



the Swamp Scene

friends of great swamp national wildlife refuge

ISSUE THIRTY NINE
JUNE 2012

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GREAT SWAMP VOLUNTEERS REACH 150,000 HOUR MILESTONE!



On June 2, 2012, volunteers, staff, and guests gathered at the annual Volunteer Recognition Event to celebrate the donation of 11, 414 volunteer hours during fiscal year 2011. But this year was also a significant milestone. Since the volunteer program was formally organized in 1982 by Outdoor Recreation Planner Tom McFadden, volunteers have generously contributed 150,000 hours valued at \$3.2 million to Great Swamp National Wildlife Refuge. A letter of commendation from Wendi Weber, Regional Director was read by Refuge Manager Bill Koch. Congressman Rodney Frelinghuysen also attended the event, thanked volunteers for their services, and presented a resolution from the U.S. House of Representatives. See page 6 for more on this year's Volunteer Recognition Event. Above photo by Robert Lin.

"... Every donated hour is an important gift that enables the refuge to accomplish much more than it could with staff alone, while simultaneously forging close bonds between volunteers, the refuge, and the community. The tradition continues today. Great Swamp NWR volunteers are dedicated, hard-working land stewards with a passion for conservation and a strong desire to support the refuge and the mission of the National Wildlife Refuge System.

On behalf of the U.S. Fish and Wildlife Service, it is my honor to congratulate the volunteers of Great Swamp National Wildlife Refuge for achieving this noteworthy milestone and to thank you for your generosity, dedication, and passion."

Sincerely, Wendi Weber, Regional Director
Fish and Wildlife Service
U.S. Department of the Interior

"Mister Speaker, I rise today to honor the hundreds of volunteers at Great Swamp National Wildlife Refuge, who are celebrating the milestone of logging 150,000 volunteer service hours in aiding the Refuge since 1982. The volunteers of the Great Swamp, through their dedicated hard work, have made the Great Swamp National Wildlife Refuge, a vibrant source of pride and activity for the local community.

... Their work on behalf of the Great Swamp has allowed the Refuge to grow into the one-of-a-kind educational center that it is today. Even though the volunteers come from all walks of life and represent all ages, their love of the Great Swamp and nature has built a close bond between them."

Congressman Rodney Frelinghuysen,
11th District of New Jersey.
Congressional Record, Volume 158, No. 80

MEET NEW FRIENDS OF GREAT SWAMP NWR BOARD MEMBER ELAINE SECKLER

My love of hiking, cycling, sense of adventure and enjoying nature seems to have been shaped during my early years growing up on Long Island. We moved to New Jersey when I was in my early teens, living very close to two rivers and the ocean where my summers were spent water skiing, sailing and fishing. I went to college in New Jersey and enjoyed my two careers, a buyer at Bamberger's and a marketing manager at AT&T. I moved to this area many years ago, always living close to the Great Swamp. After leaving the corporate world, I studied Spanish in Costa Rica, volunteered teaching English as a second language, and have enjoyed traveling in Europe & South America.

Through the years the Great Swamp has played a huge role in my life. The Great Swamp was a major landmark as I would return to Morristown Airport after one of my flying adventures. The beauty of the Great Swamp is even evident from the sky and its vast size is awesome from above.

I have been a member of Friends of Great Swamp for many years. I began volunteering last year and I'm having lots of fun while learning so much. So many of my memories include the Swamp. I have enjoyed birding for many years even though I am still merely a novice. As I go walking or cycling in the Great Swamp hearing the birds, seeing the wildlife and looking at the beautiful landscape, I am always reminded how lucky I am to have this refuge in my backyard! The preservation of nature is important to me so being part of the Friends of Great Swamp is a very special opportunity for me.



WELCOME NEW GREAT SWAMP NWR REFUGE BIOLOGIST DOROTHY FECSKE

By Laura Nally

Dorothy Fecske is the newest biologist at Great Swamp NWR. She joined the staff late last year with a background in fur-bearing carnivores. Previously, she worked with the North Dakota Game & Fish Department overseeing their furbearer research and management program. She was eager to join Fish and Wildlife, as she likes the mission of the National Wildlife Refuge System.



Most recently, at Rachel Carson NWR in Maine, she worked on habitat restoration to benefit cottontails. Dorothy particularly enjoys working on habitat restoration because you can see the results of your efforts. She has already demonstrated her interest in this by initiating a restoration project with the Friends, planting native shrubs along the Passaic River where the Friends have removed invasive plants over the last few years.

Dorothy grew up in Pennsylvania but her work opportunities took her to different parts of the country. When the biologist position opened at Great Swamp NWR, she was eager to come to New Jersey to be closer to her roots.

She is very pleased and somewhat surprised at the variety of wildlife that exists at the refuge. Dorothy was very happy to find that fishers and bobcats can be found here—species that she has worked with previously. During the coming year she will focus on threatened and endangered species, engaging in bat studies with an emphasis on the Indiana bat. She also plans to work with other refuge staff members on bog turtle and wood turtle projects.

Dorothy looks forward to working with Friends and volunteers on the bat studies; dove and waterfowl banding; annual deer hunt; habitat restoration projects; water bird population surveys; and invasive species removal. Dorothy is going to be quite busy. We welcome her to Great Swamp.

NATIONAL WILDLIFE REFUGES EARN CONSISTENT HIGH MARKS WITH VISITORS

U.S. Fish & Wildlife Service, May 22, 2012

Editor's Note: During 2010 and 2011, many visitors to Great Swamp National Wildlife Refuge had a chance to participate in this national Visitor Service Survey. Refuge specific data shows high marks for Great Swamp. Thank you to everyone who took the time to complete the Survey. The data is providing useful input to the draft Comprehensive Conservation Plan. The following article from the U.S. Fish and Wildlife Service summarizes the Visitor Service Survey results nationwide.

An overwhelming percentage of surveyed visitors to national wildlife refuges in 2010 and 2011 were favorably impressed with the recreational opportunities, education and services on these public lands, according to a national survey. Some 90 percent of respondents gave consistent high marks to all facets of their refuge experience.

The peer-reviewed survey, commissioned by the U.S. Fish and Wildlife Service and designed, conducted, and analyzed by researchers with the U.S. Geological Survey, evaluated responses from more than 10,000 adult visitors surveyed at 53 of the country's 556 national wildlife refuges between July 2010 and November 2011. More than 45 million people visited national wildlife refuges in 2011.

"When you visit a refuge and see for yourself the amazing web of life this natural landscape protects, it's hard not to come away impressed," said Service Director Dan Ashe. "You begin to understand what a treasure we Americans have at our doorstep. For most people, that appreciation deepens when they learn what staff are doing to conserve their wildlife heritage. We're thrilled that visitors also recognize and appreciate the efforts of Refuge System staff to make their visits rich and enjoyable."

Of survey participants,

- 91 percent reported satisfaction with recreational activities and opportunities;
- 89 percent reported satisfaction with information and education about the refuge;
- 91 percent reported satisfaction with services provided by refuge employees or volunteers; and
- 91 percent reported satisfaction with the refuge's job of conserving fish, wildlife and their habitats.

Some survey participants also volunteered enthusiastic comments, such as this one: "Refuges make me aware that I am a part of the American experience and not just an observer. Nowhere else do I feel such a deep sense of connection with the land, the plants, and the wildlife. Visiting a refuge is truly a spiritual experience."

Among the most popular refuge activities visitors reported were wildlife observation, bird watching, photography, hiking and auto-tour-route driving. Most visitors also reported viewing refuge exhibits, asking information of staff or volunteers and visiting a refuge gift shop or bookstore.

Visitors reported varying support for the use of alternative transportation, such as boats, buses or trams, to get from point to point inside a refuge. Some refuges are exploring these methods to reduce their carbon footprint. Most respondents (65 percent) said they would be likely to use a boat on refuge waterways or an offsite parking lot that provides refuge trail access. Just over half (51 percent) said they would be likely to use a bus or tram that runs during a special event. Most said they were unlikely to use a bus or tram that takes them to different points on a refuge or a bike share program.

Many (59 percent) respondents identified themselves as repeat refuge visitors. More than a third of visitors (42 percent) said they lived within 50 miles of a refuge they visited.

