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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



From the Director's Desk



As wondrous as wild animals are from afar, up really close and personal is another matter altogether. Our family lives in an old (circa 1845) Greek Revival farm house – the Hill's Family farmstead. Most of the property was sold over the years, but we still maintain the original house, barn, and remaining pasture. We have raised a steer – named T-bone – and various horses, donkeys, goats, and chickens, along with dogs, cats, and goldfish, over the years. But, our relationship with wildlife has been the greatest joy and challenge.

The first summer in the house, we discovered a colony of some 200 little brown bats in the barn. They had set up residence in the rafters of the haymow, and were producing prodigious quantities of guano. We would sit in Adirondack chairs in the yard in early evening, waiting for the bats to venture out. The following summer, we held a wedding reception in the yard and all were thrilled at the bats overhead once the sun went down.

A year later, we undertook a major house renovation. It involved removing a 1950s vintage kitchen, 1960s vintage flooring, and replacing "electrical cords through the floor to the basement." It also involved removing the sheetrock covering the horse-hair plaster and lath on the walls and ceilings (previous owners were not kind to the historical subtleties of the house). It was expected that the demolition would be a dusty, dirty task that would yield a variety of surprises. We were hoping for a "previously unknown," original copy of the Declaration of Independence or at least a collection of coins from the 1700 or 1800s. Instead, we found huge mouse nests and an extended family of flying squirrels. Mice we expected, the flying squirrels were a surprise. Unquestionably, the biggest surprise was how we found them. Removing a section of the ceiling in what would become our oldest daughter's room, an adult squirrel fell from the attic floor space onto the back of my neck and down my tucked-in shirt. I'm not sure which one of us was more surprised, but I certainly made more noise.

One might think that was the end of the story. Not so much. That simply began a 10-year battle of wills for primacy of the house that at various times included, not only us and the flying squirrels, but also gray squirrels and, of course, mice. None of this is unique to our home. Many of us, whether we have chosen urban, suburban, or exurban communities as home, have had to learn to live with the wildlife around us. Some of those lessons have been hard. The Wildlife Division is unique within the Department of Energy and Environmental Protection for many reasons, and one of them is the frequency with which the public reaches out to us for guidance on how to live with the abundance of wild animals in their midst. Between our various offices, we respond to some 20,000 calls each year for technical assistance, and there are thousands more people who look to our webpages, Facebook page, fact sheets, and other materials for guidance. Surveys have indicated that those who contact us are generally quite pleased with the guidance they receive. Even still, I'm convinced we can do more to increase the enjoyment, and relieve the stresses, of living in such a wondrous place. To that end, we have joined forces with the other northeastern states, from Maine to Virginia, to develop and implement a new communications strategy regarding wildlife/people conflicts to provide the public the information they need more quickly, efficiently, and effectively than ever before.

Over the next 24 months, we will be testing messages, rebuilding websites, preparing new fact sheets, and maybe even "How To" videos on living with wildlife, and more. Once in place, we will be monitoring the effectiveness and making changes to ensure the right answers are getting to those who need them in a timely way. Keep an eye open and let us know how we have done. As for my family's battle for primacy? Chalk one up for the Jacobson's. We are officially squirrel-free . . . for now.

Rick Jacobson, DEEP Wildlife Division Director

Cover:

The wood thrush is widely regarded as having one of the most beautiful of bird songs in the world. Read about the wood thrush and its conservation challenges on page 12.

Photo courtesy of Paul J. Fusco

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Best Management Practices for Salamanders

Written by William Conway, DEEP Wildlife Division Seasonal Resource Assistant

Salamanders do not migrate long distances like birds do between nesting and wintering grounds. Most salamanders spend the majority of their lives on a few acres of land. Therefore, the health of that land is paramount because salamanders have limited ability to move if habitat conditions deteriorate. Landowners and homeowners interested in promoting a safe and healthy environment for Connecticut's salamander populations can follow several best management practices (BMPs).

- **Leave forested buffers around salamander habitat, such as seasonal wetlands.** Salamanders require particular habitat types for different parts of their life cycle and seasonal migration. Seasonal wetlands, such as vernal pools, serve as salamander breeding sites. Both seasonal wetlands and their surrounding habitat must be intact (unfragmented) to ensure salamanders' survival. A healthy forest serves as a buffer, allowing vernal pools to thrive and providing salamanders with hospitable breeding grounds.

- **Allow dead trees, leaf litter, and organic debris to decompose naturally.** Salamanders rely on decomposing leaf litter and organic material for cover and moisture. In addition, a naturally decomposing groundcover attracts insects and other invertebrates that salamanders feed on. Rotting logs, sticks, and leaf litter provide shelter and forage for salamanders.

- **Maintain a diversity of forest age classes, densities, and structures either within the same forest stand or among adjacent forest stands.** Large expanses of even-aged, closed canopy stands where herbaceous plant and shrub abundance and diversity are limited may not sustain healthy amphibian or reptile populations. In many parts of Connecticut, especially Fairfield County, excessive deer browsing has decimated young tree stands and the shrub and plant understory, decreasing the amount of decomposing organic material on the forest floor. Salamanders require at least 50% canopy coverage to maintain a cool, moist environment.

- **Maintain connectivity between forested blocks.** Roads, driveways, and development that cut across forests may limit the ability of salamanders to traverse between habitats, making it difficult for them to breed and putting them at risk of being run over by vehicles. Most amphibians travel approximately 750 feet or more when migrating. Juvenile amphibians, on the other hand, may move miles to reach new breeding pools.

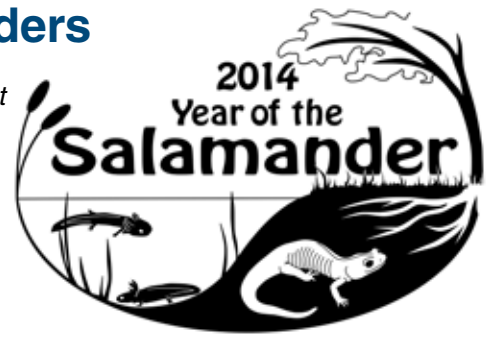
- **Close roads temporarily to allow salamanders to migrate to their breeding grounds, thus avoiding mass road mortality.** Inquire with your town or city if sections of roads known to be salamander migration "hot spots" can be closed temporarily during warm and rainy spring evenings when salamanders are on the move. Signage alerting motorists to the presence of amphibians and urging drivers to slow down and stay alert also serves as a valuable option.

- **Maintain or restore native vegetative by removing or containing the spread of invasive plants.** Many reptiles and amphibians, including salamanders, are specifically adapted to native plant communities where they can live, search for food,

and hibernate.

- **Limit the use of off-road motorized vehicles, such as all-terrain vehicles (ATVs), dirt bikes, and four-wheel drive vehicles.** Excessive motorized vehicle traffic can compact and disturb soil, increase erosion and sedimentation, provide

corridors for invasive plant species along trails, and elevate vehicle-related mortality rates. ATVs can severely degrade seasonal wetlands that are used by salamanders and frogs.



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.



P. J. FUSCO

Leaving forested buffers around seasonal breeding pools used by the spotted salamander and other amphibians is a best management practice that can provide necessary habitat for these unique animals.

- **Use a minimum amount of fertilizers, herbicides, and pesticides to achieve management objectives, such as removal of invasive or unwanted plant species.** Common herbicides purchased at local home improvement stores can be highly toxic to salamanders. Salamanders have sensitive, permeable skin and inhabit low-lying areas that collect water, leaving them highly vulnerable to the threats of chemical run-off. Consider using organic or other non-toxic alternatives for controlling and removing invasive plants.

If you want to help reverse declining salamander populations in Connecticut and ensure the survival salamanders for future generations, consider employing some or all of these best management practices on your property.

Deer Capture Efforts Continue in Northwest Connecticut

Written by Bill Embacher, Wildlife Management Institute

A white-tailed deer research project assessing fawn production, adult and juvenile survival rates, causes of mortality, and habitat use in northwest Connecticut was conducted for a third year during winter 2014. DEEP Wildlife Division staff continued to monitor does and fawns already fitted with radio collars. Staff captured an additional 26 does this past January through March in Salisbury (12) and Sharon (14). The does were immobilized and fitted with ear tags and radio transmitting collars. They also were implanted with a temperature sensitive vaginal radio transmitter (VIT), which assists in the capture of fawns when they are born later during spring. The average doe was four years old, and the oldest was estimated to be at least nine years old.

Researchers are using radio telemetry to locate the does once a week. All radio-collared deer have remained in close proximity to their capture sites. During the fawning period (late May into early June), researchers will again monitor does more intensely in an effort to capture as many fawns as possible.

2012/2013 Deer Update

Of the 51 does originally captured in 2012 and 2013, 18 and 19 have survived,



Wildlife Management Institute wildlife technician William Embacher placing a VHF radio-collar on an immobilized doe.

respectively. The largest sources of mortality have been hunting (4) and unknown sources (4). Predation (3), motor vehicle (2), and suspicious activity (1) also con-

tributed to mortality of the research animals. Home range size (area the animals use to meet food, water, and shelter requirements) of adult deer captured during the first year of the project was 127 acres (0.2 square miles). Habitat use of does whose fawns survived 90 days primarily consisted of agricultural fields and other grassy habitat (60%), forested habitat (25%), and developed areas (15%).

With the help of the VITs implanted in the does, researchers have been able to capture 41 fawns during the past two spring fawning seasons. The fawns are fitted with radio collars made of elastic biodegradable material expands as the fawns grow and then breaks away after a year or so. Due to the limited life of the fawn collars, researchers are only able to track fawns for about one year. However, researchers are able to collect enough information before the batteries wear out or the collar falls off to learn how many fawns are being recruited into the adult population. As of April 2014, one fawn collar put out in 2012 was still transmitting as were two from 2013. During the first two years of the study, researchers documented 28 confirmed mortalities of the 41 fawns captured for the study.



Wildlife Management Institute wildlife technician William Embacher sitting with an immobilized doe while it recovers from being chemically immobilized.

Sources of mortality included predation (50%), illegal human involvement (18%), natural mortality (14%), unknown causes (11%), and agricultural practices (7%).

In 2013, a few deer had traveled distances up to 13 miles to their summer habitats. Researchers continued monitoring the movements of those deer, and all repeated the pattern of returning to and moving from the capture area during the following winter. Only one of those does had a fawn survive, and that fawn made the migrations with the doe, over four miles each way. Interestingly, the doe whose fawn survived was the last to return to the wintering area where it was captured.

Incisor Collection

To better assess the health of the herd in northwest Connecticut where the fawn mortality study is being conducted, the Wildlife Division is asking hunters to collect the incisors from any deer they harvest in deer management zones 1 and 5. Although age can be estimated by tooth wear and replacement, as was done at hunting season check stations in the past, a process called cementum analysis provides a more accurate estimate. This process involves looking at a thin slice of the root of the incisor through a microscope and counting rings of cementum, similar to counting the rings of a tree. By evaluating the incisors of as many deer as possible, researchers



Master Wildlife Conservationist Ray Hardy (left) with Seasonal Resource Assistant Jenny Kilburn positioning the deer on its sternum to prevent it from getting bloat while it recovers from being chemically immobilized.

can assess the age structure of the herd.

The ages of all research does were obtained by looking at tooth wear when the animals were captured. It appears that the sample is skewed towards older deer. This raises concern that although the total deer population may be at a healthy number, if it contains a low percentage of young deer, a population crash may occur in the future. Researchers need to obtain ages from approximately 300 deer per management zone to make a statistically viable



Deer Biologist Andrew LaBonte preparing to administer an intravenous injection of reversal drugs that will allow the deer to recover quickly after being chemically immobilized, collared, and ear tagged.

Interesting Observations

- Two of the sites where deer were captured for this study exhibited abnormally high deer densities. Each time researchers set up at the sites, at least 10 to 12 deer were routinely observed. Researchers observed as many as 30 deer at three other capture sites used in 2013.
- Over the last three years of the study, bobcats have been documented on trail cameras at capture sites and several bobcats were observed while researchers were capturing deer. This past winter, for the first time, researchers witnessed a bobcat actively pursuing deer. Seven deer ran from the bobcat for a short distance and then stood their ground. The deer stopped and faced the bobcat, stomping and blowing for 20 minutes as the cat sat on a log 20 yards away watching them. Was the bobcat assessing the deer's ability to flee? It eventually wandered off.
- Deer had become so accustomed to the baiting routine at another site that they lost their fear of people, and researchers were able to dart them from the ground twice, immediately after baiting.
- Another interesting observation occurred following the large amount of snow that had accumulated during February. Before the snow piled up, deer were readily using most bait sites. However, when the snow came, deer either completely discontinued the use of a site, or they did the complete opposite and did not range farther than 100 yards from the site. Researchers believe that deer that were traveling greater distances to bait on a daily basis stopped due to the energy required to reach the site, while others simply stayed close to the bait and sought cover nearby. Once the snow subsided, deer quickly acclimated back to using capture sites.

assessment of the age structure of the population. Collection of incisors came up short this past winter. However, with continued effort and participation by hunters, the Wildlife Division hopes to collect enough age data after the 2014-2015 hunting season to make the data viable. Those interested in obtaining more information about this project can contact William Embacher at 860-642-7239 or William.embacher@ct.gov.



Connecticut State Parks – Lean Times

Written by Alan Levere, State Parks Division

By the end of the 1920s, Connecticut's State Park system had grown by 17 new locations, bringing the park total to 38. Parks were located in every county, and the attendance of just over 100,000 in 1920 had grown to 1.2 million by the end of 1929.

Staff had been hired to meet the needs, campgrounds were opened, and park amenities were added. But, the October 1929 stock market collapse was a painful indicator that the booming 1920s economy was over, and that an economic depression was looming.

The 1930s altered the way state parks functioned. As budgets were cut, staff was cut, creating the perfect irony: the local attraction provided by state parks became more popular than ever, just as operations and maintenance staff

were being reduced.

The Great Depression

Accordingly, state park attendance during the Great Depression soared – not as a steady creep, but more like exaggerated leaps. The 1.2 million milestone of 1929 had more than doubled to 2.5 million visitors by 1935. Parks were being overwhelmed.

To augment the difficult cash flow for the state parks, a parking charge of 25 cents was introduced for premium, near-shore spaces, though hundreds of parking spaces remained free. The additional \$6,000 a year helped – but not much. The depleted payroll and resulting loss of staff was taking its toll.

Gladly, help, at least in the form of labor, was on the way. Eighteen days

after President Franklin D. Roosevelt's March 21, 1933, inauguration he proposed the creation of "...a Civilian Conservation Corps (CCC) to be used in the simple work of forestry."

By April 10, the creation of the CCC was official and the start of their legacy was underway. The 1933 deployment of the CCC camps was efficient. In the 38 days ending June 29, Connecticut's first 12 locations opened. Almost immediately, the Corps were at work fulfilling Roosevelt's pledge of natural resource conservation.

The military-style camps provided young men aged 18 to 20 honest labor



Obliterated boardwalks and destroyed lighting were the work of the 1938 Great New England Hurricane. By March 1939, the Governor provided \$50,000 for cleanup, the Works Progress Administration (WPA) provided labor, and the rebuilding was underway.



It was typical to have each six-month-duration Civilian Conservation Corps team photographed. This group ended their enlistment in September 1935 at Camp Walcott in what is now Burr Pond State Park in Torrington.



With the stone foundation of Rocky Neck State Park's 330-foot long pavilion near completion, speeches accompanied the June 1935 laying of the ceremonial cornerstone. The park's half-mile long beach and 250 adjoining acres provided the public with a generous shoreline park on Connecticut's southeastern coast.

by day at \$30 per month, and educational opportunities in the evenings. As the men took this personal enrichment with them when they departed, they left behind a heritage of land enhancement, access, and recreation. Of the 42 state parks in existence in 1933, no less than 25 of them saw improvements from the CCC. The list of achievements is long, and we benefit still from their campgrounds, dam building, road construction, and trail clearing.

Landmark Acquisition

Despite the Depression, or maybe because of it, new park opportunities were still being presented. One of the major acquisitions of the 1930s was Rocky Neck State Park in East Lyme. Out of reach financially in the 1920s, the reduced-value land was still available in the 1930s. But, as was often the case, there was no money budgeted for such a purpose. Fortunately, the long-time friends of the Park Commission, the Connecticut Forest and Park Association (CFPA) coordinated fundraising, purchased the property, and held it until the Park Commission had sufficient financing in place.



This image depicts the actor William Gillette's home shortly after his death in 1937. Covered with ivy, the castle presented a softer appearance than it does today. Despite Governor Baldwin's concerns, Gillette Castle has become one of the most popular inland locations in today's state park system.

Disaster: The Great New England Hurricane

The lack of money for park staff, upkeep, and land acquisition was not the only concern present during the

1930s. When the morning of Wednesday, September 21, 1938, dawned, no one knew that within hours a disaster unlike anything ever seen would unleash its fury on the state, taking its toll in lives lost,

property ruined, and landscapes destroyed. It took a few days to comprehend the breadth of devastation, but the delay in the reporting on the Hurricane of 1938 only strung out the bad news. The cumulative damage in eastern Connecticut was immense. Hammonasset Beach, which had the most to lose, bore the brunt of infrastructure loss. Storm surge disintegrated the pavilion edifice and 1,700-foot boardwalk. Wind wreaked havoc with the roofing; changing rooms and bathroom buildings were reduced to woodpiles.

By 1939, the Great Depression was loosening its grip on the nation. However, any cause for optimism was stymied on December 7, 1941, at Pearl Harbor and the onset of our entry into World War II.

It took a while for the impact of Pearl Harbor to be realized. Within a month, the U.S. Army was using forest fire towers for spotting enemy aircraft, and the danger of coastal air raids led to sunset-to-sunrise blackouts along the Connecticut shore, thereby eliminating the 1942 camping season at Rocky Neck and Hammonasset Beach State Parks. By October 1942, the army had occupied Hammonasset for aerial assault and bombing practice, closing the beach to public use for the entire 1943 and 1944 seasons.

Gillette Castle – A Feat of Coordination

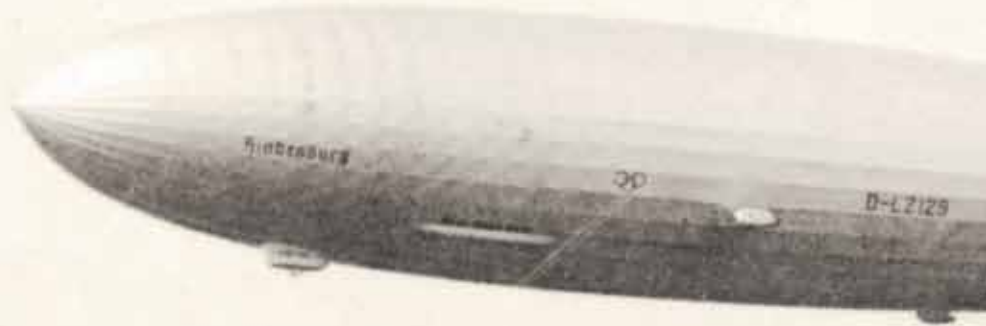
Located in East Haddam and atop the most southerly hill in a chain known as the Seven Sisters, William Gillette, noted actor, director, and playwright, built a 184-acre estate, the Seventh Sister. The focal point was a 24-room mansion reminiscent of a medieval castle. Gillette designed the castle and most of its contents personally. Built of local fieldstone supported by a steel framework, it took 20 men five years (1914-1919) to complete the main structure. Outside on the grounds, Gillette's influence is no less ev-

ident. The trails often follow, over trestle and through tunnel, the actor's three-mile long narrow gauge railroad. Walking paths were constructed with near-vertical steps, stone-arch bridges, and wooded trestles spanning up to 40 feet.

When Gillette Castle became available for purchase in 1943, there were no buyers. After review and recommendation by the Park Commissioners, Governor Baldwin stated that the 122 wooded acres of Connecticut Riverfront were the prize, and promised \$20,000 for the purchase. The castle itself, he felt, had no value! However, the asking price for the grounds and castle of \$30,000 was firm, and the Park Commission found itself \$10,000 short. Once again, CFPA came to the

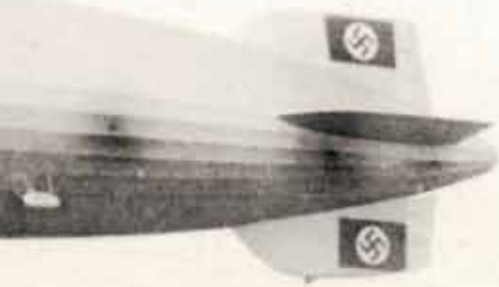
rescue by helping to raise the money needed to close the deal. The "soft" opening on Labor Day weekend 1944 kicked off an abbreviated season, with more than 11,000 tickets sold at 35 cents each. It quickly became clear that Gillette Castle and grounds were bound to be a popular park destination.

In early summer 1945, the War Department notified the Park Commission that they would be vacating Hammonasset Beach. Finally, with the end of all hostilities in August 1945, the nation, the state, and the entire park system could begin to recover from the fatigue of war. The "Lean Times" had come to an end.



While President Franklin D. Roosevelt was crafting his Civilian Conservation Corps "Tree Army," Germany was assembling an actual fighting army. A sign of German prowess was the airship Hindenburg, which passed over Hammonasset Beach State Park on August 17, 1936. Nine months after this image was recorded, the Hindenburg was destroyed in an explosion and fiery crash at Lakehurst, New Jersey.





The tell-tale result of war time gas rationing was seen regularly at Wharton Brook State Park in Wallingford. Bicycles far outnumbered automobiles as the vehicle of choice. The parks with the highest attendance through the war years were those closest to population centers. This mid-war photograph captured the reality of the day.



Summer tent camping in 1938 at Hammonasset Beach had matured into a well-organized network of camp sites with rest rooms and changing buildings available at regular intervals. Had the Great New England Hurricane of September 21 arrived on Labor Day weekend, there very likely would have been a significant loss of life.



Shore-based Fishing Just Got Better

Written by Greg Wojcik, DEEP Marine Fisheries Division; photos provided by DEEP Marine Fisheries Division

The DEEP Marine Fisheries Division is expanding its programs that target shore-based sport fishing to improve the fishing experience and quality of access to marine fisheries resources in Connecticut, especially in urban areas. Shore-based fishing is the simplest and most affordable form of salt water fishing and a popular way to enjoy Connecticut's coastline. At the same time, shore fishing is an opportunity to catch the evening's meal. To that end, minimum size limits have been reduced for two abundant marine species, summer flounder (fluke) and scup (porgy), at 45 public fishing access areas from Stonington to Westport. More details about these sites are in the DEEP Coastal Access Guide (www.lisrc.uconn.edu/coastalaccess) and the DEEP Angler's Guide (www.ct.gov/deep/fishing).

At these sites, summer flounder may be taken at any size longer than 16 inches (compared to 18 inches otherwise) and scup may be taken at any size longer than 9 inches (versus 10.5 inches otherwise). The shorter minimum harvest sizes give the shore angler at these sites a considerably better chance of taking home a meal or two. To aid law enforcement, the sites chosen for this program are separate from any boat launches or marinas where boat caught fish may also be taken. It is important to the success and continuation of this program that anglers at these enhanced access sites take their catch directly home after fishing. Possession of these species under the standard minimum size at other locations is a violation and can result in significant fines.

Beginning this summer, Marine Division staff also will be collecting catch data at these and other sites to obtain reliable information necessary for maintaining healthy marine fish populations in Long Island Sound. The level of fishing activity at these key sites, along with the number of fish harvested at a lowered minimum size, will more precisely gauge the popularity and dependence of this fishery on fish that have grown just large enough to be harvested.



Michael Rege, a fourth grade teacher at Winthrop Elementary in New London, successfully caught a summer flounder to bring home for dinner.

Marine Fisheries staff also will be collecting marine fishing information through a new voluntary catch card program. Anglers will be asked to voluntarily report their fishing trip information and to collect length measurements on fish caught, as well as fish released (discards). Waterproof boxes have been installed at many sites throughout the state for anglers to deposit cards every time they fish. Anglers also have the option of submitting their catch cards by standard mail using prepaid postage. Tape measures and pencils will be distributed to each angler who agrees to collect data for the survey so everyone will have the tools needed to collect and record the data required for the survey. Anglers that return their cards to the Marine Fisheries Division will also be automatically entered into a lottery to win a fishing related prize, such as pliers or a fish scale.

Look for this Sign



If you would like to participate in the data collecting effort, self-reporting catch cards will be available for pickup at many tackle shops along the coast or you can contact Greg Wojcik of the Marine Fisheries Division at gregory.wojcik@ct.gov or 860-434-6043.

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Sites where shore-based anglers can take home smaller summer flounder and scup are located throughout the coast.

Results for the 2014 Breeding Waterfowl Survey

Written by Min Huang, DEEP Wildlife Division

Wildlife Division staff completed annual breeding waterfowl surveys in April. Since its inception in 1989, the states from Virginia to New Hampshire have participated in this important survey. The survey is ground-based and targets randomly placed square kilometer plots. In the Atlantic Flyway in Maine and eastern Canada, breeding waterfowl surveys are conducted from the air along fixed transects and five-kilometer plots. In Connecticut, 56 plot surveys are conducted across the state. The survey provides part of the data that drives the Eastern Mallard and Black Duck Adaptive Harvest Management models. Outputs from these models determine season lengths and bag limits of duck seasons in the Atlantic Flyway. The survey also provides managers with an index to both habitat condition and waterfowl production, and it is used to estimate resident Canada goose population levels.

Due to a late spring this year, snow and ice were persistent through March in many areas, and even into early April in the northwest corner of the state. Overall, temperatures were lower than normal. Water conditions in 2014 were in stark contrast to 2013 when the state experienced dry spring conditions with many smaller wetlands lacking any water. This year, permanent wetlands throughout the state were recharged, and stream and river levels were good.

Biologists annually calculate a drake index (drakes/pairs + drakes) for each species to determine if survey timing was appropriate. A high drake index indicates good survey timing, showing that local ducks have begun nesting and most migrants have moved north to their breeding grounds. A low index means that the survey was conducted too early and paired migrants may still be present. Despite the late spring weather and presence of non-breeding waterfowl, such as ring-necked ducks, the phenology of waterfowl nesting in Connecticut, based on preliminary surveys before the actual survey, indicated that breeding activity was normal and the survey should proceed during the typical time window.

Mallards are the most abundant waterfowl species in the state. The mallard estimate of 14,729 pairs for 2014 was lower than the estimate in 2013 – a 22% decrease from 2013 and a 13% decrease



from the five-year average. The mallard drake index was 0.71, indicating a properly timed survey for this species. For reasons not yet known, the overall mallard population across the northeastern United States has been steadily declining over the past decade. The mallard population in Connecticut has been relatively stable over this same timeframe.

The Canada goose estimate for this year was 9,914 pairs, a 19% decrease from the previous year and a six percent decrease from the five-year average. Connecticut's liberal resident goose hunting seasons continue to impact populations, particularly in areas where hunters have access to the birds. Increasing activism by homeowners and municipalities to thwart nesting geese has also played a role in reducing resident goose numbers. There has been a slow, but steady, decline in the resident population over the past decade. Urban areas, however, continue to harbor significant numbers of geese. Research in Connecticut indicates that these urban populations serve as sources for problems outside of the cities, making it critical that urban municipalities think about aggressive control of resident geese.

The wood duck estimate for 2014 was 10,779 pairs. This is a 34% increase from 2013 and a 21% increase from the five-year average. Increasing beaver activity and an active nest box program have led to increases in Connecticut's population. The wood duck drake index was 0.52.

For the first time since 2001, breeding black ducks were detected in more than one inland plot. Inland breeding black ducks have been declining throughout the breeding range for many years. Black ducks are sensitive to disturbance. Therefore, many inland areas are not ideal nesting sites. 2014 survey results indicate that at least some black ducks are breeding away from the coast. The breeding black duck estimate in Connecticut was 910 pairs, representing a 242% increase from 2013 and a 170% increase from the five-year average. This large fluctuation in estimates is due to the low number of pairs that are detected in the state. The black duck drake index was 0.36.

Because of the long, cold winter of 2013-2014, all of the marshes along the coast were frozen for a significant time period. Winter conditions similar to what the state experienced in January and February can often lead to die-offs of waterfowl. In 2008-2009, when weather conditions were similar to this past winter, the Division was conducting a wintering black duck study and many of the ducks with transmitters perished due to starvation. In contrast, results from the 2014 survey indicate that despite the cold winter, resident ducks seemed to fare okay. Many of the ducks that winter in our state, however, breed farther north. It will be of interest to see what the breeding surveys in areas to the north indicate.



The Shy and Reclusive Wood Thrush

Article and photography by Paul Fusco, DEEP Wildlife Division

Many species of neotropical migrants get the attention of avian conservation managers. One species that probably gets the most attention, and is at the forefront of migratory songbird conservation, is the wood thrush. This bird breeds throughout the woodlands of eastern North America. It has a flutelike song that is familiar to many people. The *ee-o-lay* song is noted for its stunning clarity and beauty. The wood thrush's widespread breeding distribution is indicative of a common bird with a high likelihood of being seen or heard by many people.

As the wood thrush has become the "poster bird" of neotropical bird conservation, it also has been a bird engrossed in a serious population decline. Its eastern forest breeding habitat has been undergoing fragmentation and is gradually disappearing due to development. At the same time, its Central American wintering habitat is under siege from agricultural interests, and migration path habitats



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Wood thrushes are most successful in large continuous forest blocks. Habitat fragmentation and degradation are their biggest threats.

are being degraded and lost to development.

Description

Wood thrushes are small, plump members of the thrush family. They are smaller than a robin and slightly larger than a bluebird. Their rusty brown back is brighter about the head and nape.

They have a white underside that is heavily marked with round black spots on the breast and flanks. The legs are pink, and they have a bold, white eye ring.

Often heard in the stillness of twilight, the wood thrush song is loud, yet it has a soft quality and fluid tonal range that is the essence of tranquility. The *ee-o-lay* song is often punctuated by a rapid and distinctive *pip-pip-pip-pip* call.

Habitat

Typical wood thrush habitat in this bird's breeding range is mature deciduous and mixed forests with a tall, thick understory and moist substrate. Streams and other wetlands also provide important habitat components. Wood thrushes also may be found in suburban habitats that are in close proximity to small woodlots. They sometimes can be observed raking the ground as they forage in leaf litter on the forest floor. In winter, wood thrushes are found in low elevation, moist broad-leafed forests from southern Mexico to Panama.



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Wood thrushes require a moist forest floor where they can find an abundance of invertebrate food in the leaf litter.

Behavior

Wood thrushes are somewhat reclusive. They tend to favor shaded forests, making them difficult to see at times.

The breeding season begins when a male chooses a nest site, which he advertises to a female through his song. She may accept his site or choose her own site for building the nest. Once the site is selected, the female builds a tightly woven cup nest in the fork of a sapling or shrub in the forest understory. She lays three to four unmarked pale blue eggs, which she incubates for 11 to 14 days. Young fledge after 12 to 15 days, but are fed by the adults until they are three to four weeks old. About half of wood thrush pairs successfully raise two broods per year.

The wood thrush diet is varied, consisting mostly of soil invertebrates, found in leaf litter either by raking or tossing leaves. Invertebrates consