



the Swamp Scene

friends of great swamp national wildlife refuge

ISSUE SEVENTY-TWO
JULY 2023

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MIDSUMMER MAGIC

Article & Photos by Corinne Errico, Volunteer

Summer visitors at Great Swamp NWR routinely notice that bees and butterflies are flying around, turtles and frogs are swimming in the water, and some robins are sitting in their second nests. But not everyone is aware of the magical show that dragonflies and damselflies (collectively called odonates) will be performing all summer long.

Here are a few basic facts that will aid visitors in their search for these wonderful "odes". Both dragonflies and damselflies have three main body parts: a head, a thorax with six legs and two pairs of wings attached, and a ten-segmented abdomen with terminal appendages related to their sex. However, there are some obvious differences between the two types of odonates.

Ranging in average length from 2- 5", dragonflies have wide bodies and eyes that meet on the top of their heads. They hold their wings straight out to their sides when resting and can fly up to an impressive 30mph. Their families have descriptive names, such as, Skimmers, Darners, Petaltails, Emeralds and Clubtails.



Mature male Common Whitetail



Maturing male Eastern Pondhawk

Damselflies have an average length of $\frac{3}{4}$ to $1\frac{3}{4}$ ". They have slender bodies and eyes that are widely separated, so they can see around plant stems. Only by in hand inspection, can one see that male damselflies have four tail appendages (one more than a male dragonfly). Damsels hold their wings either together over their backs or partially separated. However, they are weak fliers that can attain a maximum airspeed of only 6 mph. They are divided into three families: Broad-winged Damsels, Spreadwings and Pond Damsels.

With three simple eyes and two large compound eyes that contain 28,000-30,000 photoreceptors, both damselflies and dragonflies have excellent visual acuity to help them seek out mates and search for smaller insects to eat. Since they use 80% of their brain power for sight, it's not surprising that they have more than a 90% success rate in capturing their prey.

Both can move each of their four wings independently, so they become contortionists as they thrust their abdomens above their heads in an obelisk position to adjust for changes in wind and air temperature. Like hummingbirds, they can fly backwards and forwards and even hover.

(Continued on page 6)

THIRTY-SEVENTH ANNUAL VOLUNTEER RECOGNITION & APPRECIATION EVENT

Co-Sponsored by U.S. Fish & Wildlife Service and Friends of Great Swamp NWR

Photos by Dave Katz and others

PRESIDENT'S MESSAGE TO THE VOLUNTEERS

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

The Volunteer Recognition Event is as much a celebration as a recognition of all the absolutely amazing things you do. It's hard to put into words the overall tremendous accomplishments of which each of you is a part. It's really enough to just look around this wonderful place, the Great Swamp National Wildlife Refuge that we all hold so dear in our hearts, and recognize what it does for us, as much as what you do for it.

And speaking of looking around, just seeing you all brought together here for formal individual recognition is a big task in itself. The volunteer organizers of today's event deserve our thanks, in particular:

Laurel Gould and Steve Herdman for keeping track of all your volunteer hours - thankfully a task that will be made easier in future years by the new Online Volunteer Hours reporting program that debuted this month.

Thanks also to Refuge staff member Jared Green, and Friends Kathy Woodward and Judi DiMaio for their overall planning and coordination of the event.

Thanks to both Friends Mary Beth Hansbury and Barbara Whitmore for helping with the plaques and special gifts.

And Friends volunteer Randi Emmer for help with the refreshments.



Friends President Tom Gula (2000 Hour Award) and Trustee Kathy Woodward (11,000 Hour Award)

I was going to try to come up with a list of all the various activities that Friends volunteers participate in, but I know I would end up forgetting to recognize some important activity. You all know what you do, and how important it is to the everyday welfare of the Refuge. Thank you.



OPENING REMARKS

By Mark Horne, Project Leader, Lenape National Wildlife Refuge Complex

We are here today to celebrate your volunteerism and thank you for helping us with our impossible yet critical mission for wildlife and people.

So many people have helped me in my life and career. Some of you are here, some are far away and some are not with us anymore. Our mentors, our friends, we meet so many people along the way. People who make a difference in our world. People who volunteer and give of themselves to make that difference

I wonder if you would take, along with me, ten seconds to think of a person or people who have helped you be-

come who you are, those who cared for you and helped instill in you the value of service to others. Just ten seconds, I'll watch the time.

Whoever you've been thinking about, how happy they must be to know the difference you feel they made. How pleased they must be to know the difference you have made here at Great Swamp.

I was thinking about two people. The first was my good friend Leo Hollein and the impacts he had here in this regard. I can look around this audience and see many recruits into his army of bluebird box, wood duck box, and duck banding volunteers.

I was also thinking about my brother Bill Koch who hired me as a contaminants cleanup biologist and somehow turned me into a refuge manager. So all your complaints about me should go right to him.

In closing, from the bottom of my heart, thank you for the difference you make. Thank you for the over 18,000



hours volunteered this year, the equivalent of over nine staff members worth of time. Look to the north, south, east and west, and you will immediately see the positive impacts of your work at this refuge to habitat, to wildlife, to visitors, and to maintenance. Thank you again.

*Mark Horne, Project Leader and
Laurel Gould, Trustee
(11,000 Hour Award)*



VOLUNTEER MILESTONE AWARDS

Although every volunteer hour is appreciated, there are certain milestones that receive special recognition. Mile-stone awards include a Blue Goose Name Tag (100 hours), Milestone hour pins, perpetual plates on the 500 hour Honor Board and a “blue goose” for every 1,000 hours on the Blue Goose Honor Board.

100 HOUR CLUB (BLUE GOOSE NAME TAG): Peter Clark, George Fricke, Charlie Neiss, Jim Robinson, George Ross, Dennis White, Meg Zaleski

150 HOURS: George Fricke, Murali Krishna, Charlie Neiss, Christine Pirog, Dennis White, Meg Zaleski

250 HOURS: Lee Brush, Susan Katz, Ruth Nahm

500 HOURS: Robert Lin, Lynne Marquis, Colin Osborn

750 HOURS (NEW THIS YEAR!): Jane Bell, John Breault, Corinne Errico, Anne Hebenstreit, Helen Hoffman, Paul Lauber, Betty Mills, Bridget Mracek, Colin Osborn, Candace Paska, Roberto Reisinger, Tom Smith, Elaine Taub, Esther Warner, Carl Woodward

1,000 HOURS: Paul Lauber, Betty Mills, Colin Osborn, Candace Paska, Esther Warner

1,500 HOURS: Barry Bowman, Tom Cartwright, Greg Henderson, Richard Hiserodt, Dave Katz

2,000 HOURS: Steve Gruber, Tom Gula, Matt Heiss

2,500 HOURS: John Berry, Judi DiMaio, Matt Heiss, Walter Willwerth

3,000 HOURS: Judi DiMaio, Terry Kulmane, Walter Willwerth

3,500 HOURS: Judi DiMaio

4,000 HOURS AND PRESIDENTIAL AWARD: Dorothy Smullen

5,000 HOURS: George Solovay

10,000 HOURS: Randi Emmer

11,000 HOURS: Laurel Gould, Kathy Woodward



*Dorothy Smullen receiving Presidential Award
and 4,000 Hour Award from
Jared Green, Visitor Services Manager*

VOLUNTEER RECOGNITION & APPRECIATION EVENT *(Continued from page 3)*

Listed below are the active volunteers who reported hours from April 1, 2022 through March 31, 2023. There are 153 individuals plus a number of corporate and school groups contributing a total of 18,636 hours during this 12 month period.

Jenny Aley (7.5)	Laurel Gould (11,674.5)	Ruth Nahm (271.5)	Dorothy Smullen (4,106)
Jim Angley (1,425)	Ellen Greenhorn (713.5)	Charlie Neiss (244.5)	Lyn Snyder (32)
Joann Apgar (456)	Steve Gruber (2,186.5)	Nikki Nobles (4)	George Solovay (5,374)
Audrey Armstrong (50)	Rita Guibert (62)	Bonnie O'Connor (99)	Denise Soppas (79)
Terry Armstrong (7)	Tom Gula (2,305)	Brian Osborn (195)	Lori Sorensen (2)
Pete Axelrod (672)	Jim Halsey (1,122.5)	Claudia Osborn (253)	Janet Stadelmeier (316)
Joseph Balwierczak (2,013)	Mary Beth Hansbury (438.5)	Colin Osborn (1,216.5)	George Steinbach (86.5)
Kate Bartley (51)	Liz Harding (12)	Peter Osborn (263.5)	Nancy Sturm (51)
Jane Bell (886.5)	Liam Harrison (12.5)	Tom Ostrand (282)	Olga Tarasenko (20)
Steve Bell (37.5)	William Harrison (3)	Gregory Parys (10.5)	Elaine Taub (854.5)
John Berry (2,790)	Anne Hebenstreit (766)	Candace Paska (1,089)	Michael Toscano (12)
Brenda Bourassa (365.5)	Matt Heiss (2,958)	Christine Pirog (176.5)	Alicia Valenciano (3)
Barry Bowman (1,518)	Greg Henderson (1,917.5)	Claire Pommier (2)	Gail Vollherbst (35)
Eric Boyer (32.5)	Stephen Herdman (1,867.5)	Roberto Reisinger (896.5)	Aryaa Vyas (7)
John Breault (792)	Jason Hershfeld (15.5)	Jim Robinson (108)	Mir Vyas (35)
Lee Brush (447)	Richard Hiserodt (1,912.5)	Ryan Romano (8)	Shyam Vyas (25)
Lynda Brush (41)	Helen Hoffman (838)	George Ross (123.5)	Mary Jane Walsh (671.5)
Sidharth Burgula (9)	Leo Hollein (7,786)	Philip Round (296)	Esther Warner (1,020.5)
Daiga Busa-Fekete (33)	Linda Irvine (2)	Johnny Roush (695.5)	Martha Wells (55.5)
Shaun Byrnes (12)	Beverly Karcher (26.5)	Tina Roush (679)	Pat Wells (69.5)
Thomas Cartwright (1,725.5)	Dave Katz (1,745)	Carolyn Rubinfeld (131)	Alex Weng (24.5)
JanAndre Castro (9)	Susan Katz (263)	Linda Rubinfeld (6.5)	Elaine Weyuker (224)
Teri Catalano (691.5)	Palek Khurana (15)	Michael Rubinfeld (93.5)	Dennis White (169)
Peter Clark (114.5)	Lauretta Koch (140.5)	Elizabeth Ryan (30)	Barbara Whitmore (731.5)
Bill Craine (1,360)	William Koch (714)	Nancy Schenck (3,790.5)	Simon Williams (8)
Rena Craine (693)	Murali Krishna (182)	Judy Schmidt (7,960.5)	Kathie Willwerth (719)
Gina Dekens (53.5)	Terry Kulmane (3,454)	Kathy Schonning (2)	Walter Willwerth (3,084.5)
John Dekens (91)	Paul Lauber (1,368.5)	Bob Schwaneberg (420)	Chris Wilson (16)
Jim DeTizio (1,767.5)	Nancy Lennon (20.5)	Virginia Scott (221.5)	Peggy Wilson (47)
Judi DiMaio (3,551)	Robert Lin (594.5)	Christine Shoengold (81.5)	Carl Woodward (788)
Jack Donohue (15)	Randolph (Randy) Little (45)	Mark Shoengold (61.5)	Kathy Woodward (11,762.5)
Karen Donohue (832.5)	Patrick Lundrigan (6)	Gina Smith (363)	Dennis Yi (35)
Randi Emmer (10,815.5)	Peg Lundrigan (73.5)	Tom Smith (930.5)	Meg Zaleski (222.5)
Corinne Errico (868)	Cathy Malok (4)		
Nancy Felicito (1,482.5)	Henry Marks (3)		
Donna Fenske (80)	Jim Marquis (568.5)		
Paul Fenske (1,173.5)	Lynne Marquis (529)		
Lisa Florio (20)	Judy Marsh (416)		
Celeste Fondaco (47)	Joseph Mate (3)		
George Fricke (166)	Trish McGuire (3)		
Susan Garretson Friedman (2,669.5)	Karthik Menon (3)		
Jim Gilbert (62.5)	Betty Mills (1,193)		
Lynda Goldschein (168.5)	Evelyn Morton (147)		
Amy Goldshvartz (3)	Bridget Mracek (875)		
Charles Gould (284)	Jim Mulvey (1,200)		
	Bob Muska (703.5)		



Trustee Walter Willworth (2,500 & 3,000 Hour Awards), Carolyn Rubinfeld (see page 8), and Trustee Judi DiMaio (3,500 Hour Award)



*Vice-President Randi Emmer (10,000 Hour Award)
with Corporate Work Day Group*

Ten thousand hours, WOW, how did I accumulate that many hours since 2009? If anyone would ask me, I would say "time flies", (hours accumulate) when one finds something that they love to do. It is the joy of volunteering, seeing the wonder or surprise from a child's eyes to hearing "I didn't know that" from an adult when I do my Outreach programs and events, or volunteering on site at the refuge. Young and old plus everyone in between gets to learn about Great Swamp and how being out in nature is important to one's health and well being. In this process of educating the public, we all learn to respect and protect the wildlife and their habitats so that the refuge continues for generations to come. I am truly grateful that Great Swamp is the "gem" almost in my backyard.

Randi Emmer

The Great Swamp is a wonderful refuge for the wildlife and people as well. It brings a bit of peace to all who enter it. I get a great deal of satisfaction from the work that I have done at the refuge. The projects that I have been involved with all lead to improving the visitors' experience as they walk the trails.

George Solovay

*George Solovay (5,000 Hour Award)
working on a boardwalk*



Camouflage Challenge

Wilson's snipe is a master of camouflage. Its brown and buff stripes and bars allow it to disappear into the grasses along pond edges and wet fields where it uses its loong bill to search for larvae, insects, snails and worms.

The bird is the size of a killdeer, but pudgy. It will sit tight until you nearly step on it, then bolt with a "winnowing" sound from its wings.

Seven snipes are hiding in Shaun Byrne's photo. See page 10 when you give up looking.



MIDSUMMER MAGIC (CONTINUED FROM PAGE 1)

Male and female dragonflies and damselflies often show major differences in color and/or pattern, and sometimes their colors can change. For example, both sexes of the 1.7" Eastern Pondhawk dragonfly begin their lives with a green face, eyes, and thorax, and a green and black abdomen. While the female pondhawk will retain her colors throughout her lifespan, the thorax and abdomen of the male pondhawk will turn a powdery blue as he ages. Additionally, the abdomen of the 2" Common Whitetail male dragonfly will change from brown to white with maturity.



Female Ebony Jewelwings depositing eggs while male guards from above

If you want to observe a typical dragonfly's behavior, go to the bridge near the Sportsman's Blind at the WOC (Wildlife Observation Center) and look for the perching 1.4" male Blue Dasher dragonfly. Watch him fly above the water to seek out food or to fend off his rivals. Once he has successfully captured a receptive female's attention, he will use the claspers at the end of his abdomen to grab her behind the eyes and begin the mating ritual. After the female curls her abdomen toward him to form a mating position called a copulation wheel or

his partner have completed mating, the female damner will deposit a few thousand eggs on floating or submerged vegetation, with the male still grasping her in a tandem position. In one to five weeks, the eggs that aren't eaten by predators will develop into aquatic nymphs called naiads.

Depending on the environment, naiads of different species will spend from weeks to months or years in the water. These voracious hunters will eat tadpoles, small fish and mosquito and fly larvae while they avoid frogs, fish, and other aquatic predators. Finally, after an average of 10-12 molts, the adult dragonfly will climb up onto nearby vegetation and shed its last skin (called an exuvia). It will take several hours to days for the transparent wings of a newly emerged dragonfly to dry and harden, so it can safely fly away from predators. An adult odonate typically lives only a few weeks and feeds upon insects that are smaller than itself. But it has to be on the lookout to avoid being eaten by hungry birds, snakes, turtles or larger dragonflies or damselflies.

Damselflies complete a similar life cycle to dragonflies, with one difference being that male damsels will clasp the female behind her neck to initiate the mating ritual. On a lucky day, you might be able to watch the delicate 1.4" Blue-fronted Dancer damselflies as they perform their water ballet, form a mating wheel, and then fly in tandem while the female deposits her eggs into floating vegetation.

Late in the summer, look for the surprisingly long 2" Swamp Spreadwing damselflies that perch under spatterdock and pair up to begin their courtship. Stunning Ebony Jewelwing damselfies that have been around since spring can often be observed in the summer from the bridges at Kitchell Pond in Harding Township.

While small damselflies with charming names like bluets and forktails can be found in

watery locations, they can also be seen nearby in low vegetation where they



Eastern Amberwing in obelisk posture



Maturing male Eastern Pondhawk

heart, the male will complete the transfer of his sperm packet to fertilize her eggs. Finally, the Blue Dasher male will either hover above the female or guard her from a nearby perch, as she taps the water with the tip of her abdomen to release up to 700 eggs.

For contrast, watch the 3" male Common Green Darner dragonfly that spends much of his day patrolling a small area above the water. After he and

seem to float like tiny sticks moved by the hands of an invisible magician. Conversely, dragonflies often can be seen swarming high in the air over water and land as they feed on other insects.

So, whether you are at Great Swamp or at another site in New Jersey near or adjacent to fresh or brackish water, please treat yourself to the awe-inspiring show of the 183 dragonfly and damselfly species that grace us with their presence in the warmer months. Personally speaking, I'd give their act a 5-star rating.

Helpful references: Stokes [Beginner's Guide to Dragonflies](#), Ann Cooper's [Dragonflies Q&A Guide](#) and [nodes.org website](#)

SUMMER INTERNS

Hello, I'm Kiley, one of the American Conservation Experience Invasive Species Members for the Lenape NWRC this summer! I am a rising junior at the University of Maine and study Wildlife Ecology with a minor in Spanish. After I graduate, I hope to specialize in forest ecology to get more experience studying and managing trees and animals. I am also very interested in issues of environmental justice, and I hope to join the Peace Corps in a Spanish-speaking country to work on a grassroots environmental project.

I found this job when searching for fieldwork jobs for the summer, and I was very excited about the prospect of aiding in habitat management near my home in Hillsborough, NJ. I believe that conversations about conservation have to start with plants because they are the base of all ecosystems, so I hope that my role in mapping invasive species this summer will help provide guidance to management!



Hil! My name is Becca Mulligan and I'm one of the ACE Invasive Species Interns at the Lenape National Wildlife Refuge Complex. I'm currently a Wildlife student at Purdue University, and when I graduate I would like to go to graduate school. After that, I hope to become a Wildlife Biologist, an Ornithologist, or an Environmental Consultant.

I love birding and spending my time outside. I also enjoy herping (searching for amphibians and reptiles). Before I started this internship, I got to spend 5 weeks in the Upper Peninsula of Michigan for a summer practicum with students in my major. We spent day and night setting mammal traps, turtle traps, and mist nets, processing captured mammals, turtles, and birds, banding birds, identifying habitat, navigating through dense habitat via compass, data collection, and much more. While I gained a lot of hands-on experience with mammals, birds, and herpetiles, I would like to become more familiar with invasive species and GIS mapping. I'll gain those skills through my internship and I'm very excited to see what I'll learn!



Summer interns Kiley Chen (L) and Becca Mulligan (R)

and wetlands when I was little, which gives me a soft spot for the Great Swamp.

