



the Swamp Scene

friends of great swamp national wildlife refuge

ISSUE FIFTY-EIGHT
NOVEMBER 2018

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GREAT SWAMP WILDERNESS AREA TURNS FIFTY

By Laurel Gould, Friends Volunteer

Fifty years ago, in 1968, President Lyndon Johnson signed the Great Swamp Wilderness Act which created the first Wilderness Area in New Jersey. *Wait a minute, you say!* Wilderness in New Jersey? It sounds like an oxymoron. But the 3,660 acre Wilderness Area at Great Swamp National Wildlife Refuge was created by law and is part of the 110 million acre National Wilderness Preservation System—a unique collection of public lands set aside by Congress to ensure future generations will be able to experience wilderness.

Here are some things you may not know.

- The Wilderness Act was passed in 1964 preserving the wildest of our public lands with the highest level of protection.
- In 1968, Great Swamp became the first national wildlife refuge with formally designed wilderness.
- By law, no motor vehicles or motorized equipment are allowed in Wilderness Areas. If a tree falls across the trail, it is removed with a cross-cut saw!
- Wilderness Area designations are created by law and an act of Congress is required to remove lands from the National Wilderness Preservation System.



- There are two Wilderness Areas in New Jersey—the other is at Forsythe NWR.
- There are 8 ½ miles of marked trails in the Great Swamp Wilderness Area, but visitors may hike off trail.
- Cross-country skiing and snowshoeing are permitted in the Wilderness Area.
- Before Congress would pass the law creating the Great Swamp Wilderness Area, the town had to remove a road running through the area and take down houses. The Wilderness Area today is more “wild” than when the law was passed 50 years ago. In the spring, daffodils bloom along the Orange Trail, a silent reminder of how far we’ve come.



“If future generations are to remember us with gratitude rather than contempt, we must leave them something more than the miracles of technology. We must leave them a glimpse of the world as it was in the beginning, not just after we got through with it” ~President Lyndon Johnson, upon signing the Wilderness Act of 1964

PRESIDENT'S CORNER

By Joe Balmierczak, President, Friends of Great Swamp National Wildlife Refuge



As I write this column, the neighborhoods around the Great Swamp NWR are experiencing a noticeable change in the weather, indicating that the fall season has started in earnest. Short sleeves are out and lined jackets are dug out of hall closets. The leaves are changing colors and flocks of birds are flying south. In October,

we celebrated National Wildlife Refuge Week and Friends were permitted, during this week, to escort visitors to the water impoundments to see ducks and geese fly in to rest for the evening during their trip south.

Like the visiting waterfowl, we also are aware of the calendar and start preparing our homes and gardens for the coming winter. Fall traditions such as football games and Halloween are taking our attention as well, and we know that the holiday season will be here before long. Thus, with the new year not too far away, I would like for the readers of the Swamp Scene to also think about the coming year and how you will be involved with Great Swamp NWR in 2019.

I hope that all of you will continue your membership in Friends of Great Swamp NWR or consider joining if not

already a member. Many of us have very busy lives and thus carefully manage our free time. Spending some of that free time as a volunteer can be a very rewarding experience. If you are not a current volunteer with the Friends, I would like to suggest that in the coming year you explore some of the volunteer opportunities that the Friends offer. Volunteer orientations describe the ways volunteers help to make the Great Swamp NWR a better place for wildlife and for human visitors. These orientations are offered a number of times throughout the year and notices of when they are held are posted on the Friends website. Also, the annual meeting of the Friends will be held at 5 pm on Saturday December 1st at the Helen Fenske Visitor Center when we will review the past year and see what lies in store for 2019. I hope to see many of you there.



FRIENDS BOARD APPROVES FY2019 BUDGET

Each year the Friends Board and Refuge staff meet to share ideas for new projects for the coming fiscal year (October 1 to September 30). The Board then creates a budget, projecting income and operating expenses before selecting new projects to fund. Here are some of the projects that have been budgeted by our committees for 2019.

CONSTRUCTION, MAINTENANCE & REPAIR PROJECTS

- Chandler S. Robbins Memorial Viewing Platform
- Refurbishment of Garden Club Blind
- Boardwalk on White Oak Trail

EDUCATION PROJECTS

- Reprinting of Junior Refuge Manager Activity Guide

GARDENKEEPER PROJECTS

- New workbench, charging stations, and tool storage
- Expansion of Butterfly Garden, new plant markers and interpretive materials for visitors

HABITAT AND WILDLIFE

- Support of Great Swamp Strike Team—sprayers, native seed mixes for treated areas, consulting services
- Head-start turtle research project (9th year!!)

PARTNERSHIP AND GOVERNMENT RELATIONS

- Donation to National Wildlife Refuge Association, the non-profit supporting Friends and the Refuge System

TRAIL BLAZERS

- New tools, backpacks, folding saws for trail maintainers

VISITOR CENTER AREA ENHANCEMENTS

- Improvements on the Nature Detective Trail
- Interpretive signs for purple martin gourd racks
- Enhance Pollinator Meadow for improved habitat

VISITOR SERVICES

- Fall Festival—20th Annual!
- New interpretive signs at Wildlife Observation Center
- Water bottle filling station inside Visitor Center
- Installation of weather station at Visitor Center

VOLUNTEERS

- Volunteer Recognition Event sponsorship

INCOME SOURCES

The Friends receive income from sales in the Nature Shop. Donations are received from individuals, corporations and organizations, and from generous Foundation grants.

However, the largest source of income for the Friends is *you*—our members.

Thank you for your incredible support!



A THWACK IN THE PARK *By Marilyn Kitchell, Refuge Biologist, Photo: Hal Korber/Pennsylvania Game Commission*



I spent the fall of 2017 and winter of 2018 thwacking my way through the refuge's brushy young forests. Blackberry brambles snagging my thick Carhartt coveralls and grabbing my every limb made progress slow. Gnarly stumps lay their own obstacle course at my feet. Ducking below and around bare thin branches, I tried to spare my rosy red cheeks and face from the poking and scratching that threatened the only parts of me exposed in the cold, crisp air. My task: to evaluate each field and determine its fate—would it be cut this year, or would it remain?

No wonder the woodcock love this stuff, I thought. This is a miserable place to be a large mammal. Opposable thumbs aside, I can't imagine it's much easier for a fox or a coyote to make its way through here.

I envision what it must be like for a woodcock to wander through this brush, navigating their way through stems spaced like agility pegs and horse jumps. A canopy of branches is layered above. Dense leaves hide the sky from the woodcock's upward-looking and predator-leery eyes. The moist earth, pro-

tected from the sun's evaporative rays by leaves above and underfoot, is chock full of earthworms who erroneously think THEY are protected by all this bramble. Not to be outsmarted, the woodcock have developed a graceful dance—a sort of forward-stepping, vertical bobbing motion—to detect the earthworm's nearly imperceptible underground presence. Shielded by all that's above, the woodcock must feel that this is the perfect place to build their ground nests and raise their fluffy young. So if these brushy fields are so good for the woodcock, you might ask: why was it my task to evaluate them for cutting? To answer that, we turn to the US Fish and Wildlife Service's Migratory Birds program, and the annual surveys that they've been conducting—one that the refuge participates in annually since 1968.

Each spring, States and National Wildlife Refuges alike send volunteers and staff out to listen for singing males on 1,000 woodcock survey routes across the species range. Following a standardized protocol, this cooperative data is submitted annually to the Division of Migratory Bird

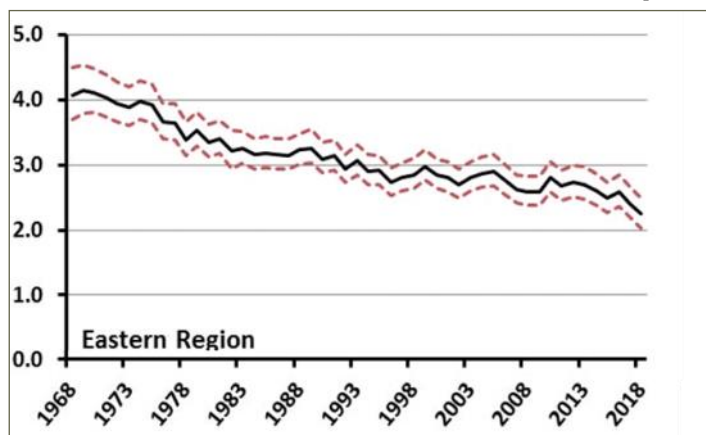
Management at Patuxent Research Refuge in Laurel, Maryland. Once compiled, the data is used to monitor the rangewide population and then to set annual harvest limits at the federal level. This long-term dataset shows that the woodcock population has been in steady decline since surveys began. And the primary reason for their decline? Habitat loss.

You see, woodcock depend on the brushlands for rearing their young from ground nests. The protection it offers from mammalian and avian predators, and the rich earthworms that can be found there, make it prime real estate. But brushlands themselves are a short-lived phenomenon, and around the Swamp they can attain forest character (with trees dominating and shading out the ground layer) in as little as 10 years. Across the east, nearly 13 million acres of scrubby brushland habitats have been lost either to suburban development or to forest conversion since the 1960's, and with it go the woodcock. Here in the northeast, mature forests seem to have captured

the heart of the average suburbanite as sign of a healthy bit of nature left to be—and scrubby brushlands can be perceived as an interim mess, no longer pretty or useful to us. Beauty is, of course, in the eye of the beholder. For the woodcock, the loss of brushlands has been an ugly thing.

And so, odd as it sounds, the only way to maintain these ephemeral habitats is...to cut them down. By cutting early successional ("young") habitats in rotation, staggered from year to year and field by field, the refuge is able to consistently maintain suitable habitat for our woodcock friends. And as much as our brushlands love to grow up into forest, they are equally eager to regenerate following cuts—often growing back even thicker than they started. In as little as 6 months those fields will be dense with vegetation 5-6 feet tall, eagerly sprouting upward and outward.

And the woodcock happen to love hanging out in those really thick brushlands, even if I do not.



Average number of woodcock heard on annual survey routes across the Eastern region, 1968-2018.

Graph from Seamans and Rau 2018 (*American Woodcock Population Status, 2018*. USFWS, Laurel, MD.).

MORE THAN 16,000 VOLUNTEER HOURS! VOLUNTEERS REALLY MAKE A DIFFERENCE!

Yes—16,000!

That's the number of hours donated by volunteers to Great Swamp National Wildlife Refuge in Fiscal Year 2018. A new record! This includes corporate and school work groups, summer interns, RV volunteers, but it also includes 193 individual Friends and volunteers. So—you can just imagine what a difference volunteers make.

Where do volunteers spend their time—and what are they doing to benefit Great Swamp National Wildlife Refuge? Let's take a look at four of the major areas.

HABITAT AND WILDLIFE—3,473 HOURS

This area is the key reason for the existence of Great Swamp National Wildlife Refuge—to conserve, enhance and protect habitat for wildlife. *This year volunteers ...*

- Removed invasive species, which threaten habitat diversity—and reintroduced native species beneficial to wildlife.
- Created pollinator habitat—pollinator insects are in decline.
- Expanded a Monarch garden; raised caterpillars and released butterflies.
- Monitored the bluebird trail and purple martin nest gourds.
- Banded ducks for migration research.
- Cleaned out wood duck boxes and surveyed the number of successful egg hatches.
- Planted and tended native plant gardens for birds and butterflies—and to educate our visitors.



The Great Swamp Strike Team works year-round to tackle emerging invasive species that threaten refuge habitat. Pictured here is a “striking” example of how effective a focused and persistent effort can be.

Before (left): Wildlife Biologist Colin Osborn surrounded by glossy buckthorn in Field 48 on October 13, 2016.

After (right): Strike team members working in the same Field 48 on October 25, 2018. Volunteers make such a difference!

FRIENDS—1,026 HOURS



Friends of Great Swamp NWR is an all-volunteer organization and these volunteer hours are spent keeping our non-profit organization vibrant, growing, and financially stable. *This year volunteers ...*

- Maintained membership records, sent renewals, and welcomed new members.
- Acknowledged donations and tracked grants.
- Paid the bills and kept the books.
- Provided communications through the website, Facebook, and Swamp Scene.
- Operated the Friends Nature Shop.
- Coordinated volunteers and provided volunteer training and orientation.

CONSTRUCTION, MAINTENANCE AND REPAIR—3,561 HOURS

This category focuses on improving infrastructure and keeping the refuge in good shape. These volunteers build boardwalks, bridges, kiosks, and trails as well as taking care of maintenance and repair. *This year volunteers ...*

- Designed and constructed a new 600 foot boardwalk to the Friends Blind.
- Worked with staff on the major restroom renovation project at the Wildlife Observation Center.
- Installed benches, built kiosks, and constructed bridges for wet areas on trails.
- Maintained 11 1/2 miles of trails including 8 1/2 miles in the Great Swamp Wilderness Area.
- Mowed and mowed! Lawns, entrance roads, around parking areas, and along roadsides.
- Picked up litter along refuge roads in spring and fall.



