



the Swamp Scene

friends of great swamp national wildlife refuge

ISSUE SIXTY-ONE
NOVEMBER 2019

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BIRDING REACHES NEW HEIGHTS AT GREAT SWAMP NWR

The Chandler S. Robbins Memorial Viewing Platform is now open!

By Joe Balwierczak, President and a Member of the Robbins Platform Construction Crew

On Tuesday, October 29th, the Friends of Great Swamp National Wildlife Refuge and the U.S. Fish and Wildlife Service (USFWS) staff at Great Swamp NWR dedicated the Chandler S. Robbins Memorial Viewing Platform at the refuge. The platform is located at the refuge's Wildlife Observation Center on Long Hill Road in Harding Township, NJ and honors a person who, as a USFWS employee for more than 60 years, made significant contributions to the field of ornithology. Mr. Robbins was a co-author of the popular Golden Guide: "Birds of North America: A guide to Field Identification" and was instrumental in organizing the North American Breeding Bird Survey in 1966, the primary monitoring program for birds in North America.

Continued on page 9



**HONORED GUESTS AT CHANDLER S. ROBBINS MEMORIAL VIEWING PLATFORM DEDICATION,
OCTOBER 29, 2019**

Lower tier (l to r): Mike Horne, Refuge Manager; Andrea Robbins, George Robbins, Kellie Doucette, District Director for U.S. Congresswoman Mikie Sherrill, D-11

Upper tier: Nine of the 16 member Construction Crew (l to r) Robert Schwaneberg, Stephen Herdman, Dave Katz, Tom Cartwright, Kent Stevens, Tom Gula, Matt Heiss, John Ashenfelter, Lee Brush *(Photo by Jane Bell)*

PRESIDENT'S CORNER

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



This has certainly been a busy year for Friends of Great Swamp. As you can see from the articles in this and the previous edition of the Swamp Scene, the Garden Club Blind renovation has been completed as well as the construction of the Chandler S. Robbins Memorial Viewing Platform.

In addition to these big projects, the usual work of tackling invasive plants, monitoring bluebird nest boxes, maintaining trails, greeting visitors at the Visitor Cen-

ter and the Wildlife Observation Center, and running a very successful Fall Festival also went on.

There was some exciting news this year on the wood turtle head-start program. Two female turtles from the first cohort of head-start turtles, born in 2011, reached adult size in 2019 at just eight years old—four years before their wild peers, and each laid their first nest. Although the eggs in one of the nests did not contain any viable eggs, a lone hatchling was found to have emerged from the second nest—the first wild hatchling known to be successfully reared from the nest of a head-started wood turtle.

During this year, a number of Community Advisory Group meetings were held to discuss the future of the Rolling Knolls landfill. This landfill, which is about 170 acres in size, borders the Wilderness Area of the refuge in Chatham Township. There is evidence that contaminants from the landfill are migrating into the Wilderness Area of the refuge. Soon the refuge staff should receive the draft Feasibility Study that outlines the remedial alternatives proposed by the EPA, one of which will be chosen for the cleanup of the landfill.

Thus, a lot continues to happen at the refuge and the future of the refuge looks promising as more and more good things are happening and work is being done to improve the refuge's habitat.

You probably noticed that my photo has changed from previous editions of the Swamp Scene. At the Chandler Robbins Memorial dedication, I was given the high honor of holding the 50 year-old Bushnell binoculars that belonged to Chan Robbins. His son George Robbins brought them to the dedication to show to everyone. From George Robbins's praises of the new platform, it seemed that he and his wife Andrea approved of the work done by George Solovay and his team of volunteers.

Since my term as President of the Friends board ends in December, this is my last President's Corner. I hope that you will continue visiting the refuge and that you will visit the Wildlife Observation Center to enjoy the "bird's-eye view" from the new Robbins Memorial viewing platform.

See you on the trails...

Joe

THE GARDEN CLUB BLIND RENOVATION

by George Solovay, Volunteer, Friends Construction Committee Chair

How long will the Garden Club Blind renovation project take? This was a question I was asked quite a few times. I had been thinking it would take about two months, but I never told anyone that. Good thinking! It ended up taking four months!