Learning about the Great Swamp's history has been inspirational for me, especially the fight by local folks against the Port of New York Authority's plans to destroy the swamp in favor of a jetport. It gives me faith that conservationists like me do have a say and can make a stand against those who want to eradicate our precious ecosystems.

I've been having an amazing experience at the Great Swamp. I've spent most of my time being a greeter at the Wildlife Observation Center. I have also been a walk-along on tours, cleaned up litter along the boardwalk, and helped with a Second Sunday presentation. I hope to do more! I'm glad to be surrounded by the friendly people who are teaching me new things and who care about the refuge and wildlife conservation.

I'm Drew Francis, a student at Fairleigh Dickinson University in Florham Park. My major is Creative Writing and with a minor in Environmental Studies. One of my professors recommended that I look into the Great Swamp's volunteer opportunities to fulfill the hours I need this summer for a biology course. After reviewing what the Great Swamp had to offer, I was instantly hooked.

Although biology isn't my major, I still have a keen fixation on topics regarding science, especially in the environmental and ecological fields - it's something I've always been passionate about and I plan on including it in my writing for the future, or even find a career writing for science.

The Great Swamp is a nostalgic place from my childhood. I remember having a school field trip to the swamp and visiting with my mother to see the turtles. I used to be obsessed with turtles, fish,



Drew Francis

NEW STAFF: CAROLYN RUBINFELD

Ever since I was a child, I've loved the Great Swamp. It has been a special place for me long before I knew how to bird by ear. My background is varied and has consisted of everything from Spotted Lanternfly management, wildlife surveys, education, and licensing.

Now that I work on staff at the Refuge, I can take an active part in educating the next generation of naturalists and creating accessible spaces where everyone can come to enjoy nature. My job consists of public outreach, making programs, and aiding with visitor services at any of our Refuge Complex sites.

When I'm not at work, you can find me with a pair of binoculars bird watching throughout New Jersey, writing, or enjoying movies.



Carolyn Rubinfeld (L) assist Dr. Paul Wilson, Professor of Biology, East Stroudsburg University, with a Critters in Cherry Creek at the Cherry Valley NWR. Cherry Valley is one of the refuges in the Lenape NWR Complex.

GOOD ROSE, BAD ROSE

By Pat Wells, Volunteer

One of the most pervasive invasives in the Great Swamp is multiflora rose (*Rosa rugosa*). A native of Asia, it forms dense suckering masses. It was probably introduced to the Swamp when Lord Stirling Stable on the west side of the Swamp first became a dairy farm. Multiflora roses were cheap, fast growing and so dense and prickly cows wouldn't push through them. After the

pink to white flowers bloom, cherry-sized rose hips are formed. These contain the seeds and birds eat them with delight. The seeds are not digested so they are excreted in a new location.

The swamp rose (*Rosa palustris*) is a native to the Swamp. It likes moist to wet ground. It produces pea-sized rose hips that are also devoured by birds. Each plant has fewer blossoms per branch so each shrub produces fewer seeds as compared to *rugosa*. *Rugosa* leafs out earlier in the spring and grows faster, so it out competes the swamp rose.

The Pervasive Invasives Crew targets these plants in many of the visitor areas. How do they tell the good from the bad before they hack away? The flow-



Swamp rose

ers are quite similar and both vary in color from pale pink to pale magenta. However, *Rugosa*'s leaves have a rough surface and hairy underside, while swamp rose has a smooth surface and little or no hairs on the underside. So look closely; it's all in the leaves.



Multiflora rose

A Place for Habitats, Wildlife & People

*By Jack Donohue
Photos by Robert Lin*



Formed by a retreating glacier
The Great Swamp National Wildlife Refuge was born
Now almost 8,000 acres in size
With a variety of habitats and wildlife, it is adorned.

Where grasslands and brushlands
And mature forests can be found
Where ponds and streams, plus
Forested wetlands and marshes abound.

It's where amphibians, and reptiles
Waterfowl and mammals roam
And where numerous species of insects and fish
And a plethora of songbirds call home.

It's a busy time during spring migration
And it's a startling thing to put into words
But the refuge is a resting, feeding or permanent habitat
For more than 244 species of birds.

The refuge serves as a natural ecological filter
Improving water quality by trapping impediments
Including a variety of harmful contaminants
And an assortment of unwanted sediments.

In addition to the filtration process
Retaining unwanted and unhealthy emissions
The refuge absorbs floodwater for gradual release
During extreme weather conditions.

The refuge is open sunrise to sunset
Every single day of the year
And if you have any questions
Just ask one of our many refuge volunteers.



Enjoy the Visitor's Center, Wilderness Area trails
And the Center for Wildlife Observation
As you learn about various aspects of nature and
Our need for Wildlife Conservation.

If enjoyment in the outdoors is your goal
Then you are sure to leave the Great Swamp gleeful
Because the refuge is the perfect interactive setting
For Habitats, Wildlife and People!



IN PRAISE OF SWAMPS

By *Andrew Francis, Summer Intern*

If you were to ask someone what they thought of when they hear the word “swamp”, the average person may say wet, muddy, smelly, mosquito-infested, or maybe even creepy. Though a swamp makes for an eerie horror movie backdrop, there’s a lot more to these ecosystems than meets the eye.

Swamps provide a home for a plethora of species with a high level of biodiversity. A vast variety of terrestrial and aquatic species of plants and animals thrive in the wetland environment. From foxes to snapping turtles and bullfrogs to eagles, swamps and wetlands are one of the most biologically diverse and rare ecosystems found here in North America, maintaining an important ecological balance within the biome.

Many species seek refuge in swamps due to the abundance of biological resources, and because swamps are more resistant to anthropogenic (human-caused) effects, such as industrialization and pollution. Within swamps, endangered species are able to thrive away from industrial development and the factors that caused them to be so threatened in the first place. In our own Great Swamp, bog and wood turtles, along with blue-spotted salamanders, find a safe haven helping them survive in our region.

Swamps also protect surrounding areas from flooding. As rain falls in the spring and snow melts during the winter months, vegetation and the sponge-like terrain of the swamp soak up the water. Then the water is gradually released, preventing extreme flooding. Swamps and wetlands filter and purify water by removing excess nutrients, sediments, and pollutants, which allows clean water to flow to other bodies of water thereby reducing the spread of ammonia to other waterways. Swamps also go through the process of denitrification, which reduces the amount of nitrates in the water, as well as lowering the amount of nitrogen that would otherwise make its way into the air.

The conservation of swamps and other wetland biomes should be considered a priority as they are extremely important in promoting biodiversity as well as protecting not only the species that reside in these wetlands but surrounding ecosystems as well. Although the Great Swamp was fortunate to rally enough people to conserve the land against the Port of New York Authority and their plan for a 10,000-acre jetport, not all swamps have been or will be as lucky in the future against harmful and destructive anthropogenic impact. If we want to take steps to save our planet, taking action to conserve ecosystems is a no-brainer - especially our swamps.

Shaun Byrne has kindly circled the seven Wilson’s snipes. Get out your magnifying glass. How did you do?



The 2023-2024 Duck Stamp is now available in the Gift Shop. The sale of the stamps helps support the National Wildlife Refuge System, including Great Swamp National Wildlife Refuge. Hunters of migratory waterfowl are required to purchase an annual Duck Stamp as a hunting permit,

Everyone who cares about the Refuge is encouraged to buy one.

Joseph Hautman’s Tundra Swans won this year’s hotly contested national competition.

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

☐ **EASTERN BLUEBIRD—\$15-\$49**

☐ **PAINTED TURTLE—\$50-\$99**

☐ **RIVER OTTER—\$100-\$249**

☐ **MONARCH BUTTERFLY—\$250-\$499**

☐ **WOOD DUCK—\$500 +**

☐ **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.
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THE SWAMP SCENE JULY 2023

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.