VISITOR SERVICES AND RECREATION—8,142 HOURS

Refuges have a “wildlife first” mission—but people are welcome too—and our volunteers are experts at making visitors feel welcome and sharing their knowledge and enthusiasm. *This year volunteers ...*

- Staffed the Visitor Center daily, greeting visitors and providing refuge orientation—over 4,000 volunteer hours.
- Greeted visitors at the Wildlife Observation Center during busy spring and fall migration seasons.
- Assisted young people in earning a Junior Refuge Manager Badge and led walks for schools and other organizations.
- Hosted programs for the public including Second Sundays, Fall Festival, and walks for National Wildlife Refuge Week.
- Created seasonal displays for the Visitor Center to enhance visitor experiences.
- Provided volunteer speakers for organizations who requested a free refuge- based program.
- Set up displays in local libraries to publicize the refuge.
- Hosted a monthly Refuge Readers book group.



“Act as if
what you do
makes a
difference.
It does.”

– William James

FRIENDS BLIND—TO BECOME CHANDLER S. ROBBINS MEMORIAL VIEWING PLATFORM

When Chandler “Chan” Robbins, a renowned ornithologist and researcher whose career spanned more than 60 years at the Patuxent Wildlife Research Center in Maryland passed away in 2017, the family of his son George considered a fitting tribute. For over forty years, George and his wife Andrea, while traveling between their New Hampshire home and George’s family in Maryland, would stop in Chatham to visit Andrea’s parents. While there, Great Swamp National Wildlife Refuge was always a deliberate birding destination for them.

a two-level viewing platform in memory of George’s father. George Robbins explained their choice. “It was simply because we wanted to improve our birding experience, while at the same time create a memorial for my father that we thought to sponsor the building of a taller viewing platform in the refuge.”

One level of the new viewing platform will be ADA compliant, raised about four feet above ground level. The second level, accessible by stairs, will be eight feet above ground which should

“We are thrilled to be able to create a special place that so many will enjoy.”

Now, thanks to a generous gift from George and Andrea Robbins, the Friends Blind at the Wildlife Observation Center will be replaced with

provide an extensive view of the impoundment area and waterfowl. The entire structure will be open, to enhance viewing. Leading to



On September 28, in the Friends Blind, George Robbins presented the donation to Laurel Gould, Friends’ Treasurer

(Left to right: Andrea Robbins, George Robbins, Laurel Gould, Kathy Woodward, Deputy Refuge Manager Lia McLaughlin)

the future site of the platform is a new ADA compliant boardwalk, designed and created by George Solovay and his dedicated and hard-working team of carpenters. This project, which was funded by the Friends, was finished earlier this summer and provides a relaxing and scenic walk through the woods.

It was important to Andrea and George that the new structure be handicap accessible. According to Andrea, “We also traveled extensively with George’s father in his later years, while he was using a wheelchair. Although Chan may never have actually visited the Great Swamp himself, he would have greatly appreciated the easy access that the new wheelchair accessible boardwalk and viewing platform would have provided to him, so that he could view the birds with us.”

In thanking the Robbins Family, Friends President Joe Balwierczak commented: “We are so proud to have a viewing platform with the name Chandler S. Robbins on it here at Great Swamp NWR. It is even more amazing that this platform will be ADA compliant and will provide a birding experience for many who would never have had that opportunity. What an incredible legacy to leave for Great Swamp visitors who come from near and far to enjoy birding in all seasons.”

Refuge staff and volunteers are presently working on the permitting process and the design phase. It is anticipated that the Chandler S. Robbins Memorial Viewing Platform may be ready for visitors in 2019.

Andrea sums it up: “It is all very exciting! And we are thrilled to be able to create a special place that so many will enjoy.”



George Solovay’s model of the Chandler S. Robbins Memorial Viewing Platform at Great Swamp NWR



CHANDLER S. ROBBINS 1918—2017



Robbins uses his binoculars. Photo by Barbara Dowell, courtesy USGS

Renowned U.S. Fish and Wildlife Service ornithologist Chandler Robbins died March 20, 2017. He was 98. Born July 17, 1918, in Boston, Robbins devoted his life to birds, their study and protection.

He graduated from Harvard with a degree in physics and began teaching math and science in Vermont. Robbins then joined the Service in 1945 as a junior biologist at Patuxent Research Refuge, where he engaged in early research on the effects of DDT and had his papers edited by his colleague Rachel Carson.

Service retiree David Klinger remembers: "Several of us from the National Conservation Training Center got together at Patuxent around 2007, about the time of the centennial of Rachel Carson's birth. We wanted to know what Chan Robbins could tell us about Carson, as well as about his own eventful life. We were smart enough to know we needed an oral history with this 'grand old man' of ornithology, and, for hours, he didn't disappoint."

Robbins was also the one who first banded the Laysan albatross named Wisdom in

1956. He re-banded the world's oldest known banded bird in 2002.

During his 60 years of full-time work at Patuxent (he retired in 2005), Robbins made critical contributions to research on forest fragmentation, bird banding, breeding bird surveys and bird identification. He was a senior author of *The Field Guide to Birds of North America*, organizer of the North American Breeding Bird Survey and much more.

"Chandler Robbins was the 'dean' of the bird conservation world, one might say," says Jerome Ford, assistant director for Migratory Birds. "His amazing legacy lives on every day in the work of our dedicated Migratory Bird Program employees."

A listing of groups that have honored him, even just through 2005, reads like a who's who of conservation groups. The National Audubon Society named him as one of 100 Champions of Conservation of the 20th Century. In 2000, the American Birding Association

established the ABA Chandler Robbins Education/Conservation Award.

"What symbolized Chan Robbins most eloquently to me was his worn-out old pair of government binoculars," Klinger says. "Dented, heavy as lead and beat to hell. I hope they go into a Fish and Wildlife Service museum someday. He could have afforded the finest optics in the world, but he was comfortable with what he had. His acuity of eye and ear exceeded the powers of mere physics."

In "retirement," Robbins became "Scientist Emeritus" at Patuxent and continued to work at the U.S. Geological Survey's Patuxent Wildlife Research Center. "I got to bird with two true recognized luminaries in the birding world—Roger Tory Peterson and Chandler Robbins, so I guess you can say I've lived a full life," says Klinger.



Reprinted from: U.S. Fish and Wildlife Service, Open Spaces, March 21, 2017 (<https://www.fws.gov/news/blog/index.cfm/2017/3/21/Renowned-FWS-Ornithologist-Chandler-Robbins-Dies>)



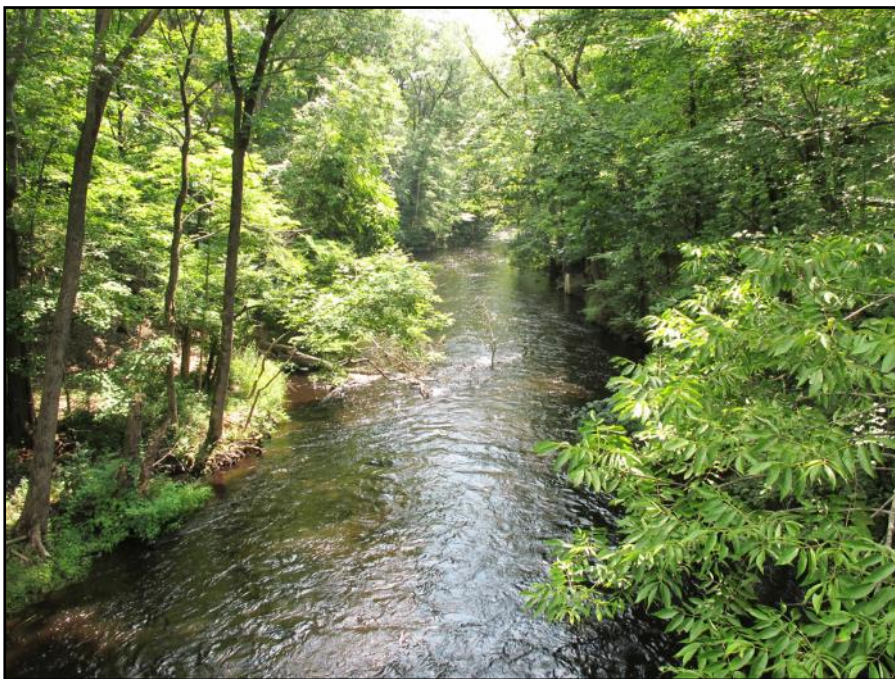
TWENTY YEARS AND COUNTING!

FRIENDS OF GREAT SWAMP NATIONAL WILDLIFE REFUGE 1999—2019

In 2019, the Friends will be celebrating their 20th anniversary. We're planning some special events and activities. We'll be reuniting with some of the many people who have helped the Friends grow and thrive over the years and we'll be highlighting some of the many accomplishments which have enhanced the habitat, wildlife and recreational opportunities here at Great Swamp National Wildlife Refuge.

Stay tuned ... and plan to join us!

POSTCARD FROM AN ICE AGE—MILLINGTON GORGE *Story and Photos by Peter Lebovitz, Friends Volunteer*



The entrance is unmarked and inconspicuous. Parking is on a patch of gravel alongside a railroad crossing. Here, an opening in the tree line leads to a crushed stone and timber path. But a few steps in and you are transported to a different realm entirely. Beneath a dense forest canopy, the land drops off sharply to your right, plunging over 150 feet to a river below. The path winds along the embankment above the river and across a wooden bridge. A flight of rough wooden stairs leads down to the water.

Only a short distance from the refuge, Millington Gorge may be the most fascinating nearby place you've never seen. It is not named on maps or guide books, and there are no signs pointing the way. But this is where the Passaic River proper begins, as its headwaters leave the Great Swamp watershed. And the gorge where you now stand is a fundamental part of the history of both the swamp and the refuge as we now know it.

Fifteen thousand years ago, the Great Swamp National Wildlife Refuge was at the bottom of an

enormous lake. Known today as Lake Passaic, it was formed in the waning years of the last ice age from water left behind by the melting glaciers. But the advancing glaciers had pushed vast amounts of rocks and soil southward, blocking any escape route for the glacial melt or the ancestral Passaic River. And water was now filling Morris County like a clogged sink. So where did all that water go?

The Third Watchung Mountains were the last barrier holding back the remains of Lake Passaic. Its waters eventually overflowed and spilled over a gap in the mountain range. Over time, the rushing water carved Millington Gorge into the



USGS Stream Gauging Station

trap rock, redirecting the Passaic River on its current long and torturous journey to the sea. Today, this postcard from the ice age offers a scenic retreat for hiking and fishing. The river here is stocked with trout, and it offers a surprising change in scenery for kayakers paddling downstream from Lord Stirling Park.

If you go, be aware that the footing can be a bit precarious in places, and if you descend to the river, a bit soggy. Traveling northward along the embankment, the gravel path gives way to a smaller trail worn through the brush. Further down this trail, at the point where the Passaic's headwaters enter the gorge, you will come upon a Stream Gauging Station operated by the US Geological Survey. This was installed to record water depth and rate of flow data which are used in the planning of various water control projects.

GETTING THERE

From South Maple Street / Basking Ridge Road, turn south onto Pond Hill Rd at the Basking Ridge / Millington line. Drive a short distance up the hill along the river, and park alongside the railroad crossing. An opening in the tree line on the Northeast corner of the crossing leads to the path along the gorge. (GPS Coordinates: 40.677829, -74.528602)

THE PASSAIC RIVER

The Passaic River rises in Mendham and flows southward, skirting the western edge of the Great Swamp. The entire swamp drains into these headwaters which then exit the refuge through

Millington Gorge. After leaving the gorge, the river travels another 80 miles, flowing through 45 towns and providing drinking water for about 2 million people. In Paterson, it forms the spectacular Great Falls where, in the late 18th century, its hydropower was a key factor in the industrialization of New Jersey. Sadly, by the time it reaches Newark Bay, the Passaic has become one of the most polluted waterways in America.

WILDLIFE POPULATION CHANGES AT GREAT SWAMP NATIONAL WILDLIFE REFUGE

By *Leo Hollein, Volunteer*

In more than 15 years of volunteering in various wildlife programs at Great Swamp National Wildlife Refuge, I have observed changes in wildlife populations. There have been increases as well as decreases in species populations. Some changes would generally be considered as positives and others negative. The changes have been due to human activities, habitat changes and natural events—or a combination of these factors. The population of a specific species may also be cyclical in nature.

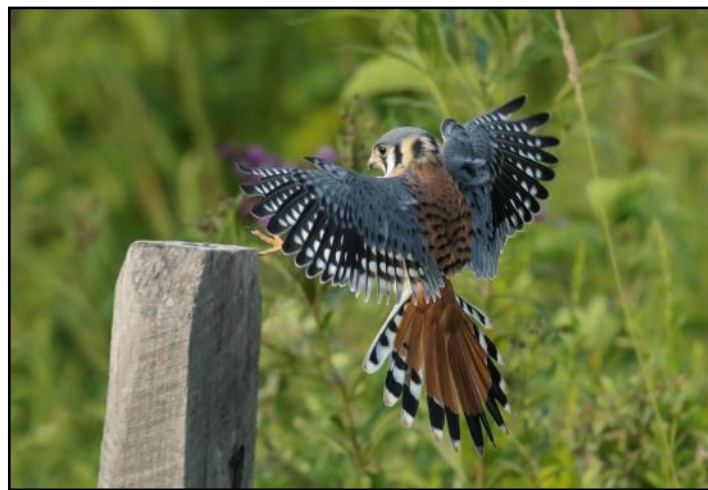
Data exists to quantify a number of these population changes as well as convincing anecdotal observations on other changes. For example bald eagles have nested for the last three years in the Refuge. There is no previous record of bald eagles nesting in the Refuge. Species that have increased in population include black bears, wild turkeys, eastern bluebirds, purple martins, house wrens, mute swans, Canada geese and wood turtles. Species that have decreased include white tailed deer, nesting kestrels, screech owls, wood ducks and mallards. No doubt other species have waxed and waned but there is not sufficient evidence to include them in the lists.

Human activities include adding and maintaining nesting homes for bluebirds, purple martins, wood ducks and kestrels. The two newest additions of nesting homes for birds are the 4 purple martin racks and 6 kestrel boxes. Two martin racks are at the visitor center. Two are located on the former headquarters

grounds. The purple martin racks hold 12 artificial gourds that have been very successful in attracting martins as they nest in most of the gourds. It is a pleasure to stand near the racks and listen to the almost continuous chirping from the martins.

Kestrel nest boxes have not been as successful. Kestrels raised two clutches in 2006 and had a nest depredated in 2007. There has not been any nesting kestrel activity in the nest boxes since then. Kestrels are present during spring and fall migration. The Raptor Trust releases 10 to 20 kestrels that are orphans from the urban areas along the Hudson River. It is not known why kestrels do not use the nest boxes. One theory is the Cooper's hawks prey on juvenile kestrels. The reduction in nesting kestrels is not confined to the Refuge but has been widely noted throughout New Jersey.

The two long term nest box programs also show different results. Over the last ten years bluebirds have averaged over 200 fledglings per year. This is an increase over the previous results as pair-



American Kestrel Photo by Chuck Hantis

ing the bluebird boxes and increasing the distance between pairs of boxes have proved successful. However, wood duck nesting has declined in boxes over the last decade. This trend is consistent with the reduced number of wood ducks trapped and banded in the Refuge during the summer. The Refuge habitat has become less attractive to nesting wood ducks than in the past. The Refuge is implementing steps to reverse this trend.

DEER HERD NUMBERS DROP

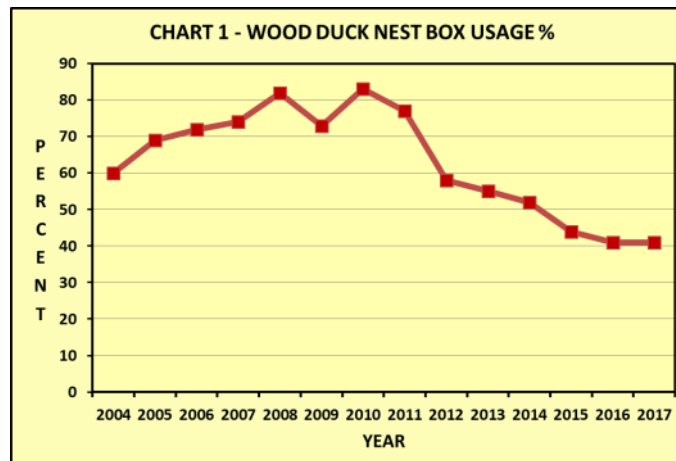
The white tailed deer population in the Refuge has decreased significantly due to a

combination of human initiatives and natural events. This has reduced over-browsing of Refuge vegetation. An overabundance of whitetail deer will browse much of the native vegetation that in turn leads to an abundance of introduced flora.