The survey was conducted under the Government Performance and Results Act of 1993, which mandates federal agencies to undertake periodic reviews of program performance.

Findings from a second phase of the survey, covering another 25 refuges, are expected in 2013. The Service will use survey results to help guide refuge transportation, facilities and services planning.

We have a unique treasure here in the United States of America. It's called the National Wildlife Refuge System, more than 150 million acres of public lands set aside for wildlife. There are 556 national wildlife refuges, at least one in every state. Refuges not only provide critical habitat for wildlife, they also offer unparalleled wildlife oriented recreational opportunities for visitors. Great Swamp National Wildlife Refuge is one of five national wildlife refuges in New Jersey.

You can help support this national treasure by buying a Federal Duck Stamp. Proceeds from the sale of stamps are used to purchase land for the National Wildlife Refuge System. A current duck stamp may also be used for free admission to refuges. And just in case you missed the announcement, the 556th unit of the National Wildlife Refuge System is the Everglades Headwaters National Wildlife Refuge and Conservation Area!



*Duck stamps are sold at Refuge Headquarters and at the Friends Nature Shop.
Support your national wildlife refuges—buy your duck stamp this year!*

TWENTY-SEVEN VOLUNTEERS AND 91 HOURS—THANK YOU BROTHER INTERNATIONAL CORPORATION

By Elaine Seckler

Saturday April 28, 2012 was a sunny, chilly and breezy morning. It was a perfect day for Brother International Corporation's volunteer work day at Great Swamp National Wildlife Refuge. Twenty-seven Brother employees, friends and family came to the refuge to volunteer their time working on projects at the Helen C. Fenske Visitor Center.

In all, Brother volunteers contributed 91 hours and completed several much-needed projects with the direction and assistance of Friends of Great Swamp volunteers. Edging, weeding, clearing and mulching was done in front of the Visitor Center. In addition, the perimeter of the screened porch was also edged, cleared, weeded and mulched. The native plant bird feeding garden paths were weeded, raked, and spread with wood chips. At the Nature Detective Trail, wood chips were spread and poles from the vernal pool area were carried over and placed to mark the edges of the trail. At morning's end, the Visitor Center looked terrific having received a well deserved face lift.

All the hard work created hearty appetites and the hot dog barbecue lunch was a great way to reward the volunteers for all their efforts. Refuge Manager Bill Koch was on hand and spent some time with the group sharing information about the National Wildlife Refuge System as well as specific information regarding Great Swamp. A number of the volunteer expressed an interest in returning for a "non-working" visit with their families.

The pre-planning, coordination and cooperation between Brother International, Friends of Great Swamp, and U.S. Fish and Wildlife Service resulted in a very successful event. Doriana Allyn, from Brother, has received positive comments from the volunteers and they are already asking about holding the event again next year! Special thanks to Ruth Lloyd, Ruth Morgan, Judy Schmidt, Laurel Gould, and Elaine Seckler—the Friends volunteers who contributed many hours to ensure the event was successful and fun! And a big thank you to refuge staff Jonathan Rosenberg and David Sagan.



CLEARING THE VIEW AT WOC—WHAT A DIFFERENCE A VOLUNTEER WORK DAY MAKES

By Judy Schmidt

March 6, 2012, 9:00 am. Temperature 32 degrees. Ten volunteers and staff biologist Colin Osborn arrive to do a habitat enhancement project at the Wildlife Observation Center. The objective: to improve habitat by removing overgrown brush in the ponds near the boardwalks.

One of the things that brings visitors to the Wildlife Observation Center is being able to view the turtles, frogs, and snakes of Great Swamp. Over the past few years, the bushes have become so overgrown that it was almost impossible to observe these reptiles and amphibians. So today, we were going to do something about it.

For three hours we waded in freezing water, clipped, dragged, and made brush piles. When we were done, the area was more open and the habitat was much improved. We are looking forward to again hearing visitors say: "This place is so cool—there are so many frogs, snakes, and turtles."

Some of the things we learned. The water is much deeper than it looks. It is tough to walk in mud. Dragging brush is hard work. When volunteers were asked: "Would you do this job for \$10 an hour?", one volunteer said "more like \$50". Another quipped: "for lunch". But the real reason we do this is because we love the refuge and its wildlife. We plan to continue this project again next year when the plants are dormant and would be pleased to have you join us.



