

FRIENDS OF GREAT SWAMP NATIONAL WILDLIFE REFUGE

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Centennial Celebration

MARCH 15, 2003—100 YEARS LATER!

On March 14, 1903, Pelican Island, Florida was established as the first national wildlife refuge. One hundred years later, on March 15, 2003, New Jersey state and local officials,



U.S. Fish & Wildlife Service staff, environmental partners, volunteers, and the Friends of Great Swamp joined together to recognize and celebrate the Centennial.

A Centennial bus from the U.S. Fish & Wildlife Service Northeast Regional Office in Hadley Massachusetts arrived with some of the regional staff and a traveling band.

T.R. Bear and Blue Goose (Great Swamp Refuge staff Helen Johnson and Marilyn Eames in costume) welcomed attendees.

To get everyone in the mood, the band, made up of three U.S. Fish and Wildlife Service employees, played a variety of lively songs from the newly released Centennial CD *Songs of the System*. Refuge Manager Bill Koch welcomed the group. In his opening remarks he summarized the incredible success of the national wildlife refuge system: "Theodore Roosevelt dedicated three acres of land called Pelican Island to save the endangered brown pelican 100 years ago and today we have more than 100 million acres of land and over 540 refuge systems in the country. Despite that, they are America's best kept secret and we have to work hard to keep them around."

Next at the podium, Tony Leger, Northeast Region National Wildlife Refuge System Chief, presented Friends President Kathy Woodward with a Centennial Mug to recognize the efforts of Friends volunteers on behalf of Great Swamp. "We are indebted to our volunteers," he said. "The Friends is a great organization and the amount of time and effort they put in is unbelievable and valuable."

The Friends in turn presented Tony with a framed Great Swamp Centennial poster to hang at the Regional Office.



PRESIDENT'S MESSAGE

From Kathy Woodward

Two years ago, in anticipation of the 2003 National Wildlife Refuge Centennial celebration, I challenged members of our Friends group to see how many refuges we could visit during our travels. Many of you took our Passport book along to have it stamped at Refuge offices across the United States. This newsletter has a collection of descriptions of some of those visits.

Each Refuge is unique and there is usually an adventure waiting when you pass through the gate. And there is a warm welcome when staff and volunteers find out you are from a Friends group. From the "one man, one boat" start at Pelican Island, off the east coast of Florida, the Refuge System now encompasses over 94 million

acres on 540 refuges. There is at least one refuge in every state, ranging in size from Mille Lacs NWR (0.6 acre, Minnesota) to Arctic National Wildlife Refuge (19.2 million acres, Alaska). The more people learn, the more passionate they are about each refuge, and the Refuge System.

Working in the Friends Bookstore has given me the chance to meet and greet visitors to Great Swamp. On Sunday afternoon in early March, five people from Louisiana and Arkansas stopped in. We quickly learned that they were in New Jersey to attend a large conference concerning black bear. They had with them two blackmouth cur dogs (think Old Yeller) trained to harass nuisance bears. As fascinated as we were

with their story and meeting the dogs, they were eager to learn about Great Swamp. On their free day, they came to the nearest wildlife refuge! It was a chance meeting, but we hated to see them go.

Part of the public relations theme for the Refuge System Centennial is "America's Best Kept Secret". Yet, I think the word is getting out. I highly recommend visiting other refuges and helping out in our own Bookstore. You can be the "Friend"ly greeter, and help others join our yearlong Centennial celebration.

THANK YOU TO...

Whether it's a donation of time, money or services – it's our members and partners who allow us to fulfill our mission.

- Mary Lou Weller for the use of her photos of historic Meyersville and the Church in the Swamp for our first Oral History day.
- Dixon Peer for keeping the bird feeders at the two blinds filled over the winter. During a winter season like this past one, some of the best birds sightings occur at those two feeders.
- Volunteer Recognition Grants from ExxonMobil – thanks to volunteers Jack Higgins and Leo Hollein.
- Rutgers Preparatory School for their donation.
- Member Laurel Gould participates in her company's gift-giving campaign and has designated the Friends as her charitable organization.

Memorial Gifts

In Memory of:

Friends Member and Volunteer Susan Wijdenes, from

- Lucy Marks
- Elise Zappos
- Ken and Julia Craven

In Memory of:

Carolyn Vilain, from Marc Vilain

LOUISE JENSEN JOINS THE FRIENDS BOARD



Louise Jensen is the newest member of the Friends Board of Directors and will be responsible for publicity and public relations activities, a perfect fit given her extensive background experience in public relations, marketing and communications. She has worked with a number of non-profit groups including the Morris Land Conservancy where she provided consulting services to help develop a master plan for a visitor's center at the Great Swamp National Wildlife Refuge. Louise served as the first Director of Development for the Morris County Park Commission and was Executive Director of The Park Alliance, their new corporate-based friends groups, where she melded her passion for open spaces, historic landscapes and natural resources with her not-for-profit and marketing talents. She currently serves as Executive Director of Project Acorn, a local not-for-profit that assists families in need by providing access to preschool for their children. Louise serves in a number of other volunteer positions – all the while trying to keep up with husband Bill's travels as a consultant and author, and their 16-year old son

Centennial Celebration—continued from page 1

Then it was time for the time capsule...

Refuges across the country are "burying" time capsules to commemorate the centennial. So, what would you put in a time capsule to be opened in 100 years? That was the assignment given to Tom McFadden, Outdoor Recreation Planner at Great Swamp National Wildlife Refuge. He did so well at finding more than 40 items to put into the capsule that he almost couldn't get the container closed! According to Tom, "we want the people who open this to know what the swamp looked like in 2003, how it was managed, and how we promoted it". The time capsule will be on display at Refuge Headquarters, to be opened on the bicentennial in March 2103.

Ten sealed bags contained the following inventory:

1. Refuge Officer/Refuge Manager Rich Guadagno button, hero's patch, card, Rutgers magazine (see page 22), and Centennial CD – Songs of the System.
2. Friends of Great Swamp Newsletter, Great Swamp pin and patch, Friends of Great Swamp brochure and several postcards, the Tree & Shrub Guide to the Boardwalk Trail, as well as one of Judy Schmidt's pottery oak leaves.
3. Refuge Officers badge [and property transfer receipt], Great Swamp National Wildlife Refuge belt buckle (#51), Centennial belt buckle (#17), Centennial pin, Refuge Volunteer T-shirt.
4. Great Swamp National Wildlife Refuge brochures and checklists.
5. The Raptor Trust Annual Report, Great Swamp Outdoor Education Center (Morris County) brochures, Somerset County Park Commission Environmental Education Center brochures, and the Great Swamp Watershed Association Newsletter.
6. The book, *Saving the Great Swamp*, by Cam Cavanaugh with a note inside and a letter from the New Jersey Conservation Foundation.
7. Photos of the Great Swamp National Wildlife Refuge, Refuge staff, and the Friends Board.
8. National Wildlife Magazine and Skylands Visitor Magazine.
9. Letters and individual pictures of Great Swamp National Wildlife Refuge staff and Inventory Sheet.
10. Letter written by Congressman Rodney P. Frelinghuysen.



Time Capsule Photo—Friends Board of Directors

Clockwise Left to Right: Whisper The Bookstore Dog, Lisa Molinari, Louise Jensen, Laurel Gould, Marcia Rymer, John Wilmot, Kathy Woodward, Judy Schmidt, Neil Borman

The festivities concluded with a buffet lunch hosted by the Friends of Great Swamp at their Office and Bookstore. The Centennial bus then loaded up and headed off for Wallkill National Wildlife Refuge to continue the celebration.

The Centennial Celebration will continue throughout the year, and our 4th annual Fall Festival will be a special Centennial Celebration. This year, the Refuge and the Friends are joining together to host a really big bash!

Save the date – September 6, 2003, and watch for more information.

If you travel much in the wilder sections of our country, sooner or later you are likely to meet the sign of the flying goose—the emblem of the national wildlife refuges.

You may meet it by the side of a road crossing miles of flat prairie in the Middle West, or in the hot deserts of the Southwest. You may meet it by some mountain lake, or as you push your boat through the winding salty creeks of a coastal marsh.

Wherever you meet this sign, respect it. It means that the land behind the sign has been dedicated by the American people to preserving, for themselves and their children, as much of our native wildlife as can be retained along with our modern civilization.

Wild creatures, like men, must have a place to live. As civilization creates cities, builds highways, and drains marshes, it takes away, little by little, the land that is suitable for wildlife. And as their space for living dwindles, the wildlife populations themselves decline. Refuges resist this trend by saving some areas from encroachment, and by preserving in them, or restoring where necessary, the conditions that wild things need in order to live.

Rachel Carson



REFUGE VISITS

One thing you can say about our Friends group is that we like to travel – and when we travel, we frequently visit other Refuges. We asked our members to describe a favorite refuge or refuge visit – other than Great Swamp of course.

Merritt Island National Wildlife Refuge in Florida is one of my favorites. It's one of those places where everywhere you look you're bound to see something wonderful. There is an eight-mile driving route similar to Brigantine where you can see so much very easily – ibis, cormorants, storks, spoonbills, tri-color herons, kingfishers, ospreys, egrets, peeps, ducks galore and much more. And you go at your own pace. Last time I was there I saw a sora rail, a blue winged teal on the wing and many, many yellow-rumped warblers in addition to all the other wonders.

Peggy Armstrong, Chester New Jersey

The Savannah National Wildlife Refuge is a favorite of mine because of its rich environmental diversity of marsh, creeks, deciduous trees, evergreens and reeds. It boasts a well-maintained four and one half mile auto trail through this environment complete with tributary walking paths. It's home and a jumping off spot for a wide variety of songbirds, waterfowl and raptors. It also has a rather large population of fish and alligators. *Bob Smith, Savannah Georgia*

I like the Cape May National Wildlife Refuge because you can go anywhere. If you see an inviting path, you can follow it.

Cindy Branford, Highland Park, New Jersey

If you ever have the chance to visit the Merced National Wildlife Refuge in Merced, California, you'll be in for a real treat. This appears to be a little known and low maintenance refuge but it truly is a birder's delight. Visits in March produced up close views of thousands of snow geese and sandhill cranes in open fields while a pair of great horned owls nested in a nearby tree. July is a great time to see a family of twelve or more barn owls flying from tree to tree. *Merris Larkin, Chatham Township, New Jersey*

In February, while the Northeast was digging out from under a blizzard of snow, we were on a 5 mile canoe trail in Arthur R. Marshall Loxahatchee NWR on the east coast of Florida.

Within the first mile, a very large alligator slid into the canal just in front of our canoe. As we paddled through the saw grass prairie, we saw several smaller 'gators, herons, egrets, early warblers, red-shouldered hawks and a sandhill crane. Back on land, the Cypress Swamp Boardwalk and Marsh Trail provided unique views of habitat that once covered huge areas of Florida. With increased development, this large Refuge serves as a haven for plants and animals, and the water management benefits the entire Everglades system. The Friends group supports the bookstore, a butterfly garden, guided walks and special events such as their Annual Everglades Day. *Kathy Woodward, Chatham Township, New Jersey*

Chincoteague NWR is my favorite because of its variety of habitats and wildlife. It is situated where the northern species and southern species overlap; so old favorites from the north associate with unfamiliar southern species, both plant and animal. I also enjoy the non-native species. While taping the tiny introduced sitka deer, a pony stuck it's head in my car and tried to eat my camera. Besides the traditional uses of National Wildlife Refuges, some of the best swimming and dining are right there too. *Pete Axelrod, Berkeley Heights, New Jersey*

Probably my favorite refuge is Forsythe National Wildlife Refuge [New Jersey]. It has many shore birds that I don't see here. The habitat is varied; we even see upland birds. The peregrine falcon was introduced and we could see the hacking platform and the young (using scopes and field glasses). *Edythe Risberg, Gillette, New Jersey*

Brigantine National Wildlife Refuge. We particularly like the water birds; the great variety of ducks, geese, and "peeps", and the raptors. The last time we were there, we had a great look at a perched red shouldered hawk, and a peregrine falcon on the hacking tower. The mosquito population is great in the summer months too. *Dixon and Diane Peer, Summit, New Jersey*

It's not easy to get to Red Rocks Lakes NWR in southwestern Montana. From West Yellowstone, we drove a dirt road through a pass over the Continental Divide and then another 30 miles to Refuge headquarters. But the trip was well worth the effort. Nestled in the spectacular Centennial Valley, Red Rock Lakes offers a glimpse of the Northwest as it has appeared for centuries. The Refuge was created in 1935 to protect the rare trumpeter swan and it continues to serve as unique habitat for swans as well as prong horned antelope, bear, elk, moose, bison, white pelicans and a large number of migratory waterfowl. Wilson's phalaropes gave a special display on the mudflats in the center of the refuge. Camping is permitted in several designated areas and hiking is encouraged. *Carl Woodward, Chatham Township, New Jersey.*

Early last year I was trained as a mentor for Refuge Friends groups. In October, on my first assignment, I literally followed a hurricane into St. Francisville, Louisiana and Cat Island NWR. This Refuge is one of the newest in the Refuge system (526 out of 540) and is made up of forested wetlands on and sometimes in the Mississippi River, just north of Baton Rouge. The Refuge Headquarters is in a charming Bed and Breakfast in town. This rich bottom land supports a rich variety of trees, including the largest bald cypress tree west of the Sierra Nevadas, and it is huge! The area is home to deer, bear, river otter, many birds, reptiles and snakes. In helping with some post storm trail clean up, a good sized snake scooted between my feet, a water moccasin, according to one of the volunteers. ATVs are the vehicle of choice to get around the refuge, except when the Mississippi floods. The new Friends group is using their first Fish and Wildlife Foundation grant to purchase canoes. *Kathy Woodward, President, Friends Board of Directors*

Nisqually National Wildlife Refuge near Olympia, Washington is in part an old farm surrounded by a dike which today is a 5.5 mile loop trail along the Nisqually River, Puget Sound, and Medicine Creek. The partially flooded farm fields are now freshwater wetlands within that loop trail. The huge trees along the river are home, even in February, to many birds including kinglets, wrens, golden-crowned sparrows, red-breasted sapsuckers, and northern shrike. In the river and wetlands live Canada geese, cackling geese, and many ducks including mallards, hooded mergansers, American widgeons, bufflehead, shovelers, and Barrow's goldeneye. Harriers, bald eagles and gulls are often in sight and river otters and harbor seals swim in the canal beside the dike and in the river. All this animal activity takes place as Mt. Rainier serves as a magnificent backdrop! *Neil Borman, Basking Ridge, New Jersey*

The newly completed section of Route 1 offers an express trip through central Maryland, making it less convenient now to swing by Bombay Hook NWR on your way north or south.

But this is a refuge that's worth the little extra time to get there. It's the place of the unexpected – a Peregrine falcon fast-on the tail of a blue-wing teal as we sit watching in awe, a scissor-tailed flycatcher perched in plain view on a wire, thousands of snow geese lifting off in an audible rush as a bald eagle flies overhead, red-necked stilts and avocets migrating through in large flocks, to say nothing of the ducks, shorebirds, and marsh songbirds that make this a truly special place. The Friends have a bookshop which stocks really neat t-shirts and provides visitor information. It's a great place to picnic – pick up a sandwich at the Leipsic Deli (if it's still open) and take it in with you. *Laurel Gould, Tewksbury Township, New Jersey*

It was a partially cloudy, cold and windy weekday in October when we pulled into the parking lot of an unassuming visitors center in DeSoto National Wildlife Center on the Iowa/Nebraska border, north of Omaha. We were on one of our legendary "road trips" and had picked this out on the map, so we had minimal expectations – except to see birds. We were the first, and for a long time the only visitors, so when we walked into the combination museum/gift shop, we were warmly greeted. It was the observation center that..., well... blew us away! (Obviously built in the 1970's before budget cuts were the norm.) Proceeding from the museum, you walk out from the base of an immense "T" shaped tunnel completely covered in glass with wood framing. The upper end of the "T" runs along DeSoto Lake which is huge. This oxbow lake was created when the Missouri River changed course, cutting off this section from the rest of the river. Inside the space had explanatory panels running down the center, with information phones.

There were three tiers of observation spaces on the lake side, all with intermittent benches and spotting scopes. The view was spectacular with the trees behind us filled with "confusing fall warblers", the side areas included flycatches and belted kingfishers, and the lake itself with snow geese, Canada geese, cormorants, grebes, and assorted ducks. Only one word of caution to visitors: Wear cool clothes and sunscreen since the sun in the tunnel can get pretty intense with all that glass. The staff was warm, but the tunnel got downright HOT! An additional highlight here in the museum is the story of the riverboat Bertrand, that sank and was buried in the mud nearby in the 1860's. The entire contents of the ship was salvaged in the 1970's and put on display here, creating a visual history of the tools, supplies, food and personal belongings of early settlers in the area. This National Wildlife Refuge is on the Lewis & Clark Trail, which is also celebrating an anniversary. *Bob and Kate Fiala, Morristown, New Jersey*

*News from the Refuge***BOARDWALK RENOVATION**

The "short" boardwalk at the Wildlife Observation Center will be closed for several weeks this summer while it is rebuilt. New interpretive signage will also be put in place during the renovation. If you haven't visited the Wildlife Observation Center lately, you'll be pleasantly surprised to find that the "long" boardwalk has a new loop, providing an interesting look at a different part of the swamp. The Friends will be placing the tree and shrub identification markers along the new section during the summer.

*News from the Refuge***WOOD DUCK NEST BOXES**

During the winter months, Refuge staff and volunteers check the 300 wood duck nest boxes on the Refuge to get them ready for the return of the wood ducks in early March. This was a particularly rough winter with cold temperatures, deep snow, and unsafe ice making it difficult to complete the task. However, according to Marilyn Eames, Refuge wildlife biologist, the box checks were completed this season, thanks to volunteer efforts. Marilyn reports that 3,000 wood ducks will visit Great Swamp during this breeding season and expects that between 600 and 800 ducklings will hatch from Refuge boxes this spring. Special thanks go to Eagle Scout candidate Kevin Snow for his project of upgrading the wood duck boxes.

*News from the Refuge***BLUEBIRD NEST BOXES**

The bluebirds are back and checking out the nest boxes at Great Swamp. Volunteer Leo Hollein has assumed responsibility for moni-

toring the bluebird trail at Great Swamp, taking over from volunteer Steve Byland. Leo reports he will be continuing to implement a plan, initiated by Steve two years ago, to pair up new nest boxes in order to encourage both tree swallows and bluebirds to nest, as well as installing new stovepipe predator guards. Leo and his team, Dixon Peer and Louis Pisane, will be installing new bluebird nest boxes and then monitoring and counting the eggs, hatchings, and fledging of bluebirds and tree swallows. The statistics at the end of this nesting season will provide a three-year look at the success of the new program.

Thank you to Roger Mederos and the Youth Group of All Saints Church in Millington for fabricating over 30 bluebird nest boxes for use in the Great Swamp bluebird nest box trail.

Thank you too to the scouts (Webelos) who, under the enthusiastic leadership of John Djorge, built 10 bluebird boxes complete with predator guard assemblies. The scouts installed four of the boxes in the fields at the Wildlife Observation Center on Saturday March 22; the remaining boxes were donated for use in other parts of the Refuge.

**DID YOU KNOW...**

- Pileated woodpeckers are almost as big as crows making them the largest member of the woodpecker family.
- The ruby throated is the only hummingbird that nests east of the Mississippi River.
- Ruby throated hummingbirds can beat their wings up to 75 times per second.
- Honeybees log over 50,000 miles gathering enough nectar to make one pound of honey.
- Great blue herons have a wingspan of 7 feet and stand 4 feet tall.
- A pair of house wrens makes over 1,000 trips a day to feed their nestlings.
- An owl's night vision is 100 times better than a human.
- North America has more kinds of salamanders than all the other continents.
- Salamanders are carnivorous as both larvae and adults, feeding on fish, insects, crustaceans and worms.
- There are more than 60 kinds of oak trees in North America..

News from the Refuge

IMPROVING HABITAT FOR WILDLIFE

By Judy Schmidt

Why are you cutting down trees on a wildlife refuge? Refuge wildlife biologist Craig Bitler is asked this question frequently. The answer? To improve the habitat for wildlife.

A number of farms were purchased during the early years of the refuge's establishment. The refuge began mowing some of the farm fields to provide habitat for wildlife species that prefer grasslands. Many fields that were not mowed grew into dense stands of red maple. The trees were so close to each other that they prevented sunlight from reaching the forest floor. This prevented shrubs from growing under the trees and creating additional habitat for wildlife.

A deciduous forest should have many layers. The top of the tallest trees is called the canopy layer and is used by many species of birds for nesting and foraging. The area just below the canopy top is also used by mammals such as squirrels and raccoons for nesting. The understory layer of smaller trees offers nesting and foraging for birds and regrowth of the forest. The shrub layer offers food, cover and nesting habitat for many birds. The herb layer offers food for deer, raccoons, skunks, birds and insects. The soil layer is where moles, mice and insects live.

When conducting selective cutting, Craig primarily cuts the smaller red maples, leaving the larger red maples, oaks, beech, ironwood, sweet gum, and dogwood. The thinning not only allows sunlight to reach the forest floor, it also allows the trees that are left to branch out and achieve their growth potential. Since nutrients are locked up in trees, the trees that are cut are left in place to decompose and release their nutrients back into the soil.

Most of the present selective tree thinning is being done in areas along Pleasant Plains Road. The cut trees may appear unsightly, but the thinning immediately provides better visibility and in couple of years a shrub layer will exist on the forest floor, which will provide habitat for wildlife and wildlife viewing opportunities for the public.

Centennial Celebrations

AN AFTERNOON OF REMINISCING

On Sunday, March 16, continuing the Centennial Celebration, the Friends hosted an afternoon brunch to share and collect stories about life in the Great Swamp before it was a Refuge.

About two dozen people came to talk or to listen – and heard about the people who lived in the area, the homesteads, farms, and sawmills that were there, as well as recreation, fishing, and trapping.

They brought photographs, maps, memorabilia, and even a collection of arrowheads to display.

Watch for more oral history days, as the Refuge gets ready to celebrate a 40th anniversary in 2004.

Centennial Celebrations

HISTORY – A STEP BACK IN TIME

By Judy Schmidt

The Indians camped on the hillsides of the lake, some of the land was flat and you could see forever only broken by tree lines that marked property lines. There were cows, farms, and hayfields. In other places there were stands of trees that were cleared to make more farmland. These trees were taken to the sawmills to make lumber. The farmers shared equipment and after a long day in the hay fields were served dinner by the landowner. You could walk this land in low boots, as the land was dry. In winter, you could ice skate for miles on the brooks and streams that cut through the land.

This was Great Swamp at the turn of the 20th century. Actually, the Indians weren't there but they had been before the

settlers came. There was a schoolhouse and church at the intersection of White Bridge and Pleasant Plains Roads. These and many more remembrances and pictures were shared Sunday March 16 at the Friends first oral history day.

In 2004, the Great Swamp National Wildlife Refuge will celebrate a 40th anniversary and the Friends of Great Swamp would like to develop a time line of the history of the Swamp and the Refuge. We will be hosting more oral history days to cover the forming of the Refuge, YCC and YACC programs.

If you were here then and have stories, memories, or photos to share, please stop by the Friends Bookstore & Gift Shop, or join us at the next oral history day.

What Friends Do

SECOND ANNUAL FRIENDS CONFERENCE – WASHINGTON D.C.

Between February 1-3, 2003, 370 refuge volunteers and staff from 46 states and 121 refuges came together for the Centennial Refuge Friends Conference.

The conference, held in Washington, D.C. was co-hosted by the National Wildlife Refuge Association and the U.S. Fish and Wildlife Service. Attendees participated in a variety of training workshops, roundtable discussions and networking opportunities geared toward equipping these volunteers with the tools to make their refuges and the broader Refuge System stronger for the future.

The Friends of Great Swamp were represented at the conference by members Kathy Woodward (President), Carl Woodward, Judy Schmidt (Vice President), Neil Borman (Board Member) and Cathy Borman shown here with representatives from Friends of Forsythe NWR.



INVASIVE SPECIES WORKSHOP

By Neil and Cathy Borman

The 2nd National Wildlife Refuge Association Friends Conference was held on the snowless weekend of January 31 – February 2, 2003. Cathy and I attended a fascinating presentation on invasive species. Rudy Schuver, President of the Friends of Willapa NWR in the southeast corner of Washington state, presented their efforts to eliminate spartina cordgrass (*Spartina alterniflora*) from Willapa Bay. This is a major grass of the Atlantic and Gulf coasts but an expanding invasive on the Pacific Coast. They think spartina seeds were released from cut grass sent as packing material for the pottery industry that existed there between World War I and II. Spartina grows very well on the mudflats, building them up, destroying shellfish beds, and interfering with a number of bird species, such as the short billed dowitcher and dunlin, that feed there during migration. He described their efforts to rid the mudflats of spartina.

The muck of the mudflats presents its own problems. It is virtually impossible to walk on the mudflats to pull out the cordgrass, as you quickly sink up to your hips. Likewise, heavy equipment for mowing, airboat mowing or herbicide application, unless modified, suffers the same fate. Also, work must be done at low tide.

Through trial and error, they have developed a procedure for the application of the herbicide glyphosate (roundup/rodeo) on only the spartina avoiding the indigenous plants. They have fitted a very wide tracked vehicle, similar to one used at Great Swamp, with a multihead herbicide spray applicator used in farming which has a controlled applicator. By using an infrared sensor that can detect spartina, each nozzle releases herbicide only when it passes over the spartina. The herbicide itself needs to dry on the cordgrass so the length of time available to spray is limited by the tidal period. While government funds provided the equipment, the Friends of Willapa NWR raised the funds for the herbicide. After the first year, the results have been encouraging. Rudy Schuver estimates a 70% elimination of spartina in the sprayed area.

Invasive species is a growing problem. Eight U.S. Cabinet members make up the National Invasive Species Council, charged with eliminating invasive species such as zebra mussel, Chinese northern snakeheads, Asian long horn beetles, and on Great Swamp Refuge, purple loosestrife, Japanese barberry, and Japanese knotweed.

*Invasive species contaminate
approximately 6 million acres
of refuge land...*



U.S. Fish and Wildlife Service

More information on invasive species is available at the Friends Library. The National Wildlife Refuge Association's report Silent Invasion is available on their web site, www.refugenet.org. Leo Hollein's two-part article, continued in this issue, also looks at how invasive species are controlled at Great Swamp. According to the U.S. Fish & Wildlife Service, "invasive species contaminate approximately 6 million acres of refuge land and the current backlog of control projects is more than \$150 million and growing rapidly." Watch for more information on the invasive species initiative.

CONTROLLING INVASIVE PLANTS

Second of a two part series...

By Leo Hollein

JAPANESE KNOTWEED

Japanese Knotweed (*Polygonum cuspidatum*) also known as Mexican Bamboo is shown in Figure 4. The woody stocks of mature plants resemble bamboo. Japanese Knotweed is a shrubby perennial that can reach 8 feet. It has ovate leaves 4-6 inches long. Japanese Knotweed produces clusters of creamy white flowers in late summer.

This Asian species was probably introduced into North America in the late 1880's as an ornamental planting. It has also been used for erosion control and as a landscape screen. Once it is established Japanese Knotweed spreads rapidly forming thickets that crowd out other vegetation. It spreads primarily by rhizomes, which form a thick, dense layer in the ground. Repeated applications of glyphosate for several years are required to eradicate it.

Fortunately, Whitetail Deer graze on Japanese Knotweed and only a few stands of it have been located in the Swamp. These stands are being sprayed annually to prevent their spread.



Figure 4. Japanese Knotweed

Although they are not currently authorized for use in North America, several Japanese Knotweed specific biological pests, including a leaf-eating beetle and a leaf rust fungus, have been identified and are under study. Hopefully, they will become available for use in the next few years.



Figure 5. Japanese Stilt Grass

JAPANESE STILT GRASS

Figure 5 is a picture of Japanese Stilt Grass (*Microstegium vimineum*). Stilt grass has 4 to 5 inch lime green leaves that radiate alternatively from a central stem. It is typically about 18 inches tall. Stilt Grass is a native of temperate and tropical Asia ranging from India to Japan.

This annual grass forms dense mats. Stilt Grass prefers moist soil shaded from the sun. It tends to colonize disturbed areas. Stilt Grass habitats include creek banks, flood plains, road sides, damp fields and swamps.

Japanese Stilt Grass was first noticed in the United States in Knoxville Tennessee around 1919. Stilt grass was commonly used as a packing medium for Chinese porcelain, which is probably how it was introduced into the United States. Its seeds remain viable for up to 3 to 5 years. Its current range includes most of the Eastern half of the United States south of New England.

Stilt Grass is extending its presence in shady under stories in the Great Swamp. Whitetail Deer do not eat it. The only proven ways of combating Stilt Grass is hand pulling before its seeds develop and spraying with herbicides. There are no known biological control agents for Stilt Grass. Since removal by hand is impractical in the Great Swamp, large batches of Stilt Grass are sprayed with glyphosate. Repeated annual application is required since the Stilt Grass seeds have a long viability.

CALENDAR OF EVENTS

Saturday, September 6, All day
4th Annual Fall Festival & Centennial Bash! Save the date!
We'll be celebrating the Refuge System Centennial with extra special Fall Festival activities for all.

Weekends beginning September 6—Friends Bookstore & Gift Shop reopens. Saturdays 11:00–5:00, Sundays 1:00–5:00. Books, gift items, visitor information, free coffee.

October 12-18—National Wildlife Refuge Week. Join the Friends and our environmental partners for Sunset Walks into the management area to watch the migrating ducks fly in for the night.

October—Fall Homestead Cleanup—date to be announced. Join the Friends as we help the Refuge clean up old home sites in the Swamp.

November 2—Deadline for 2003 Friends of Great Swamp Photo Contest. Call the Friends Bookstore for an entry form, or visit our web site.

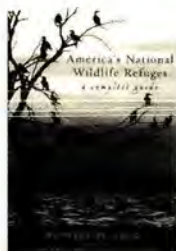
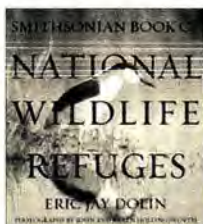
November 29—Fourth Annual Turkey Walk, sponsored by the Friends of Great Swamp. Photo contest winners will be announced.

NEWS FROM THE BOOKSTORE & GIFT SHOP

By Laurel Gould

Despite the long, cold and snowy winter, the bookstore has been a busy place dispensing as much free coffee as visitor information on chilly weekends. New winter arrivals were the very popular Audubon beanbag birds, each with its own authentic call. As visitors discover the birds, the songs of red-wing blackbirds, goldfinches, bluebirds, chickadees, common loons, great horned owl – among others, sound through the bookstore. Our bookstore volunteers have all improved their birdcall identification skills as kids and adults alike try out the various species!

A new Great Swamp pin arrived just in time for the Centennial Celebration; a wood duck sits in the center of this circular green and gold pin, with the wording Great Swamp National Wildlife Refuge around the edge. Post cards and mouse pads featuring the 2002 photo contest winners are now available. Friends potter Judy Schmidt has kept the bookstore stocked with a wide variety of hand-painted mugs, jars, and other pottery items. Marjorie Impell has gone wild with earring designs, and we have an expanded selection of limited edition prints by artist Ron Orlando.



Two new books were published just in time for the March 14 Refuge System Centennial and both are in stock. The Smithsonian Book of National Wildlife Refuges, written by Eric Jay Dolin, chronicles the development of America's national wildlife refuges, exploring the history of the refuge system, the people and the politics, the skirmishes and the successes. Illustrating the text are stunning photographs by Karen and John Hollingsworth which showcase the incredible diversity of wildlife and habitats that make up America's refuge system today. Russell Butcher's new book, America's National Wildlife Refuges: A Complete Guide, covers more than 530 refuges nationwide. For each refuge there is a description of the refuge, the habitat, the species of birds

and mammals to be found there, with information about accessibility and facilities. It is the most up-to-date guide available on national wildlife refuges.



If your copy of Bill Boyle's A Guide to Bird Finding in New Jersey is falling apart, come right over and get his new, revised and expanded third edition. Included are new birding sites and updates on previously described sites, precise and detailed directions and maps, and informative commentary about the birds you should see. A very complementary review by Robert Machover appears in the April 2003 issue of Birding magazine; he writes: "The new Boyle is not just an expanded version of the old one; it is a thorough revision...The earlier editions of Boyle were worthy of raves. The new edition doesn't disappoint."

To carry your purchases home in style, the students of Assumption School, Morristown have hand decorated hundreds of our paper bags – each one is a work of art, sporting a unique nature design or message. It's worth making a purchase just to get one of the bags! Thank you to the students of Assumption and principal Sister Merris Larkin.

FRIENDS OF GREAT SWAMP NATIONAL WILDLIFE REFUGE

MEMBERSHIP APPLICATION

Membership offers ways to get involved at many different levels. Members...

- receive special discounts at our Bookstore and Gift Shop and local merchants
- receive a quarterly newsletter
- have opportunities to participate in special events
- contribute to the improvement of the refuge for all visitors.

If you would like to become a member of the Friends of Great Swamp National Wildlife Refuge, please fill out the information on this form, and mail with your check to

Friends of Great Swamp National Wildlife Refuge
152 Pleasant Plains Road, Basking Ridge, New Jersey 07920

Yearly Membership

Membership Type ☐ Family - \$25 ☐ Individual—\$15

Renewal? ☐ Yes ☐ No

Membership is tax deductible!

Name _____

Address _____

City _____

State, Zip Code _____

Phone Number _____

E-Mail Address _____

Occupation (Optional) _____

I would be interested in volunteering (check one or more)

- | | |
|--|---|
| <input type="checkbox"/> Buildings & Grounds | <input type="checkbox"/> Membership |
| <input type="checkbox"/> Communications | <input type="checkbox"/> Education & Outreach |
| <input type="checkbox"/> Sales/Bookstore | <input type="checkbox"/> Programs & Events |

The Friends is a non-profit, tax-exempt corporation as defined under the laws of the state of New Jersey and the U.S. Internal Revenue Service under section 501-(c)-(3).

Mark your calendar

*Fall Festival
September 6, 2003...
See you then!*



NATIONAL WILDLIFE REFUGE SYSTEM CENTENNIAL—1903—2003

Friends of
Great Swamp
National Wildlife Refuge

JUNE 2003

