starting my career with the US Fish and Wildlife Service. Though stationed at Cherry Valley National Wildlife Refuge, it is common to see me helping out at Great Swamp when my workload allows.

I have a background in finance and administrative support. I strongly value conservation and understand how important these practices are to the Refuge System.



SUMMER INTERN MARY WEISS

Hi everyone,

Thank you for welcoming me so warmly to Great Swamp! My name is Mary, and I'm from Lancaster, PA. I'm interning at the Refuge this summer through the Yale Conservation Scholars program.

I'll be a junior at Millersville University this fall, where I'm studying biology with concentrations in Animal Behavior and Environmental Biology. I'm also a sprinter on the track team at Millersville and am involved in the Sustainability Club as well as research that is focused on camera trapping methods for small mammals.

My future goals are to attend graduate school and to work in the field of wildlife conservation. I'm enjoying being on the Refuge this summer!



Thank you to all our authors and photographers. You educate and entertain all of us. Thank you to our dedicated and thorough proof-readers. We are grateful for their perfect pickiness. Our proof-readers are Terry Heidi, Carol Weingaertner, and Barbara Whitmore. It's a pleasure to work with all of you. It takes a Swamp to create a newsletter. Our sincerest gratitude, the Editors

THE TURTLES OF GREAT SWAMP (CONTINUED FROM PAGE 1)

They can't withdraw completely into their shells as other turtles can. Their bite is very strong and can easily remove a finger. They should not be picked up by their tails as this can injure their spinal cord. The biggest threat to adults is being hit by cars when crossing a road.



Spotted Turtle Photo by Robert Lin

Spotted Turtles (Clemmys guttata) are recognized by the yellow spots on their shell. Much like other turtles, in the winter they bury themselves in the mud and can use very little oxygen and need no food. This change in their metabolism is by a process known as brumation. They can live 65 to 110 years.

Spotted Turtles have declined across their range and are identified as a Species of Greatest Conservation Need (SGCN) in all 21 states in which they occur and are considered Endangered by the International Union for Conservation of Nature (IUCN). As with the Wood Turtle, Spotted Turtles have been petitioned for federal listing under the Endangered Species Act to be determined in 2024 and are also a Northeast Refuges/Region 5 "at-risk" species.



Painted Turtle Photo by Robert Lin

Painted Turtle (Chrysemys picta) are the most common species in North America found in nearly every aquatic habitat. They have 2 distinct yellow spots on the sides of their neck. When they brumate, their heartbeat can slow down to one beat every 5 to 10 minutes. They can live 20 to 40 years and reach sexual maturity at 10 years of age.

Adults grow to 5 to 7 inches in length with the females larger than the males. Painted Turtle fossils have been found as old as 15 million years. Four states have named them as the state reptile. In some Native American lore, they were known as the "trickster".

Bog Turtle (Glyptemys muhlenbergii) is the smallest turtle in North America, about 4.5 inches long. They can live around 60 years in the wild and reach sexual maturity be-



Bog Turtle Photo by US FWS

tween 8 and 11 years of age. They lay 3 to 5 eggs in their nest which hatch in late August or early September. They are dark brown with an orangish blotch above and below each tympanum (ear). Bog Turtles are a priority Resource of Concern for the Lenape National Wildlife Refuge Complex and are a federally threatened species.



Wood Turtle Photo by Judi DiMaio

THE TURTLES OF GREAT SWAMP

Wood Turtles (*Glyptemys insculpta*) are in trouble. They are a Northeast Refuges/Region 5 “at-risk” species; a Species of Greatest Conservation Need (SGCN) in all 16 states in which they occur; a state-listed threatened species in New Jersey; and are petitioned for Endangered Species Act listing to be determined in 2024.



Wood Turtle Photo by Robert Lin

Wood Turtles can live between 40 to 60 years in the wild and don’t reach sexual maturity for 12 to 20 years. Unlike other turtles, the old scutes (plates on the shell) don’t fall off. The shell looks like carved wood, which is how they got their name.

One unique activity is the turtles “stomp” the ground with their chests which attracts worms to the surface where they are quickly eaten. This sound apparently reproduces the sound of either rain or a mole (a worm predator) causing the worms to come to the surface. Unlike other turtles,

the gender of the hatchlings is determined genetically, not by the temperature of the nest environment.

Musk Turtle (*Sternotherus odoratus*) is also known as “stinkpot” due to the musky odor it can release from glands when under stress. Reaching between 3 to 5 inches in length, they can live for 40 to 60 years. Instead of swimming like other turtles, they walk on the bottom of the stream or water body.

Red Bellied Turtles (*Pseudemys Rubriventris*) grow to about 10 to 13.5 inches and can live 40 to 55 years, reaching sexual maturity at about 5 to 9 years. They are often confused with Painted Turtles, but their head and neck is dark with light lines, but no yellow spots on the side like the Painted Turtles.

They are not territorial, but are very wary of humans and will quickly dive back into the water if disturbed. They help control the presence of water hyacinth which is a non-native invasive aquatic plant.

Box Turtle (*Terrapene Carolina*) is a common turtle that can grow from 4 to 8 inches in length and can live up to 100 years. Sexual maturity takes from 10 to 20 years. It gets its name from the hinged plastron (shell underside) that will



Musk Turtle Photo by Leo Hollein

allow it to completely retract into its shell and “close the door”. They only lay 2 to 7 eggs once a year.

Its high domed and yellowish and brown shell is a distinguishing feature. Box turtle scutes continue to grow throughout the turtle’s life and develop growth rings. Turtles that live in water typically shed their scutes as they grow.

They are mostly terrestrial, but will go into the water occasionally. They don’t winter at the bottom of ponds, but rather in soil, under leaf litter. It is the state reptile of 2 states.



Box Turtle Photo by Zachery Cheng-Klausen

Eastern Mud Turtle (*Kenosternon subrubrum*) These over-winter in deep burrows in mud, sand or at the edge of marshes or fields. They grow 3 to 4 inches long and can live 20 to 40 years. Females lay only 2 to 7 eggs once a year. They are also euryhaline, meaning they can live in waters with varying salinity. They have 11 scutes on the sides of their shell, unlike other turtles that have 12. Often confused with Eastern Musk Turtles, Mud Turtles also have musk glands.

Mud turtles are rarely seen in Great Swamp.



38TH VOLUNTEER RECOGNITION EVENT (CONTINUED FROM PAGE 1)

Photos by Dave Katz

NOTABLE VOLUNTEER MILESTONES

100 Hour Name Tags: Lynda Brush, John Dekens, Jack Donohue, Kathe Kennedy, Nancy Lennon, Peg Lundrigan, Greg Murphy, Bonnie O'Connor, Michael Rubinfeld, George Steinbach, Nancy Sturm, Gail Vollherbst, Martha Wells, Pat Wells

150 Hours: John Dekens, Nancy Lennon, Evelyn Morton, Jim Robinson, George Ross, Martha Wells

250 Hours: Peg Lundrigan, Greg Murphy, Ernie Mazzarisi, Charlie Neiss, Ginnie Scott, Nancy Strum, Pat Wells, Meg Zaleski

500 Hours: Lee Brush

750 Hours: Rena Craine, Jack Donohue, Ellen Greenhorn, Robert Muska, Johnny Rousch, Tina Rousch, Barbara Whitmore, Kathie Willwerth



Judi Schmidt—8,000 hours



Kathy Woodward—12,500 hours

1,000 Hours: Jane Bell, Corinne Errico, Robert Lin

1,500 Hours: Jim Angley, Bill Craine, Nancy Felicito, Betty Mills

2,000 Hours: Barry Bowman, Tom Cartwright, Greg Henderson, Steve Herdman, Richard Hiserodt, Dave Katz, Paul Lauber

2,500 Hours: Steve Gruber, Tom Gula

3,500 Hours: Walter Willwerth

4,000 Hours Presidential Awards: Judi DiMaio, Matt Heiss, Terry Kulmane, Nancy Schenck

6,000 Hours: George Solovay

8,000 Hours: Judy Schmidt

12,500 Hours: Randi Emmer, Kathy Woodward



*Presidential Awards
4000 Hours:
(Left to right)*

*Judi DiMaio
Matt Heiss
Terry Kulmane
Nancy Schenck*



THIS LIST INCLUDES ACTIVE VOLUNTEERS WITH CUMULATIVE HOURS THROUGH MARCH 31, 2024.

Volunteers accumulated 23,572 hours in volunteer activities, including Workday volunteers.

The hours listed below for each individual represent their lifetime volunteer hours for Great Swamp NWR.

Jim Angley (1,582)	Lisa Florio (94)	Patrick Lundrigan (12)	Judy Schmidt (8,000.1)
Terry Armstrong (8.5)	Celeste Fondaco (95)	Peg Lundrigan (272.5)	Ginnie Scott (255.5)
Pete Axelrod (682)	Barbara Fowler (28.5)	Cathy Malok (38.5)	Christine Shoengold (83.5)
Kate Bartley (56)	Andrew Francis (92)	Jim Marquis (571)	Mark Shoengold (65.5)
Jack Beighley (42)	Bob Franco (67)	Lynne Marquis (705)	Steve Singer (9)
Jane Bell (1,053.5)	George Fricke (240)	Judy Marsh (452.5)	Gina Smith (370)
Steve Bell (41.5)	Susan Garretson Friedman (2,672)	Mary Masilamani (29.5)	Dorothy Smullen (4,194)
Edward Berberich (38)	Lynda Goldschein (175)	Ernie Mazzarisi (260.5)	Darrin Sokol (9)
John Berry (2,936)	Laurel Gould (11,753.5)	Trish McGuire (12)	George Solovay (6,058.04)
Brenda Bourassa (377.5)	Ellen Greenhorn (767.5)	Naomi McMechen (6)	Denise Soppas (95)
Barry Bowman (2,027.5)	Steve Gruber (2,555)	Betty Mills (1,736)	Lori Sorensen (59.5)
Eric Boyer (38)	Rita Guibert (70)	Evelyn Morton (159)	Janet Stadelmeier (338.5)
John Breault (907)	Tom Gula (2,730.5)	Bridget Mracek (893)	George Steinbach (141.5)
Amy Brillhart (26.5)	Jim Halsey (1,383.5)	Deepa Mukundan (16)	Jeff Stoll (15)
Samantha Brown (18.5)	Mary Beth Hansbury (493.5)	Greg Murphy (297)	Nancy Sturm (300.5)
Lee Brush (700.5)	Deborah Harps (14)	Robert Muska (825)	Olga Tarasenko (47)
Lynda Brush (113.5)	Anne Hebenstreit (882)	Ruth Nahm (315.5)	Elaine Taub (952.5)
Sid Burgula (15)	Matt Heiss (4,404)	Charlie Neiss (394.5)	Mike Toscano (18)
Daiga Busa-Fekete (47.5)	Greg Henderson (2,428)	Nikki Nobles (21)	Gail Vollherbst (103)
Shaun Byrnes (63.5)	Stephen Herdman (2,007)	Bonnie O'Connor (119)	Aryaa Vyas (21)
Tom Cartwright (2,613.5)	Shara Herman (3)	Brian Osborn (200.5)	Morgan Wactor (16)
Debby Casorio (9)	Jason Hershfeld (22.5)	Claudia Osborn (258.5)	Mary Jane Walsh (700.5)
Teri Catalano (699.5)	Richard Hiserodt (2,223)	Colin Osborn (1,454.5)	Esther Warner (1,081.5)
Peter Clark (133.8)	Helen Hoffman (917.5)	Peter Osborn (269)	Steven Weiner (2.5)
Lee Cleary (67)	Natalie Horne (4)	Tom Ostrand (285)	Martha Wells (224.5)
Carolyn Coyne (5)	Stacy Horne (4)	Gregory Parys (13)	Pat Wells (332)
Bill Craine (1,694.75)	Evelyn Huang (9)	Candace Paska (1,183)	Elaine Weyuker (236)
Rena Craine (852.5)	Beverly Karcher (46.5)	Priscilla Petitti (12)	Dennis White (222)
Callie Dahler (9)	Dave Katz (2,176.5)	Christine Pirog (244.5)	Barbara Whitmore (852.5)
John Dekens (159)	Susan Katz (364.5)	Roberto Reisinger (902.5)	Simon Williams (9)
Jim DeTizio (1,781.5)	Avery Kelly (6)	John Rhodes (24)	Kathleen Willwerth (837.5)
Dietrich Diecke (3)	Kathleen C Kennedy (103)	Jim Robinson (171)	Walter Willwerth (3,500.5)
Judi DiMaio (5,558)	Bill Koch (741.5)	George Ross (174)	Christopher Wilson (22)
Jack Donohue (838.5)	Murali Krishna (199.5)	Johnny Roush (900.5)	Peggy Wilson (88)
Karen Donohue (955.25)	Terry Kulmane (4,491.5)	Tina Roush (1,000.5)	Carl Woodward (810.5)
Randi Emmer (12,950)	Bonnie Langdon (315)	Carolyn Rubinfeld (137)	Kathy Woodward (12,864)
Corinne Errico (1,053.5)	Paul Lauber (2,069)	Michael Rubinfeld (103.5)	Shang Xu (27)
Nancy Felicito (1,543)	Nancy Lennon (203.5)	Elizabeth Ryan (35)	Meg Zaleski (383)
Donna (Sharpe) Fenske (85)	Robert Lin (1,032.5)	Chetan Sanghvi (36.5)	
Paul Fenske (1,178.5)		Nancy Schenck (4,030)	



100 hours - We got real name tags!

THIS OLD SWAMP / JULY 2024 / TOM CARTWRIGHT, Photograph by Dave Katz

There aren't many among us who haven't found themselves glued to the TV now and then on a rainy weekend afternoon, entranced by yet another episode of *This Old House*. Me, too. Guilty.

No wonder we're so fascinated; it's where most folks gather the fundamentals of basic construction techniques and best practices nowadays. All nicely packaged and free from guesswork and experimentation. Not only do they explain to us why we should undertake construction projects, but also exactly how to do it - from basic planning to satisfying results. Just like that. Another never ending project is underway. You can do itALL BY YOURSELF.

Having worked with the Friends of Great Swamp Construction Crew for the past six years, I can truthfully admit that we have indeed implemented a lot of techniques learned from educational venues like *This Old House* and *Instagram*. And why not? If there is a better way, bring it on. However, there is really no substitute for real life experience, and our crew has plenty of that. That plus great problem-solving skills and dispute resolution, which generally sets the stage for ultimate success. Our volunteers carry with them life experience from the fields of chemistry, physics, finance, technology, teaching, law, medicine and more.

What's interesting, though, are aspects of construction work and planning that you will never see on TV. See if you agree.

Those TV guys seem to always have the necessary materials right there on the job site. And in every size. Their materials are always perfect: right size, right color, right quality. Never second rate. Never wet or frozen, and never hiding spiders and snakes underneath. Never warped or rotten. Not slimy or covered in mud and bird droppings. Just perfect.

Tools for every conceivable job are right there within reach: sharp, charged and clean. In other words - brand new. The right tool for the right job. Period. They also seem to have every screw and nail ever developed - all conveniently laid out on a job site workbench.

TV guys will generally have plenty of strong and

silent helpers at hand. And, if not, they hire a few for the day. You hardly ever see their team working in the rain, mud and snow, or with flies, mosquitoes and ticks in their hair. Lunch is provided. I guess I've made my point.

Don't get me wrong, we enjoy building things that will endure the test of time and the elements



while hopefully making our Refuge a better place for all creatures. I'm only trying to put the proper emphasis on what it's like building and rebuilding structures in a swamp. Kind of like digging a hole on a beach with a popsicle stick. And, for those times when perfect materials or proper tools are found lacking, we fill the gaps with plenty of heart and determination. The number one question Refuge visitors ask our crew is, "How do you do it?". *That's* how.

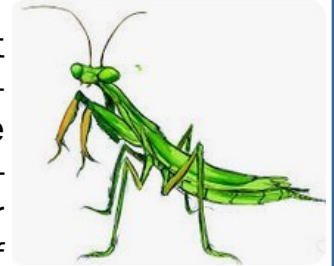
One last word: *volunteering* seems to make the effort even more worthwhile and somehow sweeter in the end. We love what we do and why we are doing it. We respect each other. We are grateful that we can do this work, and proud of what we have accomplished these many years. Be sure to say *Thank You* to George, Dave, Lee, Greg, Richard, Steve, Charlie, Judi, Ed, John, George F., John H., Kent, Bob, Matt, Joe, Tom G., and the entire Refuge Staff.

For *This Old Swamp*, I'm Tom Cartwright.

ADVENTURES IN VOLUNTEERING

Volunteering Isn't Always Pretty.

We have been volunteering together at the Visitor Center most Thursday afternoons for several years, welcoming visitors and guiding them to places of interest on the Refuge. Our most memorable visitor, however, was not really welcome (or human). It was a non-native praying mantis that was perched on a hummingbird feeder when we came in one afternoon last summer. Over the course of the next hour, we checked from time to time to see if it was still there, only to find that it had not moved. Meanwhile, hummingbirds came and went without incident until all of a sudden the mantis decided it was ready for lunch and struck in a split second. One unlucky hummingbird hovering at the feeder became its victim, and we watched in horror as it was devoured and the mantis calmly took its leave. Not an especially pleasant or uplifting incident, but definitely memorable!



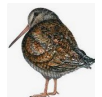
Lynne Marquis and Barbara Whitmore

**A Special Father's Day**

On Sunday, June 15th, we had a special surprise at the Visitor Center. Two ladies from Michigan and Minnesota, Linda and Marily Knieriemen stopped in because they had known Helen Fenske and wanted to see the Visitor Center as it was named after Helen. They walked over to read the information about the jetport and were surprised to see that one of the people pictured in a news article was their father, the Reverend George Knieriemen! Then they noticed the program for the dedication of the Swamp in 1964. Their father is listed as having given the invocation at the dedication! They also shared with us their memories of the fight for the Swamp. What made it even more special is that it was Father's Day. Barry Bowman and Judi DiMaio

Kids

E-mail from Pete Axelrod to Walk Organizer Corinne Errico following a busy morning with a bunch of volunteers introducing an even bigger enthusiastic bunch of young students to the Great Swamp:
 "Though my brain and mouth were thoroughly exhausted by the end I had a really great time. It's been many years since I have led a group of youngsters in the woods. Now I remember why I always loved it!"



MAMMALS OF GREAT SWAMP NWR

Article and photographs by Robert Lin, Volunteer

American Beaver (*Castor canadensis*)

The American Beaver is the largest rodent in the United States, growing from two to three feet long, not including the tail. They have dark-brown waterproof fur and webbed hind feet.

Beaver teeth grow continuously throughout the animal's life. Beavers must gnaw on trees to keep their teeth from getting too long. Thick layers of enamel on their teeth give them an orange color.

The American Beaver's most noticeable characteristic is the long, flat, black tail. A beaver's tail not only helps it swim faster, but can also be used as a loud alarm call when slapped against water.

Upon submergence, folds of skin (valves) close the nostrils and the stubby rounded ears, and the eyes are protected by a membrane that keeps water out (nictitating membrane). The small front feet with five clawed digits dexterously manipulate food and can be used to carry heavy objects. Their large tails help their balance when carrying heavy



logs to engineer their lodge or dam. teeth found in Oregon and dated to be approximately 7 million years old.



logs to engineer their lodge or dam.

The first fossil records of beaver were found in Germany and are 10 to 12 million years old. Beavers are thought to have migrated to North America across the Bering Strait. The oldest fossil record of beavers in North America are two beaver

Beavers are one of the few animals that can actively change an ecosystem by blocking rivers and streams with trees and mud, creating new lakes, ponds, and floodplains. In Europe, beavers are being brought back or introduced near urban cities to develop new ecosystems.

Beavers are well known for their ability to build dams and lodges, and if you look carefully along Pleasant Plains Road near the bridge over Great Brook, you can see their lodge well above the water line.

Long-tailed Weasel (*Mustela frenata*) and Short-tailed Weasel (*Mustela erminea*)

There are 3 species of weasel found in North America. Two species are native to New Jersey, the Short-Tailed (a.k.a., Ermine) Weasel and the Long-Tailed Weasel. The 3rd species, the least



weasel (*Mustela nivalis*) lives only in very cold climates of North America (i.e., northern United States, Canada and Alaska) and is the smallest of the three.

These small carnivores are known for their hunting ability and their fearlessness towards animals much larger than themselves. Weasels have been described as diabolically efficient killers. The Long-Tailed Weasel can take down prey many times its size. A comparison would be your house cat taking down a deer-sized animal for food.

The Long-Tailed Weasel is the largest of all weasels, but they are difficult to tell apart in the field.

Northern Short-Tailed Shrew (*Blarina brevicauda*) and Water Shrew (*Sorex palustris*)

At least seven species of shrew can be found in New Jersey. The most common and widespread of the shrews is the Northern Short-Tailed Shrew. One of the rarest is the Water Shrew. Shrews are about the same size as a mouse but can be distinguished by their elongated bodies, shorter tails, and furry pointed noses.

Shrews prey on insects and their larvae, slugs, snails, spiders and even on other small animals, like mice and voles. Earthworms are reported to be the most preferred food item for Northern Short-Tailed Shrews. Shrews have fast metabo-

lisms and need to consume more than their weight in food daily. They rarely live more than a year.

The water shrew is semi-aquatic and has webbed feet. This species is not well known or studied in New Jersey as they are most commonly found in central and eastern regions of Canada and the northern United States. They mainly target aquatic prey by diving from rocks or elevated banks of streams. It is the smallest mammalian diver.

They are mainly nocturnal hunters, so they don't use eyesight while locating their prey underwater. While it has been suggested that water shrews may use sonar or electroreception for hunting, investigations into these claims have not yet produced any such evidence. According to Kenneth C. Catania's research, nocturnally diving shrews manage to locate their prey by detecting move-



ment along their whiskers or by "underwater sniffing," a strategy in which they exhale air bubbles onto a perceived target and then re-inhale their own air bubbles to confirm the presence of prey.

They are rarely seen at the Great Swamp NWR but if you are lucky, both shrew species have been seen along the boardwalks at the Wildlife Observation Center.



HOW FERNS GOT THEIR NAMES

By Jack Donohue, Volunteer

There are many different fern species at the Great Swamp National Wildlife Refuge. This is how some of those ferns got their names.

Hayscented Fern - crushing it produces an aroma of fresh hay.

Cinnamon Fern is named after the color of the separate fertile stalk.



Sensitive Fern - the first frost will kill it.

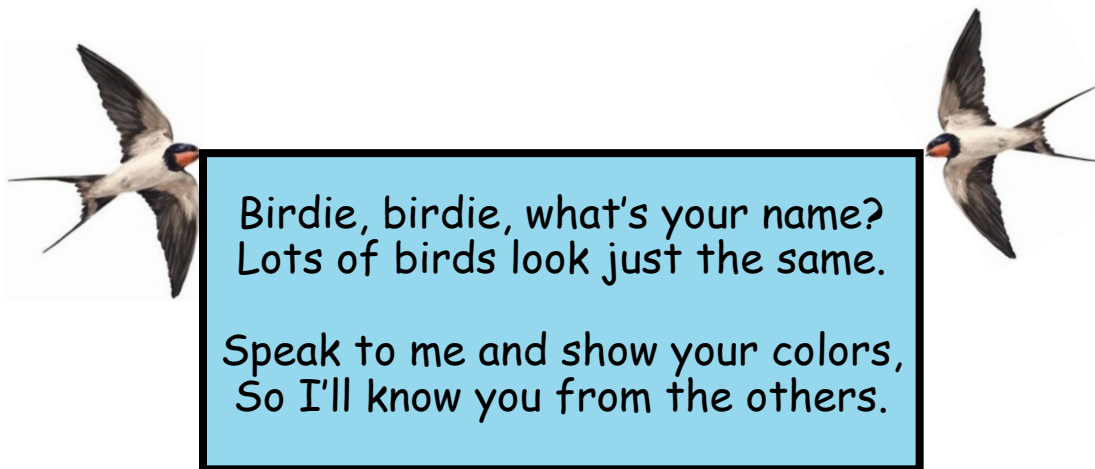
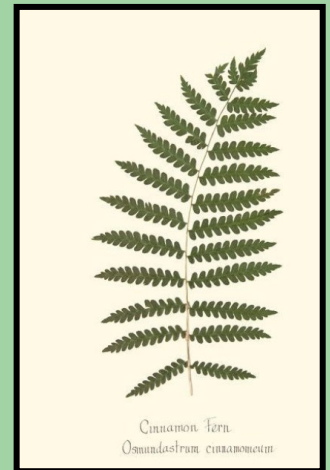
Interrupted Fern - the broad frond (leaf) is interrupted in the middle by fertile spore-bearing pinnae (leaflets).