The decrease in the deer population was due to a combination of changing hunting rules and disease.

Refuge hunts have been held annually since 1974 to control the deer population. The four day hunts take place in November. The chart on page 10 presents the history of deer harvests at the Refuge. From 1974 to the end of the century the deer harvest gradually increased, most likely due to a larger hunt area and improved deer habitat. The number of deer harvested has plummeted in this century. Browsing studies of Refuge vegetation confirm the deer population is now well below the guideline of 20 deer per square mile.

(continued on page 10)



WILDLIFE POPULATION CHANGES *(continued from page 9)*

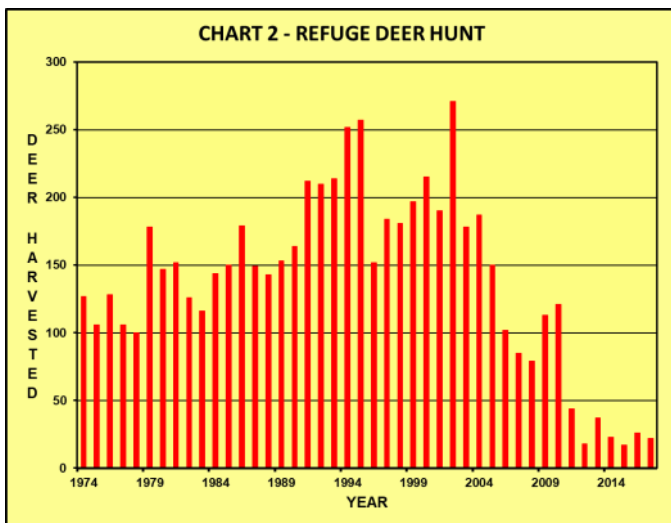
The most significant change in deer hunting rules went into effect beginning with the year 2000 hunt. The new system was called the “Earn-a-buck” program and was aimed at reducing the doe (adult female) population that annually can have twins or even triplets under favorable conditions. While hunt details vary year by year, this program requires a hunter to harvest one or more antlerless deer before earning the right (buck tag) to harvest a buck. The “Earn-a-buck” program led to a gradual decline of the deer population from 2002 to 2010. The previous deer hunting system was called the “hunter’s choice”. Under this program a hunter could harvest any deer.

Hunters preferred to harvest bucks. Removing bucks from the herd does not significantly impact the deer population.

There was a significant outbreak of Epizootic Hemorrhagic Disease (EHD) following Hurricane Irene that hit the Refuge in the late August 2011. There were also smaller disease outbreaks in 2007 and 2014. Irene brought about 6 inches of rainfall that led to extensive flooding following an already wet August. Small midges (*Culiseta variipennis*) commonly referred to as gnats or “no-see-ums” can transmit the EHD virus when biting deer. A midge carrying the EHD virus may have been carried into the



Photo by William Bell



Refuge on hurricane winds. Any disease-carrying midges that were present in the Refuge had ideal breeding conditions to expand their population. Epizootic means that the disease occurs at the same time in many individuals of the same species. As the name implies the disease causes extensive internal hemorrhaging.

While the EHD virus is often fatal, not all infected deer will die. Some will fight off the disease and develop antibodies to ward off future infections. Surviving does pass these antibodies to their offspring. The good news is that

EHD is only fatal to wild ruminants such as deer. EHD rarely causes illness to domestic animals and does not infect humans. People are not at risk by handling infected deer or eating venison that has been exposed to EHD. As shown in the deer harvest chart, the number of deer harvested fell below 50 for the first time in hunt history from 2011 to 2017. Eventually the deer herd will recover. It has been proven that the deer hunt rules can be adjusted to maintain the herd below the population guidelines.



Did you know that you could donate to Friends of Great Swamp National Wildlife Refuge simply by shopping through Amazon? If you shop at AmazonSmile, Amazon will donate 0.5% of your purchase to the charity of your choice.

The products and prices are the same as Amazon.com. Using AmazonSmile is just a simple and automatic way for you to support your favorite charitable organization every time you shop.

To get started, simply go to smile.amazon.com and select your charity. Shop as usual and place your order. What a great way to double the value of your holiday shopping. Thank you!

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.

Gift Memberships will include a coupon redeemable at the Friends Nature Shop for a free Great Swamp pin or Great Swamp patch.



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



THE SWAMP SCENE NOVEMBER 2018

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.