Once we stripped away the interior walls we found a very uneven surface on which we were going to install new framing and paneling. This was a big problem. As it turned out, 75% of the time spent on this project was for the framing and paneling installation. Once this phase of the construction was completed the rest of the renovation

went smoothly. A new trex floor with herringbone pattern completed the interior work.

In addition to interior work, a new metal roof was installed. Work on the roof was done by refuge staff with help by members of the construction committee. The blind's exterior was painted as well.

Splendid ceiling panels (shown above), designed by board member Jane Bell, were installed. The panels have images of some of the birds that inhabit the refuge. The original Garden Club bronze plaque from 1965 was restored



and hung along with a new plaque recognizing the work done in 2019.

It was a long slog. At times I thought, "Will we ever finish this job?" We did, and the result is there for all to enjoy for years to come.

THE BIG SIT! CELEBRATING NATIONAL WILDLIFE REFUGE WEEK

By Janet Stadelmeier, Board Member, The Big Sit Coordinator; Photos by Robert Lin, Volunteer

National Wildlife Refuge Week began with The Big Sit at 6:15 am on Sunday October 13 at the Overlook on Pleasant Plains Road. The cold morning got off to a good

start with the sounds of wood ducks, a great horned owl and sora. At dawn, a sharp shinned hawk (below) perched in the dead tree until it dropped into the brush to hunt sparrows.

Spring peepers, monarchs and a red-spotted purple butterfly all added to the day's nature sightings.

Over the course of the day many raptor species were seen. American kestrel, merlin, bald eagles (immature and adult), northern harriers, sharp-shinned, Cooper's and red-tailed hawks all flew over the area providing close views. Both immature and mature red-shouldered hawks (pictured above) were a treat for all to see as they circled the Overlook several times throughout the day. A flock of doubled crested cormorants was a nice addition to the day's sightings.



Over the course of the day, five Friends' volunteers and several birders contributed to the sightings and at least 50 visitors stopped by. Several visitors noted it was their first time visiting the refuge.

A total of 74 bird species had been seen or heard by 7:00 p.m. All in all, a pretty impressive Big Sit!



REFUGE DAY TRIPS—CELEBRATING NATIONAL WILDLIFE REFUGE WEEK

By Judi DiMaio, Volunteer, Friends of Great Swamp NWR; Photos by Lois Harold, Volunteer

The theme of National Wildlife Refuge Week this year was "Rediscover your true nature at a national wildlife refuge near you!" So fellow volunteer Lois Harold and I decided to travel to all of the national wildlife refuges here in New Jersey. One bright, crisp autumn morning we headed out to Wallkill River National Wildlife Refuge (NWR). We hiked on the Dagmar Dale Nature Trail—very challenging with steep and hilly terrain through a hardwood forest. We decided to make a side trip just across the border in New York to Shawangunk Grasslands NWR, since it was so close (or so we thought!) It took longer than we expected but the drive was well worth it, along local roads and through scenic small towns.

As the name implies, there were broad expanses of grasslands with the mountains in the distance, ablaze with fall colors—a breathtaking view. Along with the birds, there were grasshoppers—lots of grasshoppers everywhere! It was serene, so easy to sit and look out over the grasslands from the platform—we could have stayed all day.

The following Saturday, we planned our visit to Supawna Meadows, Cape May and Forsythe refuges. It was another beautiful fall day. In Cape May, we were treated to a swirling flock of thousands of tree swallows getting ready to migrate. They filled the sky like pepper in a windstorm. Supawna Meadows is the home of Finn's Point Rear Range Light (shown right). It

was a busy place that day, as it was the 10th annual Lighthouse Challenge and lots of people were climbing the lighthouse. Forsythe was our last stop. The 8-mile wildlife drive provided a close-up view of many species of waterfowl and wading birds. The late afternoon sun turned the marsh grasses into a golden mat.

