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Connecticut Wildlife

CONNECTICUT DEPARTMENT OF ENERGY AND ENVIRONMENTAL PROTECTION
BUREAU OF NATURAL RESOURCES
DIVISIONS OF WILDLIFE, INLAND & MARINE FISHERIES, AND FORESTRY



Eye on the Wild

Readers of Connecticut Wildlife have the opportunity to learn about all of the projects that the DEEP Bureau of Natural Resources is undertaking to conserve and manage our state's fish, wildlife, habitats, and forests. As public employees and professional biologists, foresters, and managers, it is not only our duty to take on these efforts, it also is our passion. In addition, there are so many others who have the same passion and also have made the commitment to become citizen scientists or invaluable volunteers. Many of the projects that we do would not be possible without the help of these volunteers, and for that we are truly grateful.

Yet, we should not overlook the passion and efforts of the many individuals who make a difference for our natural resources on a daily basis through their own actions and choices – ranging from planting native plants in gardens; to taking the pledge to reduce, reuse and recycle; to helping a turtle cross the road; to recycling fishing line; to respecting shorebird nesting areas on our beaches; to installing and monitoring bluebird nest boxes; and so much more. No matter how big or small, all of these efforts taken together truly make a difference. Every individual action is important.

Most people really do care about the health of the surrounding environment (air, water, etc.) and our state's fish, wildlife, and habitats. So, more important than just telling people what we do, we also need to let people know how they can help and encourage them to become active participants in conserving and protecting our natural resources. When reading through this issue of Connecticut Wildlife, you will find a variety of suggestions on how you can make a difference – try one or try them all and encourage others to participate with you:

- Become a kestrel nest box steward (page 3)
- Learn about salamanders and protect their habitats during 2014 Year of the Salamander (pages 4, 19, 20)
- Properly dispose of lawn refuse (page 8)
- Avoid feeding waterfowl (page 11)
- Take up wildlife watching (page 16)
- Use biodegradable erosion control products to protect snakes and other animals (page 18)
- Plant native trees and shrubs (page 21)
- Participate in Summer Night Bird Monitoring (page 21)
- Report marked wildlife, such as ducks with nasal paddles (page 21)

Kathy Herz, Editor

Cover:

Bobcats mainly feed on medium-sized prey, such as rabbits, squirrels, and birds. However, they will take advantage of a road-killed deer, and sometimes even kill sick, injured, young, or very old deer.

Photo courtesy of Paul J. Fusco

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Wanted: Kestrel Nest Box Stewards

The May/June 2013 issue of *Connecticut Wildlife* highlighted how two citizen scientists – Art Gingert and Tom Sayers – are working tirelessly to conserve Connecticut’s nesting population of American kestrels. Both individuals have been erecting, monitoring, and maintaining nest boxes throughout the state for this state-threatened bird. Specially-designed nest boxes, placed in appropriate habitat and rigorously monitored throughout the nesting season, can make a difference for kestrels, which also nest in tree cavities.

Art and Tom’s well-maintained nest box programs have made a positive difference for Connecticut’s kestrel population. But, more still needs to be done. How can you help? By becoming a Kestrel Nest Box Steward! More citizen scientists are needed to identify potential kestrel habitat, as well as “adopt” and monitor kestrel boxes.

If you are interested in becoming a Kestrel Nest Box Steward and/or also know of potential areas of good kestrel habitat, please consider getting involved with this worthwhile effort. What is involved with being a steward?

- Boxes must be monitored faithfully one to two times a week during late March to mid-May. Monitoring mostly involves visual checks to see if invasive, non-native European starlings are using the boxes. Monitoring requires the use of a stepladder or short extension ladder to check the inside of boxes during every visit.
- Any European starlings that begin to use a kestrel box must be removed and euthanized. (As an exotic invasive species, starlings are not protected by law.) Removing starlings and preventing them from using kestrel boxes is key to establishing kestrel pairs in new boxes.
- Once you learn the habitat requirements for kestrels, you should be able to identify potential areas to place nest boxes. Kestrels need a minimum of 20 acres of open, grassland type habitat. Parcels with weedy, overgrown edges, hedgerows, or fencerows, or unmowed grassy sites are best. Ideally, nest boxes should be placed in the open, away from shrubs and small trees.
- Art, Tom, or another experienced kestrel researcher will be available to help you by visiting potential nest box sites you have identified and assessing the quality of the habitat. If the site is suitable and the landowner is willing to have a box or boxes erected on the property, poles and boxes will be provided and installed and you will soon be on your way to assisting in the recovery of Connecticut’s American kestrels.
- Once kestrels become established in your boxes, Art or Tom will be available for advice and mentoring as needed, especially when the time comes to develop a schedule for banding the nestlings.

If you believe you are ready to take on the commitment of being a nest box steward, or if you know of areas that could be potential kestrel habitat, please contact Art Gingert (for locations west of the Connecticut River; artgingert@optonline.net), or Tom Sayers (for locations east of the Connecticut River; sayers.tom@gmail.com).



T. SAYERS for DEEP-WILDLIFE ©



Art Gingert and Tom Sayers have been managing kestrel nest box networks for a number of years. Their commitment has made a difference, providing this small falcon with a helping hand in their Connecticut recovery. Co-founder of the Northeast Connecticut Kestrel Project, John Stake (lower photo), has also been instrumental in getting kestrel nest box work under way.

2014 Is the Year of the Salamander

Since 2011, the DEEP Wildlife Division has been participating in annual outreach campaigns with Partners in Amphibian and Reptile Conservation (PARC) to highlight various groups of

reptiles – turtles, lizards, and snakes. This year, the focus has turned to a group of amphibians known as salamanders. During 2014 Year of the Salamander, the Wildlife Division will raise awareness of

a lizard. At first glance, salamanders and lizards look a lot alike – small animals with four legs, a tail, and a similar body shape. However, up close, salamanders and lizards are very different.

First of all, these two animals live in different habitats. Salamanders prefer cool, moist places, while lizards prefer dry, warmer places. A lizard's body is covered with tough scales, while a salamander's body is smooth and slippery. Most salamanders do not have claws on their feet, while lizards do. Although lizards and salamanders look alike, they are not closely related. Lizards are reptiles and are more closely related to snakes and turtles. Salamanders are

amphibians, the same as frogs and toads.

Why Are Amphibians Special?

Amphibians spend part of their lives on land and part in water. They have two life stages – a larval stage and an adult stage that are usually different from one another. The larval stage is typically aquatic, while the adult stage is typically terrestrial. Amphibians are cold-blooded, which means their body temperature is the same as the surrounding air, soil, or water. Amphibians can adjust their body temperature by choosing warm or cold places to rest. They become inactive when it is cold, but they can tolerate low temperatures.

Most amphibians have lungs. However, some species of salamanders do not have lungs, including Connecticut's most-common salamander, the redback. All amphibians use their thin, moist skin



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The redback salamander occurs in forested areas throughout Connecticut, sometimes in high densities. It is a vital component of the forest food chain as it is preyed upon by a wide variety of small vertebrates. This salamander does not have an aquatic larval stage; the young hatch fully developed from eggs deposited under logs and stones.

Did You Know?

- There are more than 600 species of salamanders worldwide.
- Most salamander species occur in temperate areas of the northern hemisphere.
- The United States is a salamander hotspot, with more species than any other country.
- Worldwide, nearly half of salamander species are threatened with extinction.
- Salamanders are central to food webs, connected to many other animal groups.
- Loss of salamanders may indicate poor environmental health.

(Source: *Year of the Salamander News*, January 2014; www.YearoftheSalamander.org).

the 12 native species of salamanders that are found in Connecticut. Look for regular articles in *Connecticut Wildlife* magazine and various educational events and activities throughout the year. Stay tuned for Year of the Salamander events on the DEEP website at www.ct.gov/deep/salamanders and our Facebook page at www.Facebook.com/CTFishandWildlife.

PARC strives to conserve amphibians, reptiles, and their habitats as integral parts of our ecosystem and culture through proactive and coordinated public-private partnerships (www.YearoftheSalamander.org).

Lizard or Salamander?

Maybe you have found a salamander while raking leaves, or when turning over rocks and logs, or while exploring the woods as a child. Many who come upon a salamander think they have found

to take in oxygen. Many breathe through gills, especially when in their larval stage.

Why Are Salamanders Special?

All salamanders are carnivores. They eat insects, worms, small animals, and even other salamanders. With the help of their eyesight and good sense of smell, salamanders are able to find their prey.

Compared to the often noisy frogs and toads, salamanders are completely silent.

Salamanders have glands under their skin that produce mucus to keep the skin moist. Other glands make poisons that can be distasteful or harmful to predators. A salamander's bright colors warn predators that it is probably distasteful or poisonous.

Most salamanders lay eggs. Because these eggs do not have shells, they must be laid in water or in moist places. The eggs are laid in a mass, string, or individually. The larvae that hatch from the eggs look similar to tadpoles. However, tadpoles have large round heads, while larval salamanders have long, narrow heads. Tadpoles have two gills that are hidden within gill slits and are not obvious. Salamander larvae have visible gills.

Where Do Salamanders Live?

People rarely see most salamanders. That is because, as adults, salamanders spend most of their time in forested areas, living under rocks and fallen logs or in underground burrows. The best time of year to see these creatures is in spring when they move to wet areas to lay their eggs. These wet areas include ponds, ditches, marshes, meadows and a special, but little known habitat, called a

vernal pool. There are many types of vernal pools, but generally a vernal pool is a low spot in a forest or meadow that fills with water during winter and spring and then dries out by late summer. It can be big or small. Because these pools are temporary, fish cannot survive in the pools, thus the eggs and hatching larvae of salamanders are safe from fish predation.

Threats to Salamanders

The greatest threat faced by Connecticut's salamander populations is the loss of habitat. Habitats are usually destroyed during development or are degraded by pollution (i.e., overuse of fertilizers and pesticides), increasing habitat fragmentation, and the introduction and invasion of non-native plants.

Several species of native salamanders are currently experiencing a long-term decline, and four are on Connecticut's list of Endangered, Threatened and Special Concern Species. Many salamander species are localized and restricted to specific habitat types. Unfortunately, when these habitats are destroyed, the salamanders found there disappear too. Other than a few exceptions, salamanders do not relocate long distances to new habitats. Even if suitable habitat is located nearby, migration is very difficult due to the numerous roads that dissect across Connecticut. When these slow-moving creatures cross roads (particularly during spring migration to breeding pools), hundreds are killed by cars.



Celebrate Salamanders! Learn all about Connecticut's salamanders and find out about upcoming salamander events on the DEEP website at www.ct.gov/deep/salamanders.

What You Can Do

During the Year of the Salamander, and every year after that, make an effort to learn more about salamanders and take actions to conserve these special creatures. Following are some suggestions:

- Observe, but do not collect salamanders. Learn more about them and help others understand and appreciate these fascinating creatures.
- Discover vernal pools and other important salamander habitats in your area. Promote stewardship, the preservation of open space, and wise land-use planning in your community.
- Participate in a Year of the Salamander event or activity. Find out about events throughout the year on the Wildlife Division's special webpage at www.ct.gov/deep/salamanders or by visiting our Facebook page at www.Facebook.com/CTFishandWildlife.

Connecticut's Native Salamanders

Jefferson's Salamander
Blue-spotted Salamander
Spotted Salamander
Marbled Salamander
Northern Dusky Salamander
Northern Two-lined Salamander
Northern Spring Salamander
Four-toed Salamander
Redback Salamander
Slimy Salamander
Mudpuppy
Red-spotted Newt

*To learn more about Connecticut's salamanders, obtain a copy of ***Amphibians and Reptiles in Connecticut***, A Checklist by Michael W. Klemens (available at the DEEP Store; www.ct.gov/deep/store or 860-424-3555). A ***Field Guide to the Animals of Vernal Pools*** can be obtained from MassWildlife Natural Heritage and Endangered Species Program (www.mass.gov/eea/agencies/dfg/dfw/natural-heritage/publications-forms/publications/; 508-389-6360). These publications were used as references for this article.*

Opening Day of Trout Season: Several Years in the Making

Written by Mike Beauchene, DEEP Inland Fisheries Division

Recreational fishing is a healthy outdoor experience that is important for the quality of life for many Connecticut residents, and it also is beneficial to the state's economy. With over 4.4 million fishing days enjoyed by adult anglers annually in Connecticut, benefits to our state's economy are estimated at approximately \$436 million dollars per year. Trout are one of our most popular and highly sought after game fish, with anglers taking approximately 2.1 million fishing trips per year. A major objective of the DEEP Inland Fisheries Division is to enhance and diver-



PHOTO COURTESY S. SOLARSKI for DEEP INLAND FISHERIES

The tradition of the opening day of trout season continues with the next generation of anglers. Hundreds of thousands of people enjoy the day by participating in fisherman breakfasts, local derbies, and spending time with family and friends.

DEEP State Fish Hatcheries

If you have not visited recently, we encourage you to take a trip to one of or all three state-run fish hatcheries – Quinebaug Valley State Trout Hatchery (Plainfield), Kensington State Fish Hatchery (Berlin), and Burlington State Fish Hatchery (Burlington). All of the trout and salmon stocked by DEEP is produced by these three facilities. Hatchery staff is charged with hatching, rearing, and distributing over one million catchable fish, fry/fingerlings, and eggs to support various Inland Fisheries Division management goals. Staff members would be happy to show you around during your visit. Each of these unique facilities has its own story, which will be told in future issues of Connecticut Wildlife.

Burlington State Fish Hatchery
34 Belden Road, Burlington, 06013
860-673-2340

Hours: 8:00 AM to 3:30 PM

Tours: Self-guided or by reservation

Our oldest hatchery, the Burlington Fish Hatchery was constructed in 1923. One of the many types of fish cultured at this hatchery is the "survivor" strain of brown trout, primarily stocked in the Farmington River. The hatchery is the sole producer of kokanee salmon fry used to stock Lake Wononskopomuc, West Hill Pond, and East Twin Lake, the state's only waters with this land-locked Pacific salmon.

Check out all of our trout fishing resources, including stocking location maps, at www.ct.gov/deep/fishing.

Quinebaug Valley State Trout Hatchery
141 Trout Hatchery Rd., Central Village,
06332; 860-564-7542

Hours: 8:30 AM to 3:30 PM; 7 days a week

Tours: Self-guided or by reservation

The Quinebaug Hatchery was constructed in 1971 at a cost of \$2.5 million. Hatchery water is supplied by 14 wells, which produce anywhere from 100 to 800 gallons per minute each. Over 3,000 gallons of water per minute are needed to operate the hatchery. The Quinebaug Trout Hatchery is responsible for producing the majority of the state's trout.

Kensington State Fish Hatchery
120 Old Hatchery Rd., Kensington, 06037

Not open to the public, but group tours can be arranged by calling 860-829-8518.

This hatchery, constructed in 1934, was primarily used for the production of Atlantic salmon fry to support restoration efforts. Surplus salmon brood stock are released in several lakes and rivers to provide a unique angling opportunity. The facility also raises the Seeforellen strain of brown trout, which is long-lived and can grow to a large size. These trout are stocked in various trout management lakes. The hatchery provides eggs to the "Trout in the Classroom" and "Salmon in the Classroom" educational programs and produces brown trout fry for the "enhanced wild trout management" and "sea-run trout" programs.

sify Connecticut's recreational fisheries so as to maintain and increase benefits for anglers and the state in general.

Opening Day Tradition

The traditional opening day of trout season each April brings many families and friends together the "night before opening day" to plan out the next day's strategy, reflect upon the fond memories of prior opening days, debate who will bring home the biggest fish, and, most importantly, pass on the tradition of preparation and strategy to the next generation. At 6:00 AM sharp – the pinnacle of days of preparation and anticipation – sirens wail and horns blow. Immediately, the air is filled with flying worms, shiners, and all sorts of lures, each attached to a line attached to a rod attached to an adrenaline-filled angler hoping that this first cast finds "the big one." Close to 125,000 anglers statewide share the experience. I, myself, have many fond childhood memories of opening days gone by, the pride in catching my limit and hearing my stomach growl at the first whiff of grandma's fried trout. More recently, this pride has shifted to seeing the excitement in my own children as the line goes tight and shouts of "fish-on" fill the air.

Fish Culture to Keep Up with Demand

Unlike their warmwater counterparts, such as perch, pickerel, bullhead, bass, and sunfish, that abound in many of our waters, the demand for trout greatly outpaces this fish's reproductive capacity in the environment. To support this demand, DEEP hatcheries have been using fish-culture techniques to augment, enhance, and/or restore populations of native and introduced fish species for over 100 years. Currently, cultured trout species include brown trout, brook trout,

rainbow trout, and "tiger" trout (a brown trout/brook trout hybrid). Each year, over 600,000 catchable sized trout are produced, including adults (9-12 inches), "specialty" trout (12-14 inch range), and surplus broodstock (weighing 2-10 pounds). In addition, hatcheries raise approximately 750,000 fry (1-2 inches) and fingerlings (4-7 inches) to support trout management objectives.

Life Cycle of a Hatchery Trout

It takes almost two years to produce the typical adult stocked trout (9-12 inches). Hatchery staff take sperm and eggs from fertile adults (broodstock) during late summer and early fall, incubate the fertilized eggs, and then care for the sac fry during the winter months. Throughout the next summer and fall, staff feed and care for the fry, fingerlings, and adults, shifting them to larger and larger holding tanks as they grow. Stocking begins during late winter, approximately 18 months after the eggs have hatched.

Getting the Trout Out

The Inland Fisheries Division stocks trout into waters that have suitable habitat and are open to public fishing. Trout are stocked into 2,170 points along more than 200 rivers/streams and 100 lakes/ponds. More than half of the year's trout are stocked into their

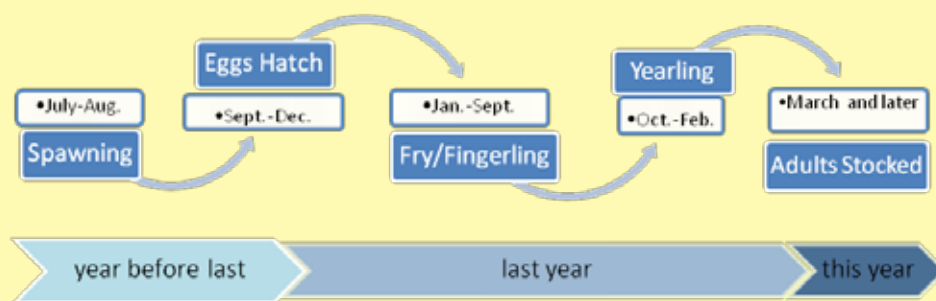


R. JACOBS, DEEP INLAND FISHERIES (4)

Connecticut's fish hatcheries produce (from top to bottom) brook trout, brown trout, rainbow trout, and tiger trout (the result of a cross between a male brook trout and female brown trout).

respective waters prior to opening day. Many waters receive additional stocking into May, with a subset of waters (including a number of Trout Management Areas) stocked around Memorial Day and Fourth-of-July weekends, and in September and October to enhance fall and winter trout fishing. Innovative fish management tools, such as minimum lengths and reduced creel limits, as well as managed areas, such as trout parks, trophy trout areas, trout management areas and wild trout management areas, enhance angler opportunities. Although trout management areas and trout parks are perhaps the most noticeable and popular trout fishing areas, two-thirds of the catchable-sized trout stocked each year are released into "open areas" where each angler can keep up to five trout per day.

Timeline for a Typical Hatchery Raised Trout



Integrated Marsh Management: *Restoring Tidal Flow and Controlling Mosquitoes*

Written by Paul Capotosto and Roger Wolfe, DEEP Wildlife Division; photos by Roger Wolfe

For the last several years, the town of Fairfield's Health Department and Conservation Commission's Wetlands Agency have received numerous phone calls from residents regarding the frequent infestations of salt marsh mosquitoes. The Health Department contacted DEEP's Wetlands Habitat and Mosquito Management (WHAMM) Program in 2010 to request that the marshes in Pine Creek, Ash Creek, and Turney Creek be inspected and mapped for mosquito breeding locations. The WHAMM Program also was asked to devise a plan to eliminate the breeding locations through water management.

The last time the State did any work in these marshes was in the late 1980s when the Mosquito Control Unit was housed in the Connecticut Department of Public Health. Open Marsh Water Management (OMWM) was selectively used at that time to eliminate sites that produced mosquitoes. Not surprisingly, when the marshes were resurveyed, the areas treated in the 1980s were still functioning as intended and controlling mosquitoes. The 2010 inspection revealed new mosquito breeding sites that had developed since the 1980s. Nearby landowners had thrown lawn refuse onto the marsh edges, plugging existing ditches and blocking water flow, thus making conditions ideal for larval mosquito production. Once new mosquito breeding sites were mapped, Integrated Marsh Management (IMM) systems were designed to eliminate the areas that produce mosquitoes. IMM systems are combinations of re-cleaned ditches, new channels, and shallow pools that restore or introduce tidal flow and fish access to mosquito production sites, and enhance wildlife habitat through the creation of shallow, open water areas.

Following an on-site meeting of the DEEP Tidal Wetland Site Review Team to assess the project, permit applications were filed and obtained in 2012 by the DEEP Office of Long Island Sound Programs and the Army Corps of Engineers. Over 5,000 linear feet of ditching or excavation of new channels had to be completed and several pools of less than 0.10 acre needed to be excavated. All spoil material was to be used to fill in

existing ditches that were not needed, or thinly spread on the marsh surface to a depth of less than three inches.

The Fairfield Conservation Commis-

sion was instrumental as a local liaison to residents, providing information and responding to questions. Commission members also wrote articles for the local



A newly-dug channel shows a thin layer of spoil disposal.



A WHAMM Program excavator digs a shallow pool.

newspaper, encouraging residents to care for the wetlands and dispose of leaves, yard waste, and debris appropriately and not throw such refuse in the marsh. Fairfield has a successful composting operation for yard waste.

Excavation work began in 2013, starting in the Pine Creek marsh.

This marsh is somewhat unique in Connecticut. Tidal water levels are controlled by a series of water control structures to minimize the chance of flooding from coastal storms because of the area's low-lying terrain and the location of buildings adjacent to the marsh. Tide gates were originally installed in these marshes in the 1890s. The gates were replaced and modified over the years, but they still function to control water levels in the extensive Pine Creek marsh system. When Superstorm Sandy hit in October 2012, neither the water control structures nor the dikes that surround the marsh could keep the water and wind from causing significant flooding and damage to houses and upland properties. Tons of debris swept through neighborhoods and were deposited in the wetlands, further blocking tidal channels and creating dangerous conditions. The Town was concerned that larger pieces of debris could be dislodged and become caught in the water control structures, rendering them nonfunctional and possibly damaging them. The Town mapped the debris piles via helicopter and worked with the WHAMM Program to use its low ground pressure equipment to move the debris to the upland edge so Town crews could haul it away. It was fortuitous that the WHAMM Program already had equipment on site.

The last time ditch cleaning or excavation for mosquito control occurred in these marshes, the machine of choice was a 1979 Quality Equipment Amphibious Rotary Ditcher. After many useful years, this piece of equipment became worn out and parts were no longer available. The WHAMM Program replaced this obsolete machine in late 2011 with a Pisten Bully 100 All Season machine, which was originally designed for snow grooming. This wide-track machine can accommodate a wide variety of attachments on the front or back and has a low ground pressure of 1.5 psi. In addition to a dozer blade (for pushing excavated spoil) and flail mower (for mowing brush and invasive Phragmites) for



Above: Delivery of the Pisten Bully AS100 with Dondi Ditcher and Flail Mower.

Right: Dondi Ditcher showing the cutting heads.



the front, a Dondi Ditcher, which attaches to the rear of the Pisten Bully, was also purchased. The ditcher can dig ditches up to a 27 inches deep and sidecast the spoil material in a thin layer. The Pisten Bully has proven to be an invaluable addition to the WHAMM Program's arsenal of wetland equipment. Because so much of the job in Fairfield involves ditch recleaning, the Dondi Ditcher works more efficiently and quicker than a standard excavator. It spreads the excavated material in a thin slurry, which allows the vegetation underneath to quickly recover and spread the following growing season.

Using a combination of heavy equipment, and with the cooperation of the Town of Fairfield, work in the marsh systems of Pine Creek, Ash Creek, and Turney Creek is slated to be completed by December 2014. The finished project will ensure long-term control of mosquitoes through source reduction and water

management while enhancing habitat for waterbirds and other wetland-dependent wildlife. The sites will be monitored to make sure all mosquito breeding sites were modified and that the vegetation starts to recover. The University of Connecticut and some local schools also have established long-term study sites throughout the marshes focused on birds and other environmental parameters. These sites will be monitored closely to document any impacts of the restoration work. The Integrated Marsh Management efforts of the WHAMM Program will result in the long-term control of mosquitoes, a greater flow of tidal saltwater through the marshes, enhanced wildlife habitat, and the creation of aesthetic vistas.

Skates and Rays – Fish with Wings

Written by Penny Howell, DEEP Marine Fisheries Division; photos by CT DEEP Long Island Sound Trawl Survey Staff

Long Island Sound is a crossroad for two groups of fish that fly through the water rather than swim with fins: rays, which migrate along the Atlantic coast from Cape Cod to waters off South America, and skates, homebodies found from Canadian waters to Cape Hatteras. Both skates and rays, along with all shark species, make up the second oldest class of fish (*Chondrichthyes*), all of which have skeletons made of cartilage (like in our nose and ears) rather than bones. They all have disc-shaped bodies with fleshy “wings” for locomotion and breathe through primitive gill slits. Although much of their physical anatomy is primitive, these species have developed specialized ways of surviving over many eons of time.

Six species of skates and rays have been captured in the DEEP Marine Fisheries Division’s Long Island Sound (LIS) Trawl Survey. The most common skate in the Sound is the little skate. This skate’s plain brown flat body shape belies its highly-developed means of locomotion. Modified cartilaginous “legs” within the front lobes of the little skate’s wings enable it to push off from the bottom sediment and glide silently over its prey with little turbulence, while sucking crabs and other small crustaceans into the toothless mouth on the underside of the body. Little skates are a “model” organism for biological research because of electroreceptors they use for communication and sensory reception. These organs can generate an intermittent weak electric field. Understanding how the neural networks that interpret these signals work may have medical applications. Little skates are so named because they only grow to a maximum of 21 inches in total length.

A second skate species common in the Sound in colder months is the little skate’s larger cousin, the winter skate, which can grow to 59 inches in total length. The largest skate captured in the LIS Trawl Survey is the very rare barndoor skate, whose numbers plummeted in the 1970s due to over-fishing. These larger skate species have great commercial value and are harvested for their “wing meat” and for lobster bait. The barndoor skate can reach 71 inches and 44 pounds in weight. It is slowly making a comeback under a coastwide harvest moratorium. The three northern skate species are joined in the Sound by an increasingly common mid-Atlantic cousin, the clearnose skate.

Very rare migrants showing up in the LIS Trawl Survey catch are the rays. The largest fish ever captured in the Survey was a roughtail stingray, measuring 10.5 feet from nose to tail. A second rare ray species, the bullnose ray, was captured for the first time in the fall 2013 LIS Trawl Survey. Unlike skates, which are harmless, rays have a long whip-like tail with one or more barbs, which is used for self defense. When a barb penetrates the skin of a predator, venom is released, causing swelling, muscle cramps, and possibly lethal infection. Predators quickly learn to keep their distance.



The bullnose ray has a whip tail with venomous barbed stingers, which are used for defense against predators.



Left to right: The clearnose skate (almost diamond-shaped with a pointed transparent snout), larger winter skate, and smaller little skate.

Because rays are graceful gliders rather than strong swimmers, this is their only, very effective defense. Human divers often confuse their characteristic curiosity for aggression as they are known to approach any new object they encounter and brush their fins against it. Because a ray’s eyes are on top of its body and the mouth is underneath, it never sees what it eats. Instead, rays use smell (also known as chemoreception) and electroreceptors on their fins (similar to those found in sharks and skates) to detect movement of prey or features in their environment. These docile flyers would rather flee than fight, camouflaging themselves on the bottom of the sea where their many specialized adaptations have helped them survive over many millennia.

Cold Weather Benefited 2014 Midwinter Waterfowl Survey

Written by Min Huang, DEEP Wildlife Division

Most of us may not have enjoyed the “polar vortex” that plunged Connecticut into a deep freeze at the beginning of 2014, unless you partake in ice fishing or are conducting the annual Midwinter Waterfowl Survey. The extremely cold weather preceding and during the survey provided excellent survey conditions. Large blocks of ice were present on all three of the major rivers (Thames, Connecticut, Housatonic), most inland waterbodies were frozen, and many coastal marshes were icebound. The midwinter survey is designed to index wintering waterfowl that have been pushed to the coast when inland waters freeze.

On January 8-9, 2014, DEEP Wildlife Division staff took to the skies over Connecticut in a helicopter to census waterfowl observed along the coast and the three major river systems, and at select inland lakes and reservoirs. The Mid-



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P. J. FUSCO (2)

Connecticut Midwinter Waterfowl Survey Results for Major Species*

Species	2014	2013	Five-year Avg.
Atlantic Brant	1,100	900	1,400
Black Duck	4,800	3,100	2,700
Bufflehead	1,100	1,000	1,000
Canada Goose	7,600	4,100	3,700
Canvasback	100	100	100
Mallard	4,300	2,300	1,900
Merganser	1,100	1,300	1,200
Mute Swan	600	500	700
Long-tailed Duck	600	400	300
Common Goldeneye	1,000	500	800
Scaup	5,000	2,400	2,400

* rounded to nearest hundred



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The bufflehead (top) count for the 2014 Midwinter Waterfowl Survey remained stable, while the Canada goose count was the highest since 1994.

winter Waterfowl Survey is conducted throughout the Atlantic Flyway, and is used as an index of long-term wintering waterfowl trends. The Atlantic Flyway is a bird migration route that generally follows the Atlantic Coast of North America and the Appalachian Mountains.

The total number of ducks observed during Connecticut’s survey was 19,375. This is higher than both the five-year and 10-year averages. The puddle duck count (which includes black ducks and mallards) of 10,141 was twice the recent five-year average of 4,734, and well above the 10-year average of 3,700. The

scaup count was the highest since 2011. Scaup were observed in many areas on the survey, albeit in smaller groups than normal. Scaup wintering numbers in Connecticut continue to be lower than historical counts. The decline in the continental scaup population continues to be a concern for biologists nationwide. Habitat changes on the scaup’s breeding grounds may be a factor in the long-term decline of the population. Atlantic brant numbers were lower than the five-year average, while the Canada goose count was the highest since 1994.

Following a recent trend, many

puddle ducks (particularly mallards) were observed in urban sanctuaries, often associated with supplemental feeding activities. The Wildlife Division discourages citizens from feeding waterfowl for a number of reasons, including increased risk of disease transmission and the potential for poor nutrition. The Division has published a brochure, “Do Not Feed Waterfowl,” that outlines the potential hazards of feeding waterfowl. It is available on the DEEP website at www.ct.gov/deep/lib/deep/wildlife/pdf_files/game/NoFeedWF.pdf.

Vanishing Migratory Superstar - The *rufa* Red Knot

Article and photography by Paul Fusco, DEEP Wildlife Division

Among the many remarkable long distance migrations by members of the sandpiper family is that of the red knot, *Calidris canutus*. The *rufa* subspecies is found in the Atlantic Flyway in the Western Hemisphere, and is the race we find in Connecticut. This medium-sized sandpiper travels over 9,000 miles each way on its annual journey between its Arctic breeding grounds and wintering grounds in the southern parts of Argentina, and then back again.

Description

Red knots are about as big as a robin. They are stocky, with a medium length bill, short neck, and rather short legs. The legs are greenish, and the bill is black. In

spring, red knots have a rusty-red breast and a gray back, while in the fall they are drab gray with scaly feather edgings on the back and barring on the flanks.

With a 20-inch wingspan, their wings are designed for making the long distance flights of a demanding migration. In fact, knots may cover over 2,000 miles in a single leg of their journey. They are capable of staggering transoceanic flights.

Migration and Breeding

Starting in late winter on the Atlantic coast, the migratory path of the knot takes it from its Argentinian wintering areas, up the coast of South America where flocks gather in Brazil. From Brazil, many birds will fly nonstop to staging areas in the

mid-Atlantic region of the United States, including Delaware Bay where large numbers of red knots and other sandpipers arrive to take advantage of the age-old horseshoe crab spawning season. The beaches become so packed with crab eggs in late May to early June that the birds will continuously feast on the protein-rich eggs for days and weeks at a time. The birds are able to double their body weight in two weeks, giving them the necessary energy reserves to fly nonstop to their high Arctic breeding grounds in time to lay eggs and raise young.

Breeding birds arrive at tundra nesting areas in early June. These high Arctic breeding locations are in extreme northern Canada, including such places as the Northwest Territories, Nunavut region, and the Queen Elizabeth Islands. It is at these sites, at or above the Arctic Circle, where the red knot places its nest on the ground. Other wildlife species that may be encountered on the knots' nesting grounds include musk ox, caribou, polar bear, and Arctic wolf.

Egg laying and incubation may take place with snow still on the ground. Adults incubate their clutch of four eggs for about 21 days. The chicks will fledge about 20 days later. Young knots feed on insects and other invertebrates that they find in the tundra grasses and willows. Juvenile knots must be ready to migrate south before cold temperatures and snow return in late summer. Adults begin fall migration by early to mid-July. Juveniles will start southward two to three weeks later. Because of weather conditions, red knots have a very brief window to complete their reproduction. If cold temperatures with snow and ice persist into early summer, many knots may have a failed reproductive year. If knots arrive on the breeding grounds late or if they do not gain the fat reserves needed to complete the spring migration, they will have reduced chances of successful breeding.

Conservation

Red knots are usually encountered along sandy beaches and mudflats. They are often seen in the company of ruddy turnstones and sanderlings. Knot numbers in Connecticut have always been low as the state is just outside their main migration path. When present, red knots can be found at traditional shorebird migratory



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Red knot in full breeding plumage along the Connecticut coast in spring. Connecticut sees small numbers of knots during spring migration.

Six Subspecies of Red Knot

In Connecticut, the *rufa* subspecies occurs during both spring and fall migrations. The state is just out of the main migratory paths of the red knot, and so receives low numbers during migration. The *rufa* race has the longest migration of the six red knot subspecies.

Subspecies	Breeding Area	Wintering Area
<i>Calidris canutus rufa</i>	Central Canadian Arctic	Southern Argentina
<i>C. c. roselaari</i>	NW Alaska and Wrangel Island	SE United States
<i>C. c. islandica</i>	NE Canada and Greenland	NW Europe
<i>C. c. canutus</i>	Taymyr Peninsula, Russia	West and SW Africa
<i>C. c. piersmal</i>	Siberian Islands	NW Australia
<i>C. c. rogersi</i>	Chukchi Peninsula, Russia	SE Australia and New Zealand



Migrating knots use stopover sites located along their migration path to refuel and rest during the journey.

stopover sites in Connecticut, including Milford Point, Sandy Point (West Haven), Hammonasset Beach State Park (Madison), and Griswold Point (Old Lyme).

Migrating knots typically gather in large numbers at stopover sites that are safe places for finding food and resting. The importance of protecting shorebird stopover areas cannot be overstated. Most populations of migratory shorebirds are in serious decline around the

world, at least in part because of impacts and degradation to stopover habitat. The *rufa* subspecies of red knot has declined so precipitously (by an estimated 75%) in recent years that in October 2013 it was proposed for listing as a threatened species under the Federal Endangered Species Act. A final decision on listing is expected soon.

Among the recent threats to the *rufa* red knot population are global climate change with potential ocean rise, coastal flooding, and ecological changes on the breeding grounds. Traditional sportshooting in some Caribbean and South American countries also has had an impact. The best documented impact to red knot populations has been the over-harvest of horseshoe crabs in the Delaware Bay region – a critical migratory stop-over area – that has

depleted the number of egg-laying crabs. Energy-rich horseshoe crab eggs provide the best food source for migrating knots and other shorebirds. Dramatic red knot population declines have been ongoing since the 1990s, a time when horseshoe crabs in Delaware Bay were heavily harvested for commercial purposes. The red knot's plight, in particular, is dire as the Delaware Bay stopover site hosts virtually the entire *rufa* population during the spring migration. Recent studies have shown that not all red knots are gaining the weight needed to complete their spring migration from Delaware Bay to the Arctic.

Harvest restrictions on horseshoe crabs have been implemented along the eastern coastline, and are especially restrictive in the Delaware Bay area. It remains to be seen if these restrictions will make a difference for red knots or if the restrictions need to be strengthened further. Biologists will continue monitoring and studying red knot and horseshoe crab populations. Considering that the red knot is confronted with a number of threats, it is easy to understand why the population is in such trouble.



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The winter plumage of the red knot is gray and somewhat drab compared to its spring color.

Assembling Hammonasset Beach State Park

Written by Alan Levere, DEEP State Parks Division

Five years into the business of building a State Park system, many goals were not yet accomplished. Among these was the acquisition of an accessible shoreline park. Sherwood Island had been the first park property purchased in 1914, but despite its growth from five to 30 acres of salt meadow, sand-bar and stony beach, there was still no public access.

At the five-year anniversary mark in late 1918, Field Secretary Albert Turner had Hammonasset in mind when he determinedly pushed the State Park Commission to secure financing for acquiring a public access beach. Six months later, by mid-1919, the Commission had done its job and the necessary funds were available to make this happen.

Fortunately, a lot was known before efforts even began. Turner's extensive exposure to Savin Rock in West Haven, with its crush of people and related problems, provided a vision of the challenges. Turner knew the crowds at a shoreline park would

The first purchase of land was from two brothers: Clarkson H. Meigs and Dan D. Meigs. Their 54 acres, which included about 1,400 feet of shore frontage, brought them \$25,125. The record states that they had agreed, "rather reluctantly" on August 11 to sell, and that sale was recorded on September 25, 1919. Transactions closed in rapid succession after that.

By mid-October 1919, as the land acquisitions solidified the base to build upon, Commissioners reviewed the preliminary development plans. The concept for the park was like nothing they had seen to date. Hammonasset was huge. Not physically as large as Macedonia State Park in Kent at 1,600 acres,



but massive in its potential because of the crowds it would surely attract. Given the proposed amenities and the mile-plus length of beach, Turner's vision of thousands visiting on any given summer weekend was becoming clearer. Accordingly, the Commission committed \$20,000 to begin development.

In support of the projected attendance, an infrastructure akin to the underpinnings of a small city would be needed. Thus, by November they had initiated discussions



The completed pavilion at Hammonasset Beach State Park drew thousands of visitors who enjoyed the fresh air and walked the 16-foot wide, 1,600-foot long boardwalk. Some even went into the water!

be considerable – this fundamental knowledge necessitated the call for a geographically large park. The ongoing land woes at Sherwood Island taught the Commission that they must embark on this effort with sufficient acquisition capital at the onset and deal firmly with those landowners who would not transact with the State.

Building Hammonasset

Because of Hammonasset's overall peninsular shape, the goal was to obtain the entire beach and all inland real estate south of the Boston Post Road (Route 1). As soon as the State Legislature committed the funds, the Park Commissioners began to make purchase offers. The first of these came in June 1919 and, by mid-July, several opportunities were at hand. These were the sea-side and hay marsh farms that would make up the park, and they existed in various sizes – 36 acres here, 142 acres a little further on, and 23 acres beyond that. Prices averaged \$150 to \$200 per acre, more when there was beach frontage, less for salt marsh.

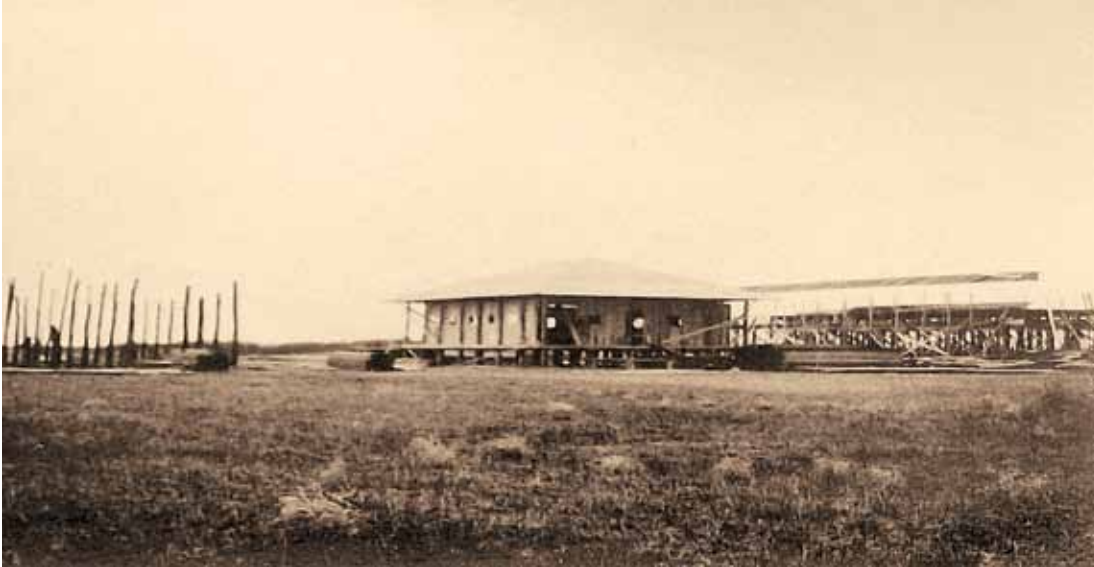
with the local water utility regarding the necessary 4,000 feet of water lines. Incrementally, the wheels were turning faster. When 1919 came to a close, 565 acres of the desired 610 plus acres had been purchased.

Boardwalk and pavilion designs originally reviewed in November were finalized in March 1920 with a price tag of \$40,000 (equal to about \$600,000 today). With a plan in hand, building materials could be ordered. In fact, the Commission had its own lumber supply center of sorts in the form of Devils Hopyard State Park 25 miles away. Recently acquired in September 1919, the 200 acres of cut-over forest land in East Haddam yielded nearly all of the 1,000 posts and piles necessary to build the new pavilion. Additionally, slab wood left behind by a steam driven sawmill was used as siding for the new structures.

Once building supplies were available, construction began in earnest in late March 1920, with the goal of opening the park by Memorial Day, 10 weeks later. In astoundingly rapid fashion, the road network was laid out, sewage systems were constructed,



Original plans for the 315-foot long Hammonasset pavilion included flag towers and a covered rest area to the north. Though the towers and rest wing were never built, the main pavilion, constructed in 1920 for a five to 10-year lifespan, was finally torn down in 1968.



Over 1,000 posts were used to support the 315-foot long pavilion. The posts were primarily the remains of the damage inflicted by the chestnut blight years earlier and hauled 25 miles from Devils Hopyard State Park in East Haddam.

rest rooms facilities were completed, and electricity and lighting were set in place. By April 16, the newspapers were optimistically reporting that the pavilion was “now being completed.”

But, as work proceeded at an urgent pace, problems arose with four steadfast, but now landlocked, property owners. Though the Commission had been reluctant to use it previously, the threat of land condemnation might prove to be a valuable tool in this instance.

The May 10, 1920, monthly Park Commission meeting was held at Hammonasset Beach and the four holdouts were discussed. Mr. Miller, who owned 24 of the 38 outstanding acres, had refused an earlier offer of \$3,600 and was anxious about the Commission’s next move. He waited outside. With the threat of condemnation looming, one Commission member excused himself from the meeting to parlay with Miller. Miller refused his new offer of \$3,500. Accordingly, the Park Secretary stepped out to engage Miller and returned . . . “a few minutes later report[ing] that Mr. Miller had accepted the offer.” With that settled, the three remaining proper-

ties were promptly condemned in order to meet the fast approaching opening deadline.

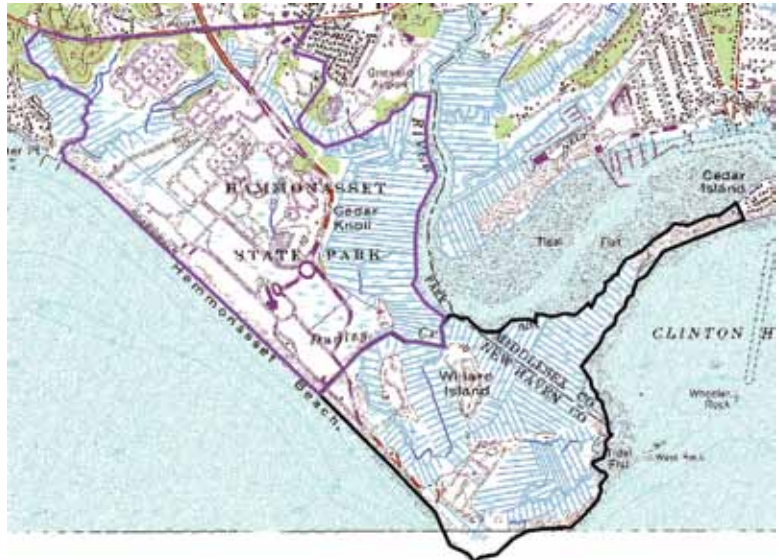
Faced with an incredible workload, the opening deadline slipped past Memorial Day and through the month of June as the finishing work continued. Finally, on Sunday, July 18, 1920, four months after building plans were finalized and 19 months after Turner’s insistence for a shoreline park, on a day of fair weather, light breezes, and temperatures in the upper 70s, Hammonasset Beach State Park opened to the public.

The people of Connecticut responded immediately and with marked enthusiasm. After recording a total park attendance of 6,440 visitors at all 15 park locations in 1919, Hammonasset, in this first short-season summer of 1920, welcomed 75,000 visitors. People crowded the trolleys and

day-tripped by automobile to simply be outside at the beach in the fresh air, walk the boardwalks, and enjoy the shore.

Albert Turner’s vision of a shoreline park had been fulfilled. The execution of his vision at Hammonasset philosophically and fundamentally changed the future of how parks would be managed by the Commission and enjoyed by the public for the next 25 years.

Follow the State Park Centennial on the DEEP website at www.ct.gov/DEEP/Stateparks100.



Hammonasset Beach State Park, as it existed in July 1920, is shown in purple (displayed over a current topographic map). It boasted approximately 550 acres of beach, upland, and marsh. The neighboring 340-acre Winchester Repeating Arms Company (WRA) to the southeast is bounded in black. WRA was unwilling to part with the land in 1920, but agreed to offer Parks the first right of refusal when they did decide to sell.

Watchable Wildlife - Wheeler Wildlife Management Area

Wildlife watching is an activity you can participate in everyday – whether it is at bird feeders in your backyard, during a visit to a local park, while taking a walk on the beach, or when on a hike in one of Connecticut’s state parks, forests or wildlife management areas. Our state has a diversity of habitats, from forests, grasslands, freshwater wetlands, lakes, rivers, salt marshes, sandy beaches, and more. All of these places provide the perfect opportunity to observe wildlife.

This is the first in a series of articles that will highlight various “Watchable Wildlife” locations in Connecticut. At first glance, most of these locations may be better known for other outdoor recreational pursuits. However, they also provide important habitat for Connecticut’s wildlife and a great opportunity for wildlife watching.

Looking for wildlife can be fun – finding and observing wildlife is rewarding! Remember, however, that the “wild” in wildlife means that you may not always find what you are looking for. Either way, you will probably hear and find something during your adventure, maybe even something you were not expecting.

Wildlife Viewing Tips

Before starting out on your wildlife watching adventures, you might want to invest in a decent pair of binoculars (7x35 is a good, all-purpose option). It also is best to research the animals you will be seeking. The more you know about the particular animals, the more you will probably see them. Use field guides, checklists, and other resources to help you identify wildlife and learn about their habits and habitats. Perfecting your knowledge, skills, patience, and experiences will help you become a better wildlife watcher. However, sometimes success just depends on being at the right place at the right time. Success may be



Patience may be needed to see hard to find marsh birds, such as this clapper rail. The marsh overlooks at Wheeler WMA offer very good viewing opportunities. for rails as well as many other species.

influenced by:

- Season – some animals are only present during certain seasons;
- Time of day – in general, wildlife is more active during the first and last hours of daylight;
- Weather;
- Condition or location of food, water, cover;
- Human disturbance (by you or someone else).

Viewing Ethics and Responsibilities

It is important to remember that your presence, even from a distance, may be causing stress or disturbance to the animals you are watching. Disturbance can be even more critical during the breeding/nesting seasons and during bad weather events (i.e., extreme cold or heat). Put the needs and safety of wildlife first by:

- Enjoying wildlife from a distance;
- NOT feeding animals to get them to come closer;
- Never chasing or harassing animals (be sure to leave dogs at home);
- Not picking up “abandoned” or sick wildlife. (Wild animals rarely abandon their young. The adults are

most likely nearby, waiting for you to leave.)

Along with respecting wildlife, you should also respect landowners and other outdoor users. Always ask for permission to access private land and leave it as you found it (i.e., remove trash, close gates, etc.). Be considerate when approaching animals that are already being viewed by others. You do not want to frighten the animal away and ruin someone else’s viewing experience. Be aware that others are recreating in the same area – hikers, hunters, anglers, and paddlers, to name a few.

Charles E. Wheeler Wildlife Management Area

Description: The Charles E. Wheeler Wildlife Management Area (WMA), which includes Nell’s Island, has approximately 812 acres of tidal marsh habitat ribboned with tidal creeks. It is located at the mouth of the Housatonic River in Milford, where the river enters Long Island Sound. Lying further north in the Housatonic River are tidal flats known as New Meadows and Farm Flats, along with several islands, including Fowler’s, Long, Carting, Peacock, and

Goose Islands. The largest portion of the tip of Milford Point, which forms the protective arm along the management area, is owned by the U.S. Fish and Wildlife Service as part of the Stewart B. McKinney National Wildlife Refuge.

The Smith-Hubbell Wildlife Sanctuary, which contains an important piece of barrier beach, is connected to Wheeler WMA. A portion of the sanctuary is currently under lease to the Connecticut Audubon Society, which manages the sanctuary in cooperation with the New Haven Bird Club, on behalf of the DEEP Wildlife Division. Connecticut Audubon Society's Coastal Center at Milford Point is located on the barrier beach. The Center promotes the awareness of Long Island Sound's ecosystem, the birds and habitats it supports, and its preservation needs. This location is a "birdwatcher's paradise" – 315 species have been seen there, including many rarities.

Viewing Information: Wheeler WMA provides habitat and feeding areas for a wide array of wildlife, particularly shorebirds, wading birds, and waterfowl. It also is an important stopover site for migrating birds. You may be able to observe such birds as the black-crowned night-heron, semipalmated sandpiper, black-bellied plover, dunlin, sanderling, black duck, mallard, green-winged teal, short-eared owl, Ipswich sparrow, and Virginia, clapper, and sora rails.

The barrier beach and the sandy shoals adjacent to the beach provide important nesting sites for the state threatened least tern and piping plover. In an effort to protect these rare birds, DEEP Wildlife Division staff and many volunteers erect fences each year to protect nest sites.

Wheeler WMA is extremely popular for birdwatching and waterfowl hunting. Birdwatching is good year-round, particularly in spring and fall. The waterfowl hunting season generally runs from early October through mid-January (although some seasons may run later). More specific details on season dates is available in the current Connecticut Migratory Bird Hunting Guide, which can be obtained from DEEP offices, outdoor equipment vendors, and on the DEEP website at www.ct.gov/deep/hunting.

Other Notes: A boardwalk protects



Unusual birds show up at the Charles Wheeler WMA/Milford Point complex from time to time. This pair of American avocets was found there in September 2005.



Flocks of waterfowl are often seen using the marsh at Wheeler. These green-winged teal are on their way south for the winter and are stopping for food and rest at the Wheeler WMA.

the dune and beach habitat facing Long Island Sound. There is an observation platform with interpretive signage, and a 70-foot covered observation tower for panoramic vistas.

Charles E. Wheeler WMA and the Smith-Hubbell Wildlife Sanctuary are open daily, year-round, from dawn to dusk. The Coastal Center at Milford Point is open on Tuesday-Saturday, from 10:00 AM-4:00 PM and Sunday, from 12:00 PM-4:00 PM (closed Monday).

Directions (to the Coastal Center at Milford Point): From I-95, take Exit 34. Turn right at the traffic light where the ramp meets Route 1. Go one-half mile to the third light at Naugatuck Avenue. Turn left onto Naugatuck Avenue and go 0.8 miles to the second light at Milford Point Road. Turn right and follow Milford Point Road one-half mile to the stop sign at Seaview Avenue. Turn right and go 0.35 miles. When the road forks, take the right fork into the parking area. To reach another access point off Seaview Avenue, go beyond the intersection with Old Milford Point Road to a fork in the road. Take the right fork and go about 300 feet to the parking area.

From Yard Work to Construction: *Risks of and Alternatives to Synthetic Erosion Control Products*

Written by William Conway, Skidmore College Student Intern for the DEEP Wildlife Division

As spring approaches, lawns emerge from under the snow and landowners begin to think about yard work and landscaping plans for the warmer season. While large-scale development projects remain a constant source of habitat loss and alteration, it is important to understand the subtle impacts that common landscaping techniques can have on local ecosystems.

After the spring snow melt, many homeowners, landscapers, and construction companies apply commercially available erosion control products designed to protect soils from erosion and promote plant growth and root mass development. These products are composed of degradable synthetic plastics made into meshes, nets, fiber blankets, and fiber rolls. Plastic meshes and nets are also used in reinforcing geotextile fabrics, such as silt fence, when used in sediment control applications. When used for erosion control, plastic meshes and nets are typically applied over mulches and straws to prevent wind and water damage, in turn, reducing soil erosion and optimizing plant growth conditions. The plastic meshes in fiber blankets and rolls are used to hold together natural straw fibers, essentially molding and securing them into blankets or rolls. There are a variety of field applications for fiber blankets and rolls, from reducing soil erosion on steep roadside embankments to providing streambank stabilization. Although erosion control devices have many uses, and erosion prevention is a valued conservation service, synthetic nets can pose a threat to many reptiles, amphibians, birds, and small mammals.

Snakes are at greatest risk of harm when they weave their way through the fabric, often becoming entangled and unable to move. These trapped snakes are exposed to predation and/or extreme temperatures where they can succumb to overheating and inevitably face death. The way that snakes can become entangled in synthetic netting in erosion control products is similar to the well-known problem posed by plastic

six-pack rings, which can entrap and harm wildlife.

Plastic erosion control nets, although designed for temporary use, often remain in place for months or even years at a time, posing a greater threat to the environment. Temporary erosion control devices are marketed as degradable, which is not synonymous with “biodegradable.” Degradable erosion control devices slowly fall apart over time, permanently leaving synthetic netting fragments in the environment. These loose fragments eventually find their way into waterways, harming both freshwater and marine life.

Fortunately, there are many products available on the market that temporarily reduce erosion and can be used in a variety of applications, but do not threaten plants and animals. For example, erosion control products composed of natural fiber netting material, such as jute (vegetable fibers), sisal (stiff Agave fibers), or coir fiber (coco-nut husk fibers) are not only 100% biodegradable, but they also have a weave that is not fixed, as in synthetic netting, making it easier for wildlife to freely roam through the weave without getting entangled.

From small-scale yard work to major construction projects, it is important to use wildlife friendly, synthetic-free erosion control products. This spring, look for 100% biodegradable solutions for your erosion stabilization projects. Because many erosion control products are designed for short-term soil stabilization, but remain on site for long periods of time after installation, selecting less invasive products that are ecologically friendly will collectively have a large and positive impact on local wildlife. It also is important to remember that erosion control products should promptly be removed once soils have stabilized.



A black rat snake entangled in a decaying fiber blanket.

Spotted Salamander

Ambystoma maculatum

Background and Range

One of the surest signs of spring is the mass migration of spotted salamanders. These underground dwellers emerge from winter dormancy with the season's first warm rains, and then travel to their breeding pools. This salamander is in the family Ambystomatidae, which includes the large, stout-bodied mole salamanders.

The spotted salamander's range covers much of the eastern third of the United States and also the southeastern regions of the Canadian Maritime Provinces. It is Connecticut's most widespread mole salamander.

Description

Large, robust, and with a broad head, this salamander ranges in length from 4.75-6.75 inches. The back is dark in coloration while the lower sides and bottom regions are lighter, usually gray. Two irregular rows of bright yellow spots are along the back and tail. Females are considerably larger than males. Recently transformed young have greenish-yellow flecks, while larvae range from olive brown or black to various gray shades. The external gills of the larvae help distinguish them from frog tadpoles.

Habitat and Diet

Depending on the time of year, spotted salamanders can be found in aquatic, terrestrial, and subterranean habitats. Although they occur in a variety of habitats, they tend to prefer forested areas adjacent to swamps, ponds, and creeks. Secretive and rarely seen, these salamanders spend most of their time hiding in burrows or under moist leaf litter. Breeding adults and larval stages use aquatic habitats, such as seasonal short-lived pools, artificial ponds, wet meadows, and deciduous forests with moist substrates and lower soil temperatures. The salamanders hibernate in burrows or crevices underground during winter.

Spotted salamanders feed on worms, slugs, snails, spiders, millipedes, crickets, beetles, ants, and other invertebrates. In turn, they are food for some snakes, birds, fish, and mammals.

Life History

Because spotted salamanders are secretive and spend most of the time underground, they are seldom seen except in early spring (March-April) when they migrate in large numbers to breeding pools. Even then, they are active only on rainy nights. Males arrive to the breeding pools first, where they deposit packets of sperm (technically known as spermatophores) on leaves and twigs lying on the bottom of the pools. The females follow on the next rainy night, where they attach approximately 100 eggs to submerged sticks or plants. The eggs become a globular, fist-sized mass when the jelly-like



P. J. FUSCO

substance that covers the eggs comes into contact with water.

After mating, the adults migrate back to summer feeding grounds and their underground homes. Larvae hatch in approximately 30 days and undergo metamorphosis, transforming into miniature versions of adults during the summer months. Newly transformed spotted salamanders emerge from wetlands in late summer/early fall to migrate to terrestrial sites.

Interesting Facts

The skin of the spotted salamander secretes a noxious substance that deters many would-be predators. Predation is most common during egg and larval stages before the salamander develops its toxicity.

Conservation Concerns

Connecticut's spotted salamander population appears to be undergoing a long-term decline, not only because of the loss of its vernal pool breeding habitats, but more so due to the reduction of upland habitat surrounding aquatic breeding sites. Most wetland regulations prescribe a 50-100 foot wide forested buffer around vernal pools. This buffer is to maintain water quality. Maintaining the amphibian diversity of a vernal pool requires 500 feet or more of primarily forested habitat surrounding breeding pools. There also are concerns that low pH and acid rain in the spotted salamander's aquatic habitats can cause eggs to die.

Because spotted salamanders migrate together in large numbers during the early spring breeding season, many individuals are killed by vehicles. In response, some towns and agencies have installed "amphibian tunnels" to funnel these creatures safely underneath roads in hotspot migration areas.

Marbled Salamander

Ambystoma opacum

Background and Range

The marbled salamander is in the family Ambystomatidae, which includes the large, stout-bodied mole salamanders. These salamanders are widely distributed in Connecticut but absent from high elevations (above 1,100 feet). They are locally common on the trap rock ridges of the Central Connecticut Lowland. This southern species reaches its northeastern range limit in Massachusetts and the mid-Hudson Valley of New York. It ranges over much of the eastern United States, but is absent from many areas.

Description

This chunky and compact salamander ranges in length from approximately 3 to 4.75 inches. The tail is stubby, and not as well developed as the other mole salamanders. The marbled salamander is one of Connecticut's more distinctively marked salamanders: males have bright white bands on a black body, while females have grayish-white bands on black. The underside is black. Females are larger than males. Newly transformed young have purplish-grey marbling, which will transform with age. Larvae range from dark gray or black and have light spots of bands on the sides. Larvae have external gills which help distinguish them from frog tadpoles.

Habitat and Diet

Marbled salamanders are found in or around deciduous woodlands. However, water or moist areas are usually close by. These salamanders prefer dry, sandy-soiled habitats and even rocky slopes, but they also may be found in wet, swampy soils. They usually hide under rocks and logs on wooded slopes.

Marbled salamanders feed on worms, slugs, snails, spiders, millipedes, crickets, beetles, ants, and other invertebrates. The larger larval marbled salamanders feed on spotted salamander



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larvae and wood frog tadpoles, as well as zooplankton.

Life History

Marbled salamanders emerge from their underground homes in early fall to migrate to their breeding grounds. This is opposite from other mole salamanders that breed during early spring. The marbled salamander is the only member of the Ambystomatidae family to breed on land and not in the water. Males typically precede females to a dried-up site that will fill with water after a big rain. Once there, they deposit packets of sperm (technically known as spermatophores). When the females arrive to the breeding grounds, they deposit between 30 to over 200 eggs underneath moist vegetation or debris. The duration of the larval cycle is dependent on weather and habitat type; it often is timed with the autumn filling of dried temporary pools. Females may remain with the eggs, brooding them until the pools fill with water. Once covered with water, the eggs hatch. Typically, marbled salamander larvae have transformed and are ready to emerge from the wetlands by the time spotted salamanders begin their reproductive cycles in spring. Adults hibernate underground during winter in areas not too far from breeding sites.

Interesting Facts

These salamanders move primarily at night to decrease competition with other species and avoid predation risks. Recently transformed young will wait for a rainy night before migrating away from the breeding site.

A noxious substance that deters many would-be predators is secreted from the skin of the marbled salamander.

Conservation Concerns

Marbled salamanders prefer undisturbed habitats and are less tolerant of areas with human presence and development. Often, buffered protection of seasonal, temporary pools will provide refuge for marbled salamanders and other species that rely on these pools. This protection is important because terrestrial ranges are usually close to breeding sites.

What You Can Do

If you find a salamander in the wild, leave it where you found it and only take photographs. Every individual is vitally important to its local population.

Consider proper habitat management practices if your property contains vernal pools where salamanders breed. The Vernal Pool Association website, at www.vernalpool.org, is a good place to start your research.

Urge your town to install amphibian tunnels at migration hotspots that overlap roads. If you are fortunate enough to witness a mass spring migration, you can help move salamanders from one side of the road to the other, as long as it is completely safe to do so. This can be done with gloves and small buckets as to not stress the salamanders or be exposed to any secretions.

Spread the word about salamanders! Knowledge is often the best tool for conserving these important amphibians.



What Can I Do For Wildlife?

This spring, many homeowners will be landscaping their yards by planting trees and shrubs. Some of the best and most attractive landscape plantings are native trees and shrubs that not only have flowering blossoms but also provide berries for birds and other wildlife. Did you know that even species like the eastern box turtle will eat the fallen berries of fruit trees, such as mulberry and black cherry? Or that cedar waxwings and orioles relish the flower petals of apple trees?

Some of the trees and shrubs to consider in your landscape projects include black cherry, red mulberry, flowering dogwood, winterberry, serviceberry, red cedar, and Virginia creeper.

2014 Summer Night Bird Monitoring

The DEEP Wildlife Division is once again gearing up for the Summer Night Bird Callback Surveys during May and June. This project is part of a statewide initiative to more thoroughly assess the nocturnal bird species that breed in Connecticut. The data collected during these surveys provide important information on the distribution and critical habitat features of these species in our state.

Analysis of four years of data reveals that whip-poor-will occupancy along the survey routes appears to be stabilizing. Population density (number of individual birds at each point) also was fairly stable.

What's Involved? Summer surveys targeting whip-poor-wills and saw-whet owls are conducted two times by volunteers along predetermined roadside survey routes. Dates and times are limited by lunar conditions. Surveys are conducted using a callback recording of the northern saw-whet owl.

The Wildlife Division also is interested in obtaining any additional night bird records from the public. For participate in the survey or to obtain more information, contact the Wildlife Division at shannon.kearney@ct.gov or 860-675-8130.

With the close of 2013, sportsmen in Connecticut enjoyed another year of safe and productive deer hunting. This marks the third consecutive year there were no hunting-related injuries involving the discharge of a firearm or bow, and only one such incident since 2007. There was only one hunting-related injury reported in 2013 – a fall from a tree by a hunter failing to wear a safety harness. This level of safety is remarkable in light of more than 300,000 deer hunting permits issued and hunters spending, a cumulative total of nearly six million days afield over that period.

Connecticut hunters continue to be national leaders in hunting safety, due in large part to mandatory firearms and archery education programs, which have produced a safety-conscious generation of hunters. Although deer hunters enjoyed a near perfect safety record during the past six seasons, the DEEP Wildlife Division's goal has always been to have no injuries of any kind, period.

Since 1982, the Wildlife Division's Conservation Education/Firearms Safety Program has provided hunter safety courses to over 100,000 students taught by a dedicated corps of more than 350 volunteer instructors. Program administration, support staff, and all supplies and materials are funded through the Federal Aid in Wildlife Restoration Program, commonly referred to as the Pittman-Robertson Act. Funding for the program is derived from a federal excise tax on sporting arms and equipment, which is distributed to the states for use in hunter education, wildlife research and management, and land acquisition. The required match in non-federal funds is provided by in-kind time donated by the volunteer instructors. Instructors donate more than 11,000 hours of their time each year conducting firearms, bowhunting, and trapping classes to ensure that students are safe, knowledgeable, and responsible in the pursuit of their outdoor activities.

Information about hunting safety courses, including a complete schedule of upcoming classes, can be obtained by contacting the DEEP Wildlife Division's Sessions Woods office at 860-675-8130 or Franklin Wildlife office at 860-642-7239 (Monday through Friday, from 8:30 AM-4:30 PM). Course listings also are available on the DEEP website (www.ct.gov/deep/hunting). Those interested in taking a hunting safety course are advised to check the course listings on the DEEP website daily as courses, when offered, fill up quickly. More classes are expected to begin in early spring 2014, prior to the opening of the spring turkey season on April 30.



Many migrating birds, including this Swainson's thrush, are fond of flowering dogwood berries that ripen in the fall.

Ducks Marked with Nasal Saddles

Have you seen any mallards or black ducks with nasal saddles? If so, the DEEP Wildlife Division would like to know. The Division is marking mallards and black ducks with nasal saddles as part of an ongoing research project to assess the effects of salt marsh restoration on wintering ducks. Based on prior work with radio telemetry, biologists know that wintering ducks do not move far once they arrive in Connecticut. One hypothesis is that when wetland habitat is restored, the number of birds using the area increases. Biologists want to document if this is actually the case, and, if so, where these birds are coming from. Instead of attaching dozens of radios to ducks at great expense in both equipment and manpower, biologists are using easily observed nasal saddles to examine distributional shifts in ducks due to habitat restoration activities. If you observe any ducks with nasal saddles, contact Division biologist Min Huang (min.huang@ct.gov) and list the species observed, where they were seen, and when.





Meet Mel Morales, Wounded Warrior with an Eye for the Wild

The Wildlife Division regularly receives some amazing wildlife photos from a wide-range of photographers. Some photographers are just starting out with this new passion and others have been perfecting their skills for years. Photos sent by Mel Morales definitely sparked our interest as Mel is a wounded warrior, disabled veteran, and visually impaired nature photographer who takes stunning nature and wildlife photos.

Mel was diagnosed with a traumatic brain injury about five years ago that is affecting his hearing and vision. Four years ago, Mel was introduced to Air Force veteran and professional sports photographer Dan Burns through the Wounded Warrior Project. Since their introduction, Dan has been mentoring Mel and they have taken photos at professional and college football games, and many adaptive sporting events. With Dan's assistance, Mel also has perfected his nature photography skills, in spite of his vision difficulties. Many of his photos are taken on the campus of the Common Ground High School near West Rock State Park in New Haven, where Mel is a substitute math teacher. Be sure to visit Mel's website where he shares his photography and passion: www.visuallyimpairedphotography.com. You can check out Dan Burn's photos at danburnsphotos.com.



Mel Morales wanted to share his photos with *Connecticut Wildlife* readers because of his passion and love for nature. We thank Mel for introducing us to his talent. Be sure to check out more of Mel's photos on his website.



Disabled veteran and visually impaired nature photographer Mel Morales (right) and his mentor Dan Burns (left), a professional sports photographer.

Conservation Calendar

- Dec. 28-Mar. 5 **Observe eagles at the Shepaug Bald Eagle Observation Area in Southbury.** Observation times are Wednesdays, Saturdays, and Sundays from 9:00 AM until 1:00 PM. Though admission is free-of-charge, advance reservations are required. To make reservations for individuals, families, and groups, call toll-free at 800-368-8954 on Tuesdays through Fridays, between the hours of 9:00 AM and 3:00 PM.
- March 8 **Training to Become an Appointed Wildlife Custodian**, from 8:30 AM - 5:00 PM. This specialized training is sponsored by the DEEP Wildlife Division and the Connecticut Wildlife Rehabilitator's Association. **Interested individuals must contact Wildlife Division biologist Laurie Fortin at 860-424-3963 (laurie.fortin@ct.gov) to register for the training.** The training will be held at Indian Rock Nature Preserve on Route 69 in Bristol. The fee at the door is \$5.00.

Programs at the Sessions Woods Conservation Education Center

Programs are a cooperative venture between the Wildlife Division and the Friends of Sessions Woods. Please pre-register by calling 860-675-8130 (Mon.-Fri., 8:30 AM-4:30 PM). Programs are free unless noted. An adult must accompany children under 12 years old. No pets allowed! Sessions Woods is located at 341 Milford St. (Route 69) in Burlington.

- March 23 **Mushrooms**, from 9:30-11:30 AM. Join the Connecticut Valley Mycological Society during their annual meeting at Sessions Woods for a mushroom presentation suitable for beginners and more seasoned mushroom seekers. The Mycological Society's meeting will include a coffee and refreshments period at 9:30 AM, followed by the presentation from 10:00-11:00 AM. Questions and answers will follow the program.
- April 13 **Friends of Sessions Woods Annual Meeting featuring native plants and water gardens!** A Dessert Extravaganza Potluck is planned for 12:30 PM, so bring a dessert to share. A brief, 10-minute business meeting will begin at 1:00 PM, followed by a featured presentation by DEEP Wildlife Division biologist Pete Picone on using native plants to benefit wildlife. Pete also will talk about plans to develop a water garden at Sessions Woods. Proceeds from a native plant sale will benefit the Friends of Sessions Woods. More details are available by calling the Sessions Woods office at 860-675-8130.

Hunting Season Dates

- April 30-May 31 Spring Turkey Hunting Season
April 19-26 Youth Spring Turkey Hunter Training Days

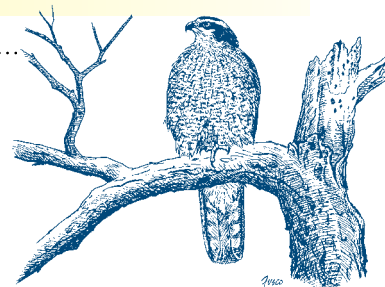
Stay up-to-date with events, programs, volunteer opportunities, hunter safety classes, hunting season dates, and other important information by regularly visiting the DEEP's website and CT Fish and Wildlife Facebook page!

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Online Licensing: www.ct.gov/deep/sportsmenslicensing
Fish and Fishing: www.ct.gov/deep/fishing
Forestry: www.ct.gov/deep/forestry
Sessions Woods Conservation Education Center: www.ct.gov/deep/SessionsWoods
DEEP Calendar of Events: www.ct.gov/deep/calendar



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Snowy owls typically make winter visits to Connecticut in small numbers and not every year. This winter, these large, spectacular owls have been present in our region in numbers that have not been seen for generations. It appears the owls had a productive breeding season in the Arctic last summer, raising above average numbers of young due to a large food supply. Most of the sightings in Connecticut have been along the coast in large open habitats, such as beaches, salt marshes, and airports. The owls will return to their northern homes by the end of winter, so there is still time if you have not seen one yet. This individual was found in Stratford in December.