Photo by Colin Osborn, USFWS

ENDANGERED SPECIES DAY—WELCOMING THE WOOD TURTLES HOME

By Laurel Gould

On Saturday, May 26, Great Swamp National Wildlife Refuge celebrated Endangered Species Day. Fifty visitors heard Federal Wildlife Officer Mike McMennamin talk about the Endangered Species Act and law enforcement issues. Colin Osborn and Dr. Kurt Buhlmann updated the group on the results of the 2011 turtle research and head-start program. But the stars of the show were the 22 wood turtles that came home to the refuge from their winter stay in Massachusetts.

As you'll read in the article below, this important research will help gain insights into the ecology and survival of State-threatened wood turtles. This study is supported by your donations and membership in Friends of Great Swamp National Wildlife Refuge.

Thank you.



Colin Osborn shows visitor wood turtle just returned from Massachusetts



Wood turtle May 2012, home from Massachusetts. Photo by Dorothy Smullen

Left: wood turtle hatchlings September 2011.

HEAD-START PROGRAM FOR WOOD TURTLES ON THE GREAT SWAMP NATIONAL WILDLIFE REFUGE

KURT A. BUHLMANN¹, COLIN OSBORN², BRIAN A. BASTARACHE³, NICHOLAS J. SCOBEL², EVIE SCHMUCK², AND NICOLE GERARD²

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² U.S. Fish and Wildlife Service, Basking Ridge, New Jersey, USA

³ Bristol County Agricultural High School, Dighton, Massachusetts, USA

Head-starting programs for turtles are presumed to give hatchling turtles a better chance of surviving their first year by keeping them protected from predators while also giving them the chance to grow when they would normally be hibernating. Since turtles take many years to reach maturity (Wood Turtles may take 15-20 years), the more hatchlings that survive their first year (when survivorship is often naturally low), then a greater number of turtles are on track to reach maturity. Thus, for small, declining populations of turtles, head-starting may "boost" the population back into a positive growth trajectory.

With much appreciated support from the Friends of the Great Swamp National Wildlife Refuge, we began a head-start program for Wood Turtles (*Glyptemys insculpta*) with the aim of augmenting

an existing small population. We partnered with the Bristol County Agricultural High School in Dighton, Massachusetts, which is the same high school that is rearing head-started Blanding's Turtles for a similar project on the Assabet River NWR. With permission from New Jersey Division of Fish & Wildlife and the USFWS we brought to the high school 22 of 42 hatchlings that were collected from five protected nests in September 2011. Approximately half of the hatchlings (mean carapace length [CL] = 39 mm; mean weight = 9 g) from each clutch were directly released in September 2011 and half were head-started by the high school students. They were measured weekly and fed a diverse diet. The students created charts and the growth of the turtles could be followed on the web. All of the 22 turtles survived.

We brought the turtles back to the Great Swamp in late May 2012 and fitted each one with a radio transmitter that will last one year. The turtles were released near their natural nests and are being tracked by the Great Swamp biological interns, Nick Scobel and Evie Schmuck this summer. At the time of release the head-started Wood Turtles (mean CL = 98 mm; mean weight = 140 g) were comparable in size to 4-year-old wild juveniles. The on-going radio-tracking work will provide data on survivorship and home range establishment. We hope that the head-started turtles establish themselves in the same areas as the adults and find suitable hibernation sites this fall. We expect that the study will help evaluate the long term benefits of head-starting programs and help rejuvenate the Wood Turtle population on the Great Swamp NWR.