Our final stop! Although it is our "home" refuge, we decided to come to Great Swamp NWR as visitors. A grey misty day greeted us at the Wildlife Observation Center. We walked the three boardwalk trails and spent some time on the new Robbins Memorial Platform that replaced the Friends Blind. It was awesome—with benches so you can sit in solitude and look out over the water.



All the refuges were wonderful, each different and all definitely worth visiting. Don't wait for National Wildlife Refuge Week. Plan your trip soon!

SAVING THE GREAT SWAMP—PART 2

By John Berry, Volunteer and Friends Board Member

Glossy buckthorn (*Frangula alnus*) is an invasive plant that arrived in the Great Swamp about 18 years ago. A few got started in a remote area of the swamp where, undetected, they thrived and reproduced. Originally from Eurasia, this bush or small tree grows to a height of about 20 feet. A mature glossy buckthorn in full sun can produce thousands of berries, which ripen in July and August. Birds eat the berries, spreading the seeds to adjoining areas.



Above: Colin Osborn, then Great Swamp field biologist, in a glossy buckthorn infestation in a brushy field.



Right: Glossy buckthorn “trees” in a brushy field.

For the Great Swamp, glossy buckthorn represents a worst-case scenario. The plant flourishes across most of the refuge’s landscape: forest understory, brushy fields, and meadows. In a matter of years, glossy buckthorn forms a dense monoculture, displacing the native plant community upon which insects, amphibians, reptiles, mammals, and birds depend. As glossy buckthorn spreads across the refuge, the habitats of countless iconic species—such as highbush blueberry, American woodcock, and wood frog—disappear.

Established in 2012, the Great Swamp Strike Team works to protect and restore the habitats of native plants and animals by eradicating “emerging invasives” before they gain a firm foothold in the refuge.

Glossy buckthorn is a special case. By the time the severity of the infestation was recognized, this invasive had become widespread across a significant section of the swamp. The team nevertheless decided to tackle the plant because it posed an existential threat: left unchallenged, glossy buckthorn would eventually take over most of the refuge. (*continued on page 5*)



Monoculture of young glossy buckthorn plants in forest understory

SAVING THE GREAT SWAMP—PART 2

Continued from Page 4

The Strike Team's first objective was to eliminate large, berry-producing plants. Most of this work took place during winter months in forested sites. Team members killed thousands of trees by lopping or sawing their stems at ground level, and then treating the stumps with an herbicide. Two large brushy fields were also severely infested with berry-producing trees. Refuge staff used a skid-steer to mow these fields so that the Strike Team could foliar treat re-sprouts and seedlings with an herbicide mixture the following summer. (For foliar treatment, team members don backpack sprayers and selectively target glossy buckthorn as they traverse an infested site.) Once most of the adult plants were eradicated, the team could turn its attention to the many "nurseries" of younger plants. The most effective protocol for these nurseries proved to be a version of the one used in brushy fields: mowing or cutting, followed by foliar treatment of re-sprouts and seedlings.



Nursery of glossy buckthorn seedlings in forest understory



Nursery of glossy buckthorn seedlings about to overgrow native plants in a field

This year, Refuge Complex Manager Mike Horne secured funding for three crews from American Conservation Experience (ACE) to work at refuges in the Lenape Complex. During their stints at the Great Swamp, these crews provided critical support for the glossy buckthorn campaign. The first ACE crew used power saws and weed-whackers to cut understory nurseries. The second and third crews used backpack sprayers to foliar treat re-sprouts and seedlings at various sites.

Like the Strike Team's other invasives projects*, the fight to control glossy buckthorn is long-term and time-consuming. Since the winter of 2016–17, team members have worked more than 1,500 hours killing glossy buckthorn. This figure does not include the hours that refuge staff and ACE crew members have spent on the campaign. The seed bank is abundant and long-lived; new plants will continue to appear across the refuge for years to come. The goal is to systematically eradicate new nurseries each year, gradually reducing glossy buckthorn's footprint and allowing native plant communities to recover. Eventually, the glossy buckthorn campaign should become an annual maintenance project.

*The Strike Team targets a variety of emerging invasives, including common buckthorn, porcelain berry, water chestnut, ailanthus, Japanese aralia, mile-a-minute, and chocolate vine.



"Yet while the Strike Team have proven again and again that they are capable of incredible accomplishments like these, I always remain impressed by the dedication, enthusiasm, and sweat equity contributed by its members. A job well done, with a hearty and sincere thank you from this wildlife biologist. "

Marilyn Kitchell, Great Swamp NWR Refuge Biologist

FRIENDS CELEBRATE 20 YEARS

PART III: GETTING INTO OUR STRIDE, 2013—2018

Compiled by Dave Katz and Laurel Gould

2013



Photo left: Friends budget \$42,000 for Habitat & Wildlife Projects including continued support of the head-start turtle project.

- Refuge Readers, our environmental book group, celebrates their third year anniversary.
- Volunteers tackle a Vernal Pool Restoration Project on the Bockoven Trail to improve habitat for wildlife and for visitors.
- For the 10th year, Friends and the Mushett Family Foundation sponsor summer interns.
- The refuge receives \$13 million dollars in supplemental emergency appropriations to repair damage caused by Hurricane Sandy and to build resilience against future storms.

2014



Photo left: The 1,000 foot ADA compliant section of the Bockoven Trail is completed using 37 tons of stone dust. Friends funded the project and volunteers and refuge staff completed the work.

- We celebrate 50-50-15! 50th anniversary of the Wilderness Act, 50th anniversary of the Dedication of Great Swamp NWR, and 15 years of Friends!
- Friends receive a grant to host the nation's 1st Friends Peer-to-Peer Workshop for networking and sharing best practices.
- Long-time refuge manager Bill Koch retires; Great Swamp is complexed with other refuges under Project Leader, Mike Horne.
- Secretary of the Interior Sally Jewell visits Great Swamp NWR to celebrate the 50th anniversary of the Wilderness Act.

2015



Photo left: Volunteers work on clearing brush and building bridges for the new one-mile White Oak Trail. It opens for visitors in November.

- Friends award a \$20,000 grant to Frostburg State University for a fish and invertebrate study.
- A day-long Advanced Volunteer Workshop is held—volunteers receive their “Birds” bar.
- U.S. Fish & Wildlife Service declares Monarch butterflies a “species of concern”. Friends launch a Monarch Initiative with the creation of a Monarch demonstration garden at the Visitor Center. Caterpillars are brought indoors to educate and inform. Visitors are thrilled to release a Monarch when it emerges from its chrysalis.
- Newly updated and “mobile-friendly” Friends of Great Swamp NWR website is launched.

2016



Photo left: Friends fund the purchase of a new purple martin gourd rack array for the Visitor Center. Purple martins immediately take up occupancy.

- In support of the U.S. Fish & Wildlife Service's Urban Wildlife Conservation Program, Friends award a grant to Groundwork Elizabeth (GWE) to bring Dionis Ramirez, one of their Green Team youth members, to the refuge for several months. Friends also join GWE for habitat restoration and citizen education projects in Elizabeth.
- Friends welcome Lia McLaughlin as the new Deputy Refuge Manager at Great Swamp NWR.
- New documentary "Saving the Great Swamp: Battle to Defeat the Jetport" premieres December 3, 2016.

2017



Photo left: The new butterfly demonstration garden is established at the Visitor Center with advice from the North American Butterfly Association Chapter and the NJ Native Plant Society along with help from many volunteers and corporate groups.

- Over 400 people participate in the 3-day Great Backyard Bird Count sponsored by the Friends—a citizen science event.
- The Monarch initiative continues with the release of at least 45 Monarchs during the season.
- Refuge volunteers and Friends donate 14,068 hours of service to Great Swamp NWR.
- Great Swamp NWR successfully conducts the first prescribed fire ever at the refuge to reclaim wetlands.

2018



Photo left: Friends volunteers construct a new section of boardwalk—615 feet long—at the Wildlife Observation Center.

- The reception area and sales desk at the Helen C. Fenske Visitor Center is totally redesigned and renovated by volunteers, funded by Friends.
- The 3,660 acre Great Swamp Wilderness Area was established by law 50 years ago.
- Kathy Woodward and Friends of Great Swamp NWR are honored by Groundwork Elizabeth.
- Friends receive a donation from the Robbins Family to construct a new viewing platform in memory of preeminent ornithologist Chandler S. Robbins.
- Lenape National Wildlife Refuge Complex name is approved.

BLUEBIRDS COPE WITH 2019 SPRING RAIN

By *Leo Hollein, Volunteer*

We have all talked and complained about the unusually wet May 2019. The total rainfall was nearly 10 inches or about 3 times normal rainfall in the refuge. Measurable rainfall was recorded on 19 of the 31 days in May. This weather was an inconvenience that delayed or curtailed gardening, golfing and other outdoor activities. It also presented a major challenge to the bluebirds as they attempted to raise the next generation of bluebirds. Past generations of bluebirds have occasionally faced and coped with the extremes of weather.



The consecutive days of rain and poor visibility in May made it challenging for bluebirds to find enough food to feed their rapidly developing young. Following a spell of cool wet weather, four bluebird clutches with a total of 19 hatchlings about a week old were found dead in their nest boxes in the second week in May. These hatchlings died from a combination of insufficient food and cool temperatures. This phenomenon was noted in other bluebird nest box trails in New Jersey. The Raptor Trust also reported lower than average

admissions of most species of birds during this same season. Usually a high percentage of bluebird hatchlings fledged. The 10 year average is 89%. However, only 72% of bluebird hatchlings fledged in 2019.

The refuge bluebird trail fledged a total of 137 young in 2019. This is the lowest total number since 2005 when 133 young fledged. The lowest number of fledglings, since the Friends began monitoring and maintaining the bluebird trail in 2001, was 94 bluebirds fledged in 2003. This was also the last year that multiple clutches of bluebirds died in their nest.

The number of bluebirds that fledge in a given year varies widely. The number and location of the bluebird boxes have been approximately the same for the last 10 years. During this 10-year period bluebird fledglings have varied from a low of 137 to a high of 280. The average is 200.

There are three primary reasons for the fluctuations in bluebirds fledged from year to year. They are the number of bluebird pairs, predation rate and the weather. The number of bluebird pairs that attempt to nest in the Refuge nest boxes varies from year to year. Bluebirds are partial migrants. While there is a bluebird population in the winter, most migrate to warmer areas. Mortality during migration or the winter determines how many bluebirds are available to nest in the spring. Bluebirds that are successful breeders tend to return to the same nest boxes (nest box fidelity) in subsequent years.

Nest predation is the main reason nesting bluebirds fail to fledge young. The Refuge has mammalian, avian and reptilian predators. Predator guards are used to deter small mammals and raccoons as well as snakes. However, raccoons are clever and will exploit any weakness in the guards. Odorants (bleach and coffee grinds) are used to keep black bears away from the nest boxes. Passive measures such as locat-

ing boxes in areas that do not attract house wrens and house sparrows are employed to keep these predators away. House wrens peck open the eggs of bluebirds and have been a significant predator in recent years.

Weather can have direct or indirect impacts on bluebird productivity. Direct impact involves periods of continuous rain and/or mist that hamper adults from catching food items. This can lead to hatchlings dying in the nest box as experienced this year. Periods of continuous high temperatures can prevent eggs from developing and hatching. Weather that prevents bluebirds from finding food can also make it difficult for predators to hunt and make the nest boxes an attractive source of food. Severe winter weather can result in greater bluebird mortality.

Do Bluebirds Prefer Blue Tops?

There was a hypothesis that indicated that bluebirds preferred to nest in boxes with blue tops. The refuge bluebird nest box trail has paired boxes to provide homes for both bluebirds and tree swallows. This is the ideal setup to check if bluebirds do prefer blue. One of the tops of paired nest boxes was painted blue in the spring of 2019.

The gross data for 2019 found that bluebirds nested 49% of the time in boxes with blue tops. Bluebirds are the first species to nest in the boxes and can choose from either of the paired boxes. When bluebirds lay their second clutch of eggs, one of the box pair may be occupied by a tree swallow or another species. Therefore, they may be precluded from using a box with a blue top. However, bluebirds only nested in 49% of the boxes when both nest boxes were available. These observations indicate bluebirds do not prefer boxes with blue tops in the Refuge. The blue tops will be phased out.

A special thanks to Tom Gula, Nancy Felicito Jim Mulvey, Melinda Nye and Daria Lisco who monitored the nest boxes during the 2019 season—challenging due to the high water level, abundant vegetation and a bumper crop of ticks and mosquitoes.

ROBBINS MEMORIAL PLATFORM *(continued from page 1)*

Funding for the platform was provided by the Robbins family and construction was done by Great Swamp NWR volunteers, who donated more than 2,000 hours of service in the designing, planning, and construction of the platform. The 2-level platform has a 4-foot high deck that is ADA compliant, and an 8-foot high deck that is accessible by stairs from the 4-foot level. Situated at the edge of the largest open-water body in the refuge, it replaces the Friends blind and is located at one of the best locations in the refuge for the viewing of birds and waterfowl, providing an extensive view of the nearby water impoundment and its surrounding area. The Wildlife Observation Center, where the platform is located, is open year-round from sunrise to sunset, seven days a week.

Present at the dedication were Chandler's son George Robbins and his wife Andrea, as well as the mother and sister of Andrea Robbins, Mary and Linda Bobeck. Andrea Robbins is a former resident of Chatham Township and her sister and mother still reside in the township. Also present were board members of the Friends of Great Swamp NWR, Great Swamp NWR staff, refuge regional director Graham Taylor, and the construction volunteers. Kellie Doucette, District Director for Congresswoman Mikie Sherrill, presented a proclamation on behalf of the congresswoman that recognized the gifts of funding and volunteer service for this new addition to the national wildlife refuge.

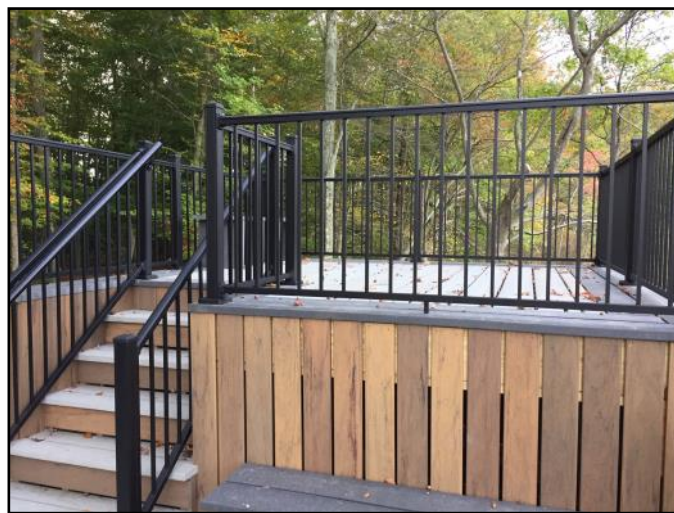


Photo (top left): George Solovay Friends Construction Committee Chair; George Robbins; Joe Balwierczak; Andrea Robbins
 Photo (top right): Stairs to upper platform from lower platform; Photo (bottom left): Looking out from the 8 foot high upper platform; Photo (bottom right): View from the upper platform *(Thank you to photographers Jane Bell and Lynda Brush)*

THANKS TO THE CONSTRUCTION TEAM! George Solovay, Team Leader—John Ashenfelter, Joseph Balwierczak, John Becht, Lee Brush, Tom Cartwright, Tom Gula, Matt Heiss, Steve Herdman, Richard Hiserodt, Dave Katz, George Robbins, Johnny Roush, Robert Schwaneberg, Bill Smullen, Kent Stevens. A special thank you to Friends member Robert Lin for helping with the permitting process and to staff member Dave Miller, who provided support and assistance in so many ways.

NATURE BY THE NUMBERS

By Peter Lebovitz, Volunteer

This time of year pine cones are abundant in the refuge. So the next time you see one on the ground, pick it up and examine it from the stem end. Notice how the bracts form both clockwise and counterclockwise spirals radiating out from the center. Now, see if you can count these spirals. Here, I've done it for you.

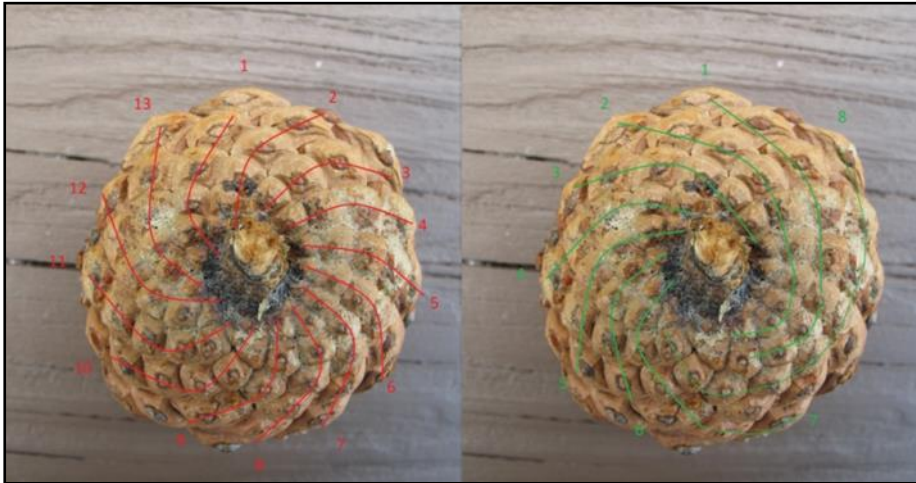
have been the first to associate it with real world events. And so, many years later it became known as the Fibonacci sequence and remains so to this day.

So back to the pine cone. As you can see, the numbers represented by the spirals are both Fibonacci numbers. And this will be true for most pine

ers, form spirals whose numbers are in the Fibonacci sequence. As do spirals on acorn caps, cauliflower, cacti and pineapples.

It goes on. The number of petals on many flowers falls in this sequence. Lilies and irises have three petals, buttercups have five, delphiniums have eight, marigold 13, chicory has 21 and daisies 34. Many trees have branching patterns which follow the same sequence. There is also a construction known as the Fibonacci Spiral, a geometric representation of the Sequence. This spiral describes the shape of many other patterns found in nature, such as the shell of a snail or a fiddle-head fern. But that, so to speak, is another rabbit hole.

The question remains; Why? There is some logic to how generations of rabbits might follow such a sequence. In fact, the same progression also applies to populations of honey bees. But over the centuries, no definitive explanation has emerged as to why this pattern occurs in plant life and other areas of the natural world. So for now, we will just have to accept it as another one of the marvelous mysteries of nature.



In this case there are 13 spirals running clockwise and 8 running counter-clockwise. Now, you're probably thinking, "So what?" For the answer to that, we need to go back in time.

In 13th century Italy, a mathematician named Leonardo Pisano Bigollo (later known simply as Fibonacci) became interested in rabbits. Not so much the actual creatures, but the way they reproduced. Being a mathematician, he wanted to quantify and predict the likely size of successive generations. And he came up with a sequence in which each number is equal to the sum of the two previous numbers. It looks like this:

0, 1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89, 144, etc.

The derivation of how this sequence applies to rabbit reproduction is fairly straightforward, requiring only simple arithmetic and a few assumptions about birth rates. Although he did not invent this numeric series, he may

cones. Larger cones may have more spirals, but they, too, will number in the Fibonacci sequence. As it turns out, this sequence is pervasive throughout the natural world. The seed heads on many flowers, most famously sunflow-



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 _____

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Phone Number _____

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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
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THE SWAMP SCENE NOVEMBER 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.