Royal Fern - named for its large and imposing appearance.

Marginal Wood Fern - the sori (reproductive cells) are located on the margins of the pinnae (leaflets).

Ostrich Fern - its foliage resembles the large feathers of an ostrich.

Christmas Fern - pioneers used the holly-like evergreen leaves of the Christmas fern to make Christmas wreaths.



Birdie, birdie, what's your name?
Lots of birds look just the same.

Speak to me and show your colors,
So I'll know you from the others.

This is Corinne Errico's clever poem she created to introduce nursery school children to birds, so it should work for us too!

FRIENDS OF GREAT SWAMP NATIONAL WILDLIFE REFUGE

MEMBERSHIP APPLICATION

The Friends of Great Swamp is an independent, non-profit organization organized in 1999. Our operations and activities are managed by an all-volunteer Board of Directors. As our mission statement indicates, our focus is Refuge-centric — we support the goals, projects, and mission of the Great Swamp National Wildlife Refuge.

To become a member of the Friends of Great Swamp, fill out the information on this form, and mail with your check to:
 Friends of Great Swamp National Wildlife Refuge
 32 Pleasant Plains Road, Basking Ridge, New Jersey 07920

ANNUAL MEMBERSHIP APPLICATION

- | | | |
|---|--|---|
| <input type="checkbox"/> EASTERN BLUEBIRD—\$15-\$49 | <input type="checkbox"/> PAINTED TURTLE—\$50-\$99 | <input type="checkbox"/> RIVER OTTER—\$100-\$249 |
| <input type="checkbox"/> MONARCH BUTTERFLY—\$250-\$499 | <input type="checkbox"/> WOOD DUCK—\$500 + | <input type="checkbox"/> New Member? |

TOTAL ENCLOSED \$ _____

You may also join online at www.friendsofgreatswamp.org

Name _____

Address _____

City _____

State, Zip Code _____

Phone Number _____

E-Mail Address _____

Gift Membership From: _____

(If this is a gift, please include your full name on the line above so we may notify the recipient)

We need more Friends ...
Become a Friend Today—or,
Give a gift membership to a friend.

Thank you



Memberships help support the projects and programs at Great Swamp National Wildlife Refuge.

Membership Benefits

- The Swamp Scene Newsletter.
- A 10% discount in Friends Nature Shop.
- Notifications of upcoming events.
- Satisfaction in knowing you are helping protect wildlife and wild places while safeguarding a national treasure for future generations.

Friends of Great Swamp NWR
32 Pleasant Plains Road
Basking Ridge NJ 07920

Non-Profit Org.
PrSrt Std.
US Postage Paid
Permit No. 407
Chester NJ 07930



THE SWAMP SCENE JULY 2024

Friends of Great Swamp National Wildlife Refuge
Is an independent, volunteer, non-profit organization
dedicated to

Promoting stewardship of the natural resources of the Refuge,

Inspiring an appreciation of nature through education and outreach,

Engaging in partnership activities that support and enhance the Great Swamp National
Wildlife Refuge and the National Wildlife Refuge System.