CELEBRATING 11,414 VOLUNTEER HOURS AT GREAT SWAMP NATIONAL WILDLIFE REFUGE

The twenty-sixth annual Volunteer & Friends Recognition Event was held on Saturday, June 2 to recognize and celebrate the exceptional contribution of volunteers and Friends to Great Swamp NWR. This year the event was again held in the pavilion at the Helen C. Fenske Visitor Center. Nearly 100 volunteers, staff, guests, and Puddles (the blue goose) enjoyed a buffet dinner, celebratory blue goose cake, and an awards ceremony which recognized individual achievements as well as the incredible milestone of 150,000 hours from 1982 to 2012! *(Photos by Robert Lin and Carl Woodward)*



Photo above: 100 Hour Club (L to R):
Marge Remeika, Peter Osborn, Jen Dawson

Photo below: 500 Hours (L to R):
David Mracek, Ruth Lloyd, Randi Emmer, Heather Barrett



250 Hour Awards—(L to R)
Bob Hofmann, Nick Scobel, Paul Fenske

Photo below (L to R):
5,000 Hours: Laurel Gould, Judy Schmidt



NOTABLE VOLUNTEER MILESTONES FY2011

100 HOUR CLUB

John Breault, Terry Carruthers, Jen Dawson, Marge Remeika, Anne Hebenstreit, Peter Osborn, Gina Smith, Roger Story

250 HOURS

Paul Fenske, Bob Hofmann, Frances Owen, Nick Scobel

500 HOURS

Heather Barrett, Randi Emmer, Nicole Gerard, Ruth Lloyd, David Mracek

1,000 HOURS: Karen English, John Wilmot, Sr.

1,500 HOURS: Susan Garretson Friedman

2,000 HOURS: Laura Nally

2,500 HOURS: Louis Pisane, Dorothy Smullen

3,000 HOURS: Leo Hollein

3,500 HOURS: Kathy Woodward

5,000 HOURS: Judy Schmidt, Laurel Gould

REFUGE VOLUNTEERS DONATE 11,414 HOURS IN FISCAL YEAR 2011

Listed below are the active volunteers for Fiscal Year 2011 (October 1, 2010 through September 30, 2011)

The number in parentheses is the total number of hours contributed since first becoming a volunteer.

Satoka Abe (41)	Ralph Fischer (149)
Joe Alvarez (4)	Paul Ford (167)
Garry Annibal (14)	Charlie Friedman
George Apgar (27.5)	(31.5)
Joann Apgar (181.5)	Susan Friedman
Pete Axelrod (355.5)	(1,631)
Heather Barrett (502.5)	Sue Gallup (4)
Paul Barrett (13.5)	Daniel Gaydos (3)
Moir Blake (26.5)	Jane George (110)
Betsy Boles (233.5)	Nicole Gerard (701)
Joe Bookalam (3)	Pat Giaimo (2,177.5)
Dennis Branden	Comilo Giralda (2)
(977.5)	Charles Gould (161)
Eloise Branden (336.5)	Laurel Gould (5,343.5)
John Breault (162)	Melissa Grossman (18)
Steve Byland (919)	Steve Gruber (436.5)
Ann Campbell (19)	Mary Beth Hansbury
Pat Carruthers (6)	(65)
Terry Carruthers	Anne Hebenstreit
(132.5)	(104.5)
Teri Catalano (452.5)	George Helmke (919.5)
George Cevera (593.5)	Greg Henderson (161)
Janis Cole (54)	Justin Henry (6.5)
Jason Colflesh (4)	Mariana Hernandez
Naomi Colflesh (2)	(123)
Garrett Collins (5)	Jack Higgins (1,394.5)
Sue Collins (20)	Maryann Higgins (83)
Lora Cooper (55.5)	Chris Hildebrand (192)
Betsy Coyne (325.5)	Bob Hofmann (254.5)
George Coyne (262)	Leo Hollein (3,218.5)
Jennifer Dawson (115)	Bruce Jordan (15)
Lee Delitzscher (93.5)	Steve Jordan (2)
Jim Dellureficio (19)	Carolyn Kahn (20.5)
Andy Desko (6)	Beverly Karcher (7)
Jim Detizio (948.5)	Jane Kendall (1,195)
Carl Dinger (2)	Missy Klingenburg (46)
Caleigh Dinger (2)	Neil Klingenburg
Mike Duffy (7)	(414.5)
Rich Dufort (415)	Ryan Koch (42.5)
Roger Edwards (307.5)	Travis Koch (38)
Georgia Eisenhart	Shmuel Korengut
(168)	(39.5)
Randi Emmer (508.5)	Bonnie Kushnerick
Karen English	(91.5)
(1,359.5)	Lorrie Lane (185)
Nancy Felicito (802)	Caryl Leong (59.5)
Paul Fenske (336.5)	Robert Lin (7)
Andrew Ferreira	Randy Little (15)
(845.5)	Ruth Lloyd (548)
Karen Finan (19)	Ray Lord (190)
Tom Finan (30)	Tom McFadden (13.5)
Evelyn Fischer (21)	Ruth Morgan (368.5)



Celebrating notable milestones (L to R): Laura Nally, John Wilmot, Sr., Leo Hollein, Kathy Woodward, Lou Pisane, Dorothy Smullen, Laurel Gould, Judy Schmidt

Bridget Mracek (224.5)	Mary Sanko (99)	Roger Story (108.5)
David Mracek (589)	Deb Scala (1,229.5)	Ed Sullivan (6)
Fiona Mulvey (3)	Joe Scala (243)	Meredith Swenson (30)
Roz Mytelka (347)	Nancy Schenck	Elaine Taub (202.5)
Joe Nally (222.5)	(1,262.5)	Vitina Varone (35.5)
Laura Nally (2,427)	Judy Schmidt (5,366.5)	Ally Waldron (21)
Kevin Naranjo (17)	Nick Scobel (489)	Mary Jane Walsh
Brian Osborn (42)	Elaine Seckler (36.5)	(240.5)
Claudia Osborn (130)	Donna Sharpe (11.5)	Kevin Ward (40)
Peter Osborn (105)	Gina Smith (105)	Matthew Ward (10.5)
Tom Ostrand (148)	Bill Smullen (150.5)	Esther Warner (228)
Frances Owen (485)	Dorothy Smullen	Elaine Weyuker (111.5)
Donna Paino (59.5)	(2,559)	Barbara Whitmore
Candace Paska (487.5)	Mike Snyder (16)	(54.5)
Chris Petrillo (93.5)	George Solovay	Chuck Whitmore (971)
Gail Petrillo (99.5)	(1,105.5)	John Wilmot, Sr.
Louis Pisane (2,651)	George Spiliotis (35.5)	(1,084.5)
Sandra Pruzansky	Janet Stadelmeier	Barbara Wingel (410)
(118.5)	(45.5)	Carl Woodward (391.5)
Lisa Quartararo (42)	Chris Stadtmueller	Kathy Woodward
Gail Rapaport (519.5)	(214.5)	(3,633)
Marjorie Remeika	Rich Stagnaro (2)	Ruth Zippler (447.5)
(106)	Matt Steffens (149.5)	
Shirley Richardson	Connor Steigerwald (4)	
(147.5)	Christine Stepnowski	
Edythe Risberg (708.5)	(14)	
Carolyn Rubinfeld (3)	Kent Stevens (22)	

BLUEBIRD NESTING SUCCESS AT GREAT SWAMP NATIONAL WILDLIFE REFUGE EXCEEDS 80%

Story and photos by Leo Hollein

I often wonder how successful birds are in fledging their young. Whenever I find a bird nest in the open, especially if it is a ground nesting bird, it seems the nest is eventually predated before the eggs hatch or young fledge. This happens even though I leave the nest area in a different direction from which I came. (This avoids creating a dead end path that a mammalian predator could use to follow the scent trail to locate the nest.) It could also be that if I can find a nest, a predator would also be likely to find it.

Monitoring nest boxes provides an excellent opportunity to assess the nesting success of birds — at least for cavity nesting birds such as Eastern bluebirds (*Sialia sialis*). This same assessment would be very hard to do for birds that use open nests due to the difficulty of locating and monitoring a significant number of nests.

A nesting (nest with eggs) is considered successful if at least one young bird from the clutch of eggs hatches and leaves

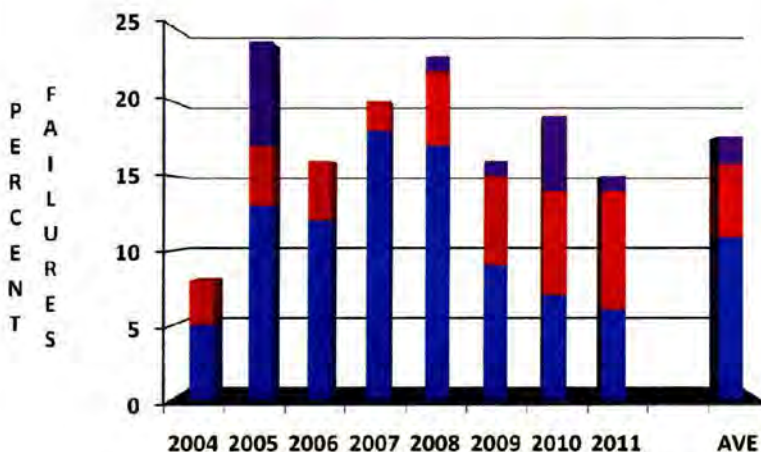
Once a bluebird egg hatches it has an excellent chance (93%) of fledging. The result is that 78% of the bluebird eggs fledged. As expected this rate is lower than the overall nesting success rate of 82% as not all eggs in a given clutch ultimately become fledglings.

The greatest reason for failure is nest predation followed by nest abandonment. Abandonment of a clutch of eggs could be due to the death of one or both of the parents during the incubation stage, infertile eggs, or improper incubation. Extremely high nest box temperatures, exceeding 100 degrees Fahrenheit, could result in overheating eggs and preventing them from hatching. Bluebirds can warm their eggs to the proper brooding temperature. However, they cannot cool their eggs if they become overheated.

The other category shown in Chart 1 includes death of the entire clutch due to starvation as well as undetermined causes. Inclement weather (extended periods of rain, mist and/or high wind) can prevent adult bluebirds from obtaining enough food to keep their hatchlings from starvation. Hatchlings are eating machines. They need a steady supply of food to maintain their rapid development.

CHART 1 - BLUEBIRD NEST FAILURES

■ PREDATION ■ ABANDONMENT ■ OTHER



MANY MAMMALIAN PREDATORS ROAM THE SWAMP

Predation rates vary from year to year and remedial action is taken annually to reduce predation. Bluebird nests in the Refuge have been predated by mammalian, avian, and perhaps reptilian predators. The greatest threat is from mammalian predators.

The known bluebird box predators in the Great Swamp National Wildlife Refuge are:

- Mammalian – mice, flying squirrels, long-tailed weasels, raccoons and black bears
- Avian – house wrens and house sparrows

the nest box as a fledgling. Chart 1 presents the percentage of bluebird nesting failures over an eight year period (2004 - 2011) that covers 503 nesting attempts. On average about 18 % of the nestings fail to fledge a bluebird. Conversely over 82% of the nestings are successful. Nest failure rates range from a low of 8% in 2004 to a high of 24% in 2005. Weather is a significant factor in the variation of nesting success from year to year.

Another way of measuring bluebird nesting success is to compare the number of bluebird eggs that eventually fledge. For the same eight year period 84% of the bluebird eggs hatched.

The use of metal support posts with close fitting cylindrical predator guards has essentially eliminated the threat from mice and long tailed weasels as long as vegetation is trimmed around the posts to prevent an alternative pathway to the nest box. White footed mice occupied one third of the nest boxes and disrupted nesting when the nest boxes were supported by wooden posts with loose fitting cylindrical predator guards. A mouse can enter the seemingly smallest of openings. Flying squirrels are deterred by locating the nest boxes far enough away from trees so they can not glide from a tree to the nest box. (continued on page 9)

"Each person who looks into a nestbox, gets a magical window into the life of a bird. This glimpse can give them an appreciation and respect for birds they would never get otherwise." —Karen Louise Lippy, 2002

The robust raccoon population is the current primary predator. Raccoons forage near water and are a threat to boxes along waterways. In dry years when food is scarce they tend to raid more boxes. Raccoons climb atop the nest boxes and use their manual dexterity to reach into the nest box hole to retrieve eggs or hatchlings. The addition of plastic conical guards atop the cylindrical guards has deterred raccoon predation on a number of boxes. A program to install more such guards in areas subject to raccoon predation is ongoing. The use of wire mesh tunnels (Noel guards) on nest box holes has met with limited success. The Noel guards prevented raccoon predation but bluebirds are reluctant to nest in these boxes.

