



the Swamp Scene

friends of great swamp national wildlife refuge

ISSUE FIFTY-NINE
MARCH 2019

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FRIENDS CELEBRATE 20 YEARS

Part I: The Early Years, 1999—2006 *Compiled by Dave Katz and Laurel Gould*

1999—Welcome Friends

- Friends of Great Swamp National Wildlife Refuge is formed and incorporated in New Jersey.
- Wes De Cou is the first President of the Friends.
- Hurricane Floyd causes over \$10,000 worth of damage to the refuge.
- A letter, dated August 2, 1999 was mailed to potential members:
"The Friends of Great Swamp National Wildlife Refuge is forming and would like you to become a charter member. The group will be dedicated solely to preserving and enhancing the Great Swamp Refuge. Friends of Great Swamp NWR is a grassroots organization that needs your support now!"
- By year end, there are 119 members.

2000—A Year of Firsts



The new Friends Group moves into their first home at 148 Pleasant Plains Road, now the site of the Bluebird Parking Lot.



In the new Bookstore & Gift Shop, (l to r) Marcia Rymer, Kathy Woodward, Refuge Manger Bill Koch, and Friends President Wes De Cou.

- First Homestead Cleanup, May 6, 2000. Friends help clean up homestead trash piles and man-made debris.
- First Fall Festival, September 9, 2000 with a grand opening of the new Friends Bookstore & Gift Shop. We flag down bicyclists and offer them lemonade and hot dogs and tell them about the Friends.
- First Guided Walks for Groups, October 3, 2000 coordinated by Education & Outreach Chair Judy Schmidt.
- Friends begin hosting Sunset Walks during National Wildlife Refuge Week.
- First Turkey Walk, November 25, 2000. No turkeys sighted, but it was so much fun, it becomes an annual event.
- First Photo Contest launched, suggested and supported by Colonial Camera owner Bill Judge.
- Great Swamp NWR receives \$1 million in Federal dollars to purchase additional land.

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PRESIDENT'S CORNER

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



As we all know, the staff at Great Swamp NWR was furloughed for 35 days during the government shutdown that started in late December. The only staff members who were allowed to work in the Lenape National Wildlife Refuge Complex during the shutdown were complex manager Mike Horne and law enforcement officer Mike McMenamin. Some of the tasks that needed to be done

during the shutdown included paying bills, checking that the water, electric, and heating utilities were operational for the buildings, and checking for any unauthorized trespassing.

Visitor Services manager Jonathan Rosenberg spoke to the board at the February board meeting about the shutdown. Thankfully there was minimum impact on the physical facilities at Great Swamp. The gate at the Wildlife Observation Center malfunctioned and was inoperable during much of the shutdown and a pump in the refuge dorm failed causing a flooded cellar. He stated that the main issue for the staff was the uncertainty, not knowing when the government would reopen. In the end, the shutdown did not accomplish anything regarding reaching an agreement on a budget impasse, thus needlessly subjecting refuge staff members to stress and anxiety about when they could go back to work and receive their paychecks.

To some it may seem that furloughing federal employees for an indefinite period of time is okay, that everything will be fine and work would go on as usual after the government reopens with no real consequences. Thus, we can imagine the USFWS staff members asking themselves whether the public understands what they do and their role in serving as stewards of public lands, the lands that we as citizens own and enjoy. At a number of refuges and national parks across the country, the shutdown showed the consequences of the shutdown as there were reports of vandalism, illegal off-road driving, and garbage dumping. Some national parks suffered much damage that will take many years and many dollars to fix. So if you should happen to see a Refuge staff member, I would ask that you just extend your appreciation for what they do and say thanks for keeping Great Swamp NWR a great place to visit.



PROJECT LEADER MIKE HORNE RECEIVES LAND LEGACY AWARD

At a surprise event at Cherry Valley National Wildlife Refuge on December 21, 2018, Mike Horne was awarded the Realty Division's Land Legacy Award. This national award is presented annually to a non-Realty Fish & Wildlife Service (FWS) employee for their significant contribution to land protection. Staff, partners, and representatives from the Complex's Friends groups were present for the ceremony, including Friends Board Members Steve Herdman and Walter Willwerth.

The award was presented by Eric Alvarez, the FWS Realty Chief who said: "Mike has a long history of land acquisition successes, and was recently instrumental in the conservation of more than 2,400 acres at Cherry Valley, Great Thicket, and Wallkill River NWRs. While Mike takes a landscape view of conservation, he also recognizes lands for their future potential. A recent example is the restoration of the former Cherry Valley Golf Course to native grassland and shrubland cover and the inclusion of a public access component. Conserving lands on a sustained basis requires a high degree of collaboration with others and Mike shows exceptional skill in partnering as he works with national, state, and local conservation organizations."

According to Mark Maghini, Chief of Realty for the Northeast Region, "Mike has a way of making land-protection projects happen. He's got a great network of partners, and he is able to leverage those partnerships to help us stretch our land-protection dollars further." *Congratulations Mike!*



Mike Horne (left) received award from Eric Alvarez

INTRODUCING NEW BOARD MEMBER DAVE KATZ



I was raised on Long Island, NY, and after high school went to Syracuse University where I received a degree in Physics. I returned to Long Island and took a position at a medical device company where I designed equipment to manufacture exciting things like stomach pumps, wound drains, and sterilizers. After two years of that, I moved to New Jersey and took an engineer-

ing job at Picatinny Arsenal.

For the next 35 years I designed equipment to inspect weapons, traveled the world for the Department of Defense, published a number of technical papers, got a Master's of Science degree, and became Team Lead of the Nondestructive Testing Group. I retired from the Government in 2013, but a few months later started working as an engi-

neering consultant and continue to do this part time.

I can't say I was much of a nature person, and the only activities that got me outside involved some sort of mechanical object. I enjoyed building and launching large rockets, motorcycle racing, motor boating, and flying my ultralight aircraft. But that all changed about 5 years ago when I was buzzed by a very large insect at a neighbor's bar-b-que.

At least I thought it was an insect, but it turned out to be a hummingbird. I didn't even know that there were hummingbirds in New Jersey, but as I watched at my host's feeder I was mesmerized. I went and bought a feeder and in a few days I had hummingbirds at my

house. I photographed them, I studied them, I was hooked.

The following year my wife Susan, who is a volunteer, asked me to go to the Great Swamp Volunteer Recognition Dinner with her. I had been to the Fall Festival many years earlier with our son Steve, but I was never that interested in the place. However, at the dinner I met many interesting people and also noticed that there were hummingbird feeders at the Visitor Center. Shortly after that I started volunteering and maintaining the hummingbird feeders.

Since then, Susan and I have traveled to Nicaragua and twice to Costa Rica to assist in the banding of ruby-throated hummingbirds with the Operation RubyThroat

research program. I have also studied and photographed numerous species of hummingbirds in Ecuador, and the western United States. Using my engineering skills, I designed and patented an autonomous hummingbird trap to assist banders, and am also developing a hummingbird tracking system. In 2018, I became a Federally licensed hummingbird researcher. If you're on Facebook, check out the educational page that I administer, Hummingbird Academy.

I enjoy volunteering at the Visitor Center and assisting with construction projects. I was pleased to be invited to join the Board, and hope that my contributions will help improve the refuge for people and hummingbirds alike.

FEDERAL DUCK STAMPS



The 2018-2019 Federal Duck Stamp is on sale at the Helen C. Fenske Visitor Center. Buy your duck stamp today!

You are helping purchase land for national wildlife refuges. Thank you.

MARK YOUR CALENDARS

HEAD-START TURTLE DAY

JUNE 1, 10:00—11:30 AM

The head-start turtles are back! Join us for a special program with a research update and a close-up look at the young wood turtles.

(20th annual)

FALL FESTIVAL

SEPTEMBER 14

10:00 AM—3:00 PM

The theme this year is Bats!



2019 PHOTO CONTEST

The 2019 Refuge Photo Contest has begun!

Entries accepted through June 30, 2019.

Award presentation at Fall Festival, September 14, 11:30 am.

Contest Entry Form and rules may be found on the Friends website.

Entries may be submitted online at www.friendsofgreatswamp.org.

WHAT YOU SEE IS WHAT YOU GET!

By Peter Lebovitz, Volunteer

Legend has it that Ted Williams, the greatest hitter of all time, could see the stitches on a fastball hurtling toward him at 90 miles per hour. For the record, Mr. Williams himself repeatedly denied this, and it is almost certainly not humanly possible. The key word here is “humanly”. For this would present no problem at all for one common resident of the Great Swamp refuge... the dragonfly. That’s because these little creatures see the world very differently than you and I.

To a dragonfly, the world goes by in what we would call slow motion. While a human can visually process about 60 images per second, a dragonfly can process about 300. So, in effect, objects appear to be moving at about one fifth the speed as we see them. Combined with extraordinary aeronautical skills, this helps dragonflies snap their prey out of the air in mid-flight. But wait, as they say on TV, there’s more.

Just look at those beautiful eyes. There are about 30,000 of them, covering almost the entirety of the insect’s head. This gives dragonflies a panoramic view of almost 360 degrees and enables them to precisely track the motion of their prey across this field of vision. And they can target a single insect in an entire swarm. On any given summer day in the refuge, you can witness this performance again and again.

So far so good. But how can they tell exactly what’s on the menu? Again, the eyes have it. Human eyes, like those of most vertebrates, can see three colors; red, green and blue. These combine in different proportions to create what we consider the visible spectrum.



Dragon Fly by Jojo Cruzado is licensed under CC by 2.0

Dragonflies see up to 30 colors, including ultraviolet, which allows them to perform a type of spectral analysis, literally, on the fly. It’s as if every other insect comes with its own nutrition label.

Small wonder dragonflies are among the most efficient predators on the planet, with a success rate of about 95%. Even Ted Williams had a lifetime batting average of on-

ly .344. To be fair, dragonflies have been working on this for quite a while, about 300 million years. But while Williams could run the bases, a dragonfly can barely walk.



MONARCHS AND BLACK SWALLOWTAILS

By Kathy Woodward, Volunteer; Photos by Jane Bell, Volunteer

On October 2, 2018 we released four female monarch butterflies and sent them on their way to Mexico. It was a good finale to another season of the butterfly displays in the Visitor Center. In total, at least 63 monarchs were released.

The black swallowtail, the state butterfly of New Jersey, was added

to our informational table this year. From June to October, we released over 20 swal-



lowtails, one of which is shown below. As a non-migratory species, about 10 black swallow

tails wintered-over in chrysalis and will emerge in spring. Our visitors were very excited about the but-

terflies and our volunteers loved participating and educating people about the importance of host and nectar butterfly plants and the life cycles of different butterflies. In addition, we expanded habitat in our gardens and around the refuge and we prepared and seeded a Pollinator Meadow behind the Visitor Center.

The status of butterflies in the landscape remains tenuous. In January, 2019 the Tri-national Monarch Science Meeting, in Mexico City, reported that the eastern monarch population was 144% larger than it had been a year earlier. Much of this success was attributed to the favorable weather during migration.

Continued on page 10

REFUGE WILDLIFE VOLUNTEER ACTIVITIES

By Leo Hollein, *Volunteer*

In the not too distant past, refuge staff handled most of the wildlife activities. As the number of staff declined and priorities changed, a number of these activities were assigned to volunteers. Three of the wildlife activities currently handled by volunteers are:

- Maintaining and monitoring the bluebird nest box trail (April—mid-August)
- Trapping and banding ducks (late July—end of September)
- The annual inspection/cleaning of wood duck boxes (November until completed)

BLUEBIRD TRAIL

The Refuge has 136 active bluebird nest boxes that are located in pairs on separate posts in fields and open areas. The current objective of the bluebird trail is to provide nesting habitat for bluebirds to ensure that a healthy population of this attractive songbird exists for the enjoyment of refuge visitors. The nest boxes are also used by other cavity nesting native birds such as tree swallows and house wrens.

The trail provides volunteer opportunities for those who wish to work with wildlife. Since the Friends became responsible for the bluebird trail, thirteen different volunteers have monitored part of the bluebird trail for at least one season. Many others have accompanied monitors on a weekly visit to the boxes.

Monitoring nest boxes is a significant commitment of time as the volunteer visits their nest box unit (units vary from 10 to 34 boxes) once per week from early April through mid-August. The data (nest, species, eggs, hatchlings and fledglings) from the visit is entered into a spreadsheet. The coordinator summarizes all the data sheets and distributes a weekly summary to the nest box monitors. An end of season report is prepared for the refuge.

It's an educational experience. Monitors learn the nests, eggs and incubation/fledge timing for the various nesting species. They also try to determine why a nesting (nest with eggs) failed to fledge hatchlings.



Volunteer Lou Pisane removing female mallard from trap

DUCK BANDING DONE WEEKDAY MORNINGS

Trapping and banding of ducks is done at the trap site on the largest pond in the Management Area. The trap is baited with corn and set at dusk the evening before trapping to ensure that no duck will be trapped before dawn the next day. A duck will likely be predated by a raccoon if left in the trap at night. Have-A-Heart traps baited with canned cat food are also set near the duck trap to capture raccoons that are then relocated far from the duck trap site. Raccoons also consume the duck bait.

It is not certain that ducks will be trapped on a given day. If trapping is good, then the trap may be used three days a week. Sometimes trapping is suspended for periods due to lack of success. Trapping is terminated

at the end of September as duck migration occurs in October.

The goal is to trap and band ducks that breed in the refuge. These are primarily wood ducks and mallards. Hooded mergansers also breed in the refuge. However, they consume live food and are not attracted to corn.

Volunteers set the traps and band captured ducks. A certified bander is always present to monitor the banding and to confirm the species, gender and age. This data is sent to the Bird Banding Lab at the end of the season.

Waterfowl banding is very important in establishing harvest regulations, particularly for wood ducks. Twenty to 80% of the wood ducks banded in New Jersey during the past 15 years have been banded at the refuge.

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Bluebird Trail Volunteers (l to r): Jim Mulvey, Joe Balwierczak, Nancy Felicito, Paul Ford, Leo Hollein

FRIENDS CELEBRATE 20 YEARS *(continued from page 1)*

2001



Friends grant used to refurbish Garden Club Blind at the Wildlife Observation Center. (Pictured (l to r) Kathy Woodward, Judy Schmidt, Marcia Rymer, Lisa Molinari, Neil Borman).

- Friends expand Bookstore & Gift Shop hours: now open weekends during spring and fall migration seasons. Volunteers needed!
- Friends are awarded \$5,000 grant from National Fish and Wildlife Foundation for viewing scopes at the Overlook and an interpretive guide at the Wildlife Observation Center. Friends are required to raise \$3,000 in matching funds—our first fundraiser.
- Second annual Fall Festival is a great success with nearly 300 visitors.
- Membership reaches 220.
- 240 people took guided nature walks led by Friends.

"We appreciate everything you do to improve our environment and make Great Swamp such a fun place to visit ... we think the wildlife appreciate it too!" Cub Scout Pack 33

2002



- Grant funds a new interpretive guide at the Wildlife Observation Center. Tree & Shrub Guide Committee led by David Welch (far left) learn how to identify trees of the refuge.
- Project to repair or replace 162 bluebird boxes is funded by Friends.
- Matching funds are raised to purchase and install two new viewing scopes at the Overlook. The new scopes provide a close up view of nesting great blue herons in their rookery (now abandoned).
- Nearly 500 visitors attend 3rd annual Fall Festival.
- A 2,000 foot return loop is added to the boardwalk trail at the Wildlife Observation Center.

2003



- Friends receive Mushett Family Foundation grant for a new Information Center at the Wildlife Observation Center.
- The popular Boardwalk Bingo debuts. Hundreds of kids leave with a bingo prize—a blue goose tattoo.
- Friends join in celebrating the 100th anniversary of the National Wildlife Refuge System and contribute items for a Centennial time capsule. Friends member Ron Orlando creates a Centennial poster design.
- Volunteers work on controlling invasive plant species.
- 400 people, predominantly school and youth groups, participate in walks led by the Friends.
- Membership reaches 287.

2004



Winter: Bridge to Friends Blind completed.
 April: Friends Blind finished.
 October: Friends stain new blind.
 November: Trail woodchipped—125 wheelbarrow trips!

- 1st Second Sunday program held: Judy Schmidt presents “Cleaning Wood Duck Boxes”.
- Digital photos are accepted for the first time in the annual Refuge Photo Contest.
- Bluebirds fledge the greatest number of young (145) since the Friends began supporting the songbird nest box program in the 2001 season.
- Friends take on the funding of a refuge intern for the first time.
- Walk for Wilderness, celebrating the 40th anniversary of the Wilderness Act raises \$3,500 for new wilderness kiosks.
- Friends volunteers lead 33 educational walks for 679 visitors from schools and other groups.
- On August 12, 2004 U.S. Fish and Wildlife Service announces the purchase of Weatherlea Farm in Harding Township—the site of a future visitor facility for the refuge.

2005



- Board and Staff meet for first Joint Planning Meeting working together to plan funding and volunteer opportunities for the coming year.
- Indiana bats, a Federal endangered species, are found at Great Swamp.
- Nearly 350 ducks are banded, including 227 mallards, seven American black ducks, and over 100 wood ducks.
- Work begins to transform Weatherlea Farms (left) into a new state-of-the art Visitor Center—and new home for the Friends!
- Membership reaches 300.
- “Swamp in a Box” introduced for teachers to use in classes.

2006



- Friends of Great Swamp NWR is recognized as the 2006 Refuge Friends Group of the Year. Six board members travel to Columbus, Ohio to receive the award presented by Dale Hall, U.S. Fish and Wildlife Director. Refuge Manager Bill Koch and Outdoor Recreation Planner Tom McFadden also attended.
- A grant from The Wildwood Foundation funds four new kiosks with full-color interpretive panels to help visitors appreciate the Wilderness Area.
- Volunteers donate a record 8,092 hours.
- May 26, 2006: First sighting of a live wood turtle on refuge in 11 years creates a new focus on wood turtle populations.
- Nearly 4,000 visitors are welcomed at Bookstore & Gift Shop.

THE ROLLING KNOLLS SUPERFUND SITE

By Joe Balwierczak, President, Friends of Great Swamp NWR

Many visitors to the Great Swamp National Wildlife Refuge (GSNWR), as well as many nearby residents, may not be aware that part of the refuge is situated on a former municipal landfill, Rolling Knolls, that was designated a Superfund site in September 2003. The Superfund designation, i.e., inclusion on the National Priorities List, helps

of the landfill is located within the Wilderness Area of the GSNWR and because of its close proximity to two of the refuge's feeder streams (Loantaka and Black Brooks).

The location of the Rolling Knolls landfill at the southern end of Britten Road in the Green Village portion of Chatam Township is shown in the figure below.

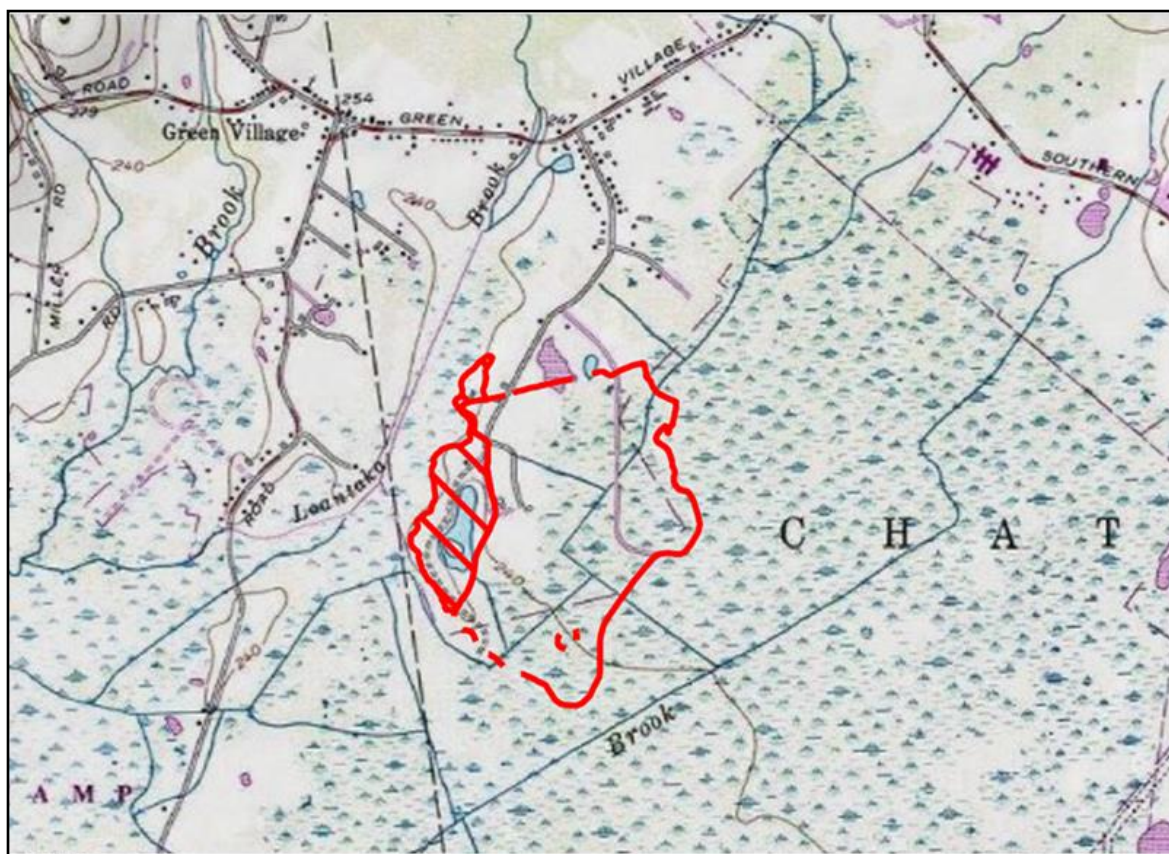
landfill that extends into the Great Swamp NWR is about 35 acres and was part of 300 acres the Department of Interior obtained in 1964 from the North American Wildlife Federation.

The landfill covers approximately 170 acres, including 140 acres with a relatively thin (layer of waste material and 30 acres with isolated

A large pond is located within the debris area. Loantaka Brook and residential properties are located farther west and Black Brook and the Wilderness Area of the GSNWR borders the site to the south and east.

An investigation that included sampling of soil, groundwater, surface water, and sediment to identify the contaminants in the Rolling Knolls landfill and the potential for landfill-related impacts to the surrounding area began in 2007 and ended in 2015. A final report on the findings was issued in January 2018.

The investigation found that soil contaminants included semi-volatile organic compounds (SVOC), polychlorinated biphenyls (PCBs), pesticides and inorganic constituents (e.g., metals). In general, the contaminants were found to be spread widely over the landfill suggesting that there is not a



the U.S. Environmental Protection Agency (EPA) to clean up contaminated sites by forcing parties responsible for the contamination to either perform cleanups or reimburse the government for cleanup work.

The listing of this landfill as a Superfund site was due in part to the fact that a portion

The perimeter of the 170-acre Rolling Knolls landfill is indicated by the orange line shown in the map. The hatching shown on the western side of the landfill indicates the surface debris area. The refuge boundary is indicated by the broken line at the eastern and southern portions of the landfill. The area of the

areas of debris on the surface (the hatched area in the above figure). The landfill was reportedly operational from the 1930s until the late 1960s. Wastes that were disposed of at the landfill during its operation were primarily municipal solid waste generated by the surrounding municipalities, but included some industrial wastes.

single-point source. Overall groundwater impacts at the site appear to be limited to a few isolated areas in the shallow water bearing zone within 25 feet of the surface. Monitoring of groundwater down-gradient of the landfill indicates that the area of contamination appears to be limited.

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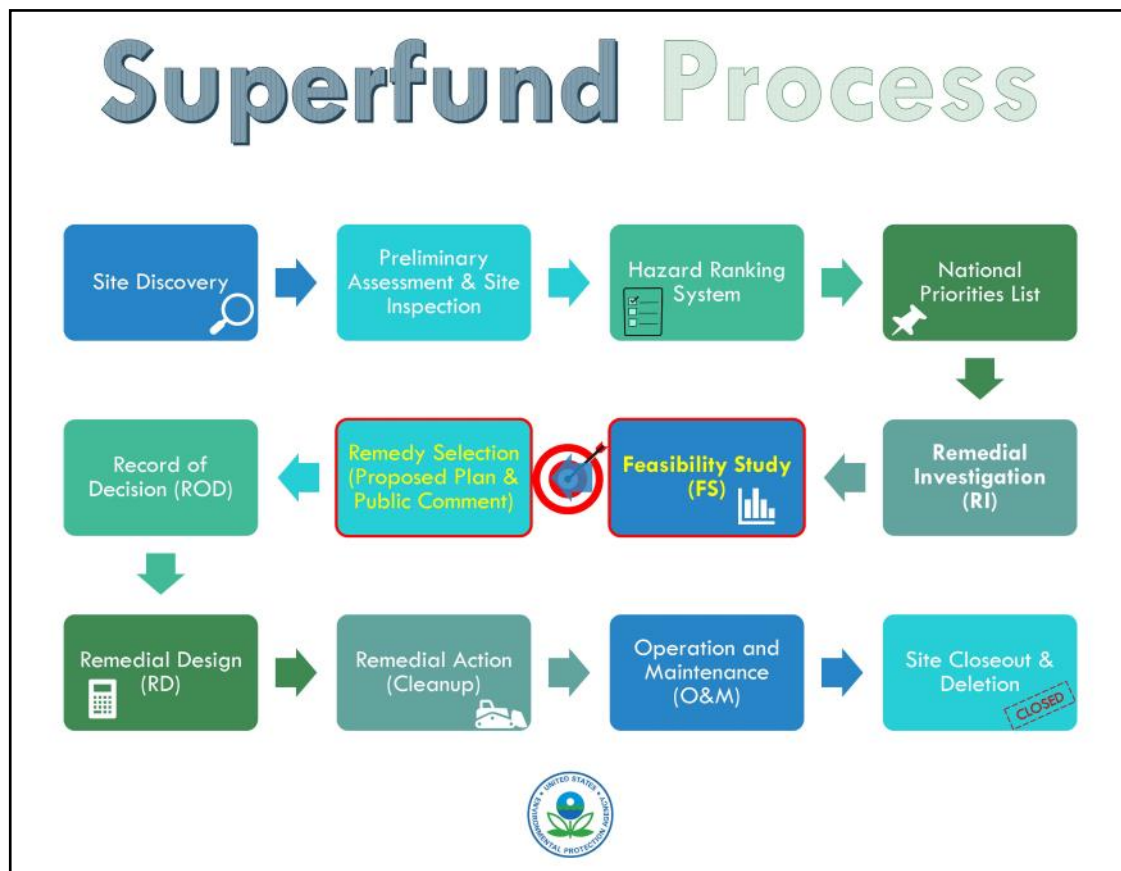
ROLLING KNOLLS *(continued from previous page)*

The flow diagram below shows the steps involved in the remediation of properties that are designated Superfund sites. As shown in the diagram, the next step in the remediation process after completion of the remedial investigation is the release of a Feasibility Study (FS), which was expected to occur by February 2019. Because of the government shutdown, EPA workers were furloughed for a month, so the report is now expected this May or June.

the Fish and Wildlife Service (USFWS) and various other stakeholders, Sally Rubin of the Great Swamp Watershed Association (GSWA) invited local residents and group representatives to join together to establish a Community Advisory Group (CAG) for the Rolling Knolls Landfill. I am one of the members of the Rolling Knolls CAG that meets monthly to have discussions with the EPA about the findings of the remedial investigation and about the progress in the completion of the FS. The

diation process and attends the CAG meetings. The USFWS staff has proposed consolidating all the waste and associated contaminated soil presently within the refuge boundary to the landfill area that is on private land. In addition, the USFWS has proposed that the contaminated area on private land be contained using a clay cap. These proposals are in agreement with the input that the EPA received at public availability sessions held in June 2018 that included a preference for

After the FS is released, the EPA recommends a preferred remedy and presents the cleanup plan in a document called a Proposed Plan for public comment. Following the public comment period, the EPA issues a final Record of Decision (ROD). Detailed cleanup plans are then developed and implemented during the remedial design/remedial action (RD/RA) stage. Remedial design includes development of engineering drawings and specifications for a site cleanup.



Remedial action follows design, and involves the actual construction or implementation phase of site cleanup. The timeline for the remediation of the landfill is not known at this time. I will be informing the Friends Board of Directors on the proceedings of the CAG meetings and information for our members will likely be posted on our website. Information on the Rolling Knolls landfill can also be found on the GSWA website (www.greatswamp.org)

The CAG meetings are open to the public and information on the dates and location of the meetings can be obtained by contacting Sally Rubin of the Great Swamp Watershed Association at:

(srubin@greatswamp.org).

The FS will include a list of remedial alternatives for the cleanup. In order to get the nearby community to be involved in the selection of a remediation plan and to enhance communications between the community, EPA,

CAG is not a decision-making body, but does give community members a voice and provides community recommendations on cleanup decisions. The USFWS staff at the GSNWR has had discussions with the EPA during this reme-

limiting disturbance to the area and to prioritize cleanup activities that minimize truck traffic and minimize drainage alteration and flooding impacts during and after cleanup activities.

It is probable that readers of this newsletter will be seeing more articles on this topic, so keep reading the Swamp Scene to stay informed on this important issue.

VOLUNTEERS *(continued from page 5)*

WOOD DUCK BOXES

Wood ducks are cavity nesters that use natural holes in trees. These natural nesting sites however may be limited. Wood ducks readily adopt manmade boxes for nesting. While bluebird boxes are monitored weekly during the nesting season, wood duck boxes are only inspected once a year. The inspection achieves two objectives. First the contents of the box indicate whether ducks have nested and fledged young. Second the box is cleaned out and new wood shavings are added. Ducks do not make nests. The wood shavings are added to support their eggs. Female ducks will pluck down feathers from their body and use them to help maintain temperature during brooding for their large clutch of 8 to 11 eggs.

Volunteers do the inspection and cleaning of the wood duck boxes. A session would typically take about 3 hours and involve 12-18 boxes. In addition to inspecting and replenishing the wood shavings, volunteers may need to trim brush and small trees to create open flyways to the box entrances. Two nest boxes are in permanent water, the other boxes are inside the tree line. Some are a distance from refuge roads and can be difficult to locate.

The duck boxes are also used by a variety of other animals. Screech owls roost in the boxes in the winter and may nest in the boxes in the spring. Signs of owl occupation are found in many nest boxes. These include owl pellets as well as owl prey items—dead rodents, fish, frogs, crayfish, birds and feathers.

Hooded mergansers are also cavity nesters and use the nest boxes. If there are unhatched eggs left in the nest box, they can be identified as wood duck or merganser eggs. Both flying and grey squirrels roost and nest in the boxes if they can access them. Flying squirrels are more common occupants because they can glide from distant trees to the box. Flying squirrels make nests of stripable bark, such as red cedar. Flying squirrels collect and store the acorns in

the nest box. Grey squirrels fill the nest box with leaves.

Volunteers are welcome to participate in these activities on a one-time or on a continuing basis. If interested, contact Leo Hollein at (Hollein@optonline.net).



Wood Duck Box Inspection by (l to r) Tom Gula, Melinda Nye, Jim Mulvey

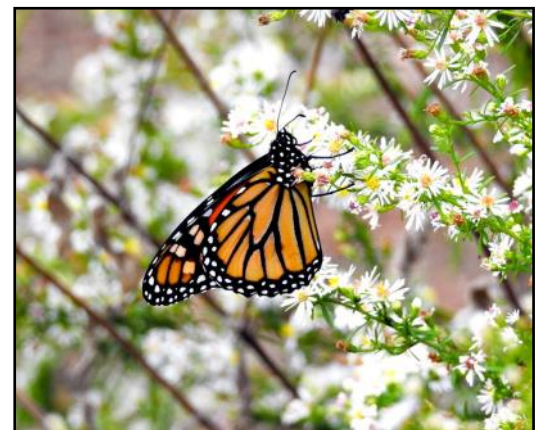
BUTTERFLIES *(continued from page 4)*

However, in the same time frame, the Xerces Society for Invertebrate Conservation announced that the monarch population west of the Rockies dropped by almost 90% in the past year, bringing that segment of the monarch population to “the verge of collapse”.

But, there was more good news. In February 2019, the Associated Press announced the discovery of a previously unknown wintering monarch butterfly colony long searched for by conservationists on communal land located near the Nevado de Toluca volcano in Méxi-

co. However, the threats of habitat loss, severe weather events and the effects of herbicides/pesticides cloud the future of butterflies.

At the refuge, we continue to learn about butterflies and how we can support habitats that benefit plants and insects. We need volunteers to help with the demonstration butterfly beds and pollinator meadow as well as the displays in the Visitor Center. For more information, or to volunteer, contact the Friends at (info@friendsofgreatswamp.org)



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
241 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 MARCH 2019

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.