There is no way to deter one mammalian predator – the black bear. Below is a picture of a nest box and post destroyed by a black bear. Fortunately bears are infrequent predators. They have poor eyesight and evidently confuse the nest



Nest box destroyed by a black bear

boxes with bird feeders that offer a substantial meal. All nest boxes raided by bears contained hatchlings. A bear usually stops after raiding one nest box in a specific year because the resulting caloric reward is minuscule.

HOUSE WRENS DESTROY EGGS OF OTHER BIRDS

The diminutive house wren and the non native house sparrow are predators of bluebird nests. House wren nestings are minimized by locating the nest boxes over 50 feet from brush or the tree line as wrens like to nest close to cover. Once a wren has taken up residence in an area or nest box, it will often visit an adjacent nest box and destroy any eggs in that box by pecking them open and dropping them out of the nest box entrance hole.

House sparrows only nest on the periphery of the Refuge in areas near houses, especially those with livestock or bird feeders that are a source of food for these sparrows. Boxes used only by house sparrows are relocated. The nest hole is modified on boxes used by both bluebirds and house sparrows. The normal 1 1/2 inch round hole is replaced with an oval hole that is 1 3/8 inches wide by 2 1/4 inches long. The plumper house sparrows have difficulty entering the narrower hole.

As per Refuge guidelines, house sparrows are not allowed to successfully breed in the bluebird boxes. If they do build a nest and lay eggs, they are permitted to brood their eggs for a week. Then their eggs and nest are removed from the box. By delaying the removal, the house sparrow hormones have changed. They are not able to immediately lay another clutch of eggs. This procedure significantly delays and sometime eliminates re-nesting in the same box by the house sparrows.



Tree swallow perched on Noel guard



Fledgling bluebirds atop their nest box

THE KILLDEER—MASTER OF CAMOUFLAGE AND DISTRACTION DISPLAYS

Story and photos by Leo Hollein

The killdeer (*Charadrius vociferous*) is a shorebird that is seldom found on sea shores. It primarily inhabits inland fields, meadows and pastures throughout most of North America during its breeding season. The killdeer retreats to warmer climates in the winter. It is the only member of the plover family to nest in the Great Swamp National Wildlife Refuge, however it is an infrequent nester in the refuge.

A killdeer is shown at right standing atop its nest of four eggs. The killdeer is about the size of a robin. It is brown above and white below. The most distinguishing feature is two black bands on its breast. It is the only North American plover with two breast bands. A killdeer chick, however, has a single black breast band like other plovers. The killdeer has a black bill and an orange eye ring. In flight its tail appears to be a bright rufous color. The killdeer often bobs its head. It is named for its kill-dee call that it repeats loudly and often.

The killdeer is a master at camouflaging its nest and eggs as well as itself when brooding its clutch. The killdeer nest consists of a shallow scrape on the ground located in a wide open area containing gravel, pebbles or other material. Its spotted eggs blend in perfectly with the selected substrate. Killdeer nests in the refuge are usually located on gravel in former homestead driveways or in deer hunt parking lots. It takes patience to locate or relocate their nests even though they are “hidden” in plain sight.

Killdeer brood their eggs for about four weeks. In very warm weather they are known to bring water to the nest in their breast feathers to cool their eggs as excessive temperatures can prevent proper development of the embryos. Their chicks hatch fully feathered. They are mobile and are able to feed themselves. They will be tended and brooded as necessary by their parents until they are able to fly in about three weeks.

While brooding their eggs, the killdeer will remain still until a predator or person approaches very close to the nest. It will then flush from the nest and employ a distraction dis-



play to lure the intruder away. This ruse, shown below, is typically described as a broken wing display. A potential predator will pursue the “injured” killdeer to capture a seemingly easy meal. Once the predator has been drawn sufficiently far away from its nest the killdeer will fly off calling kill-dee kill-dee.



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

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

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- Satisfaction in knowing you are helping protect wildlife and wild places while safeguarding a national treasure for future generations.

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Friends of Great Swamp
National Wildlife Refuge

THE SWAMP SCENE JUNE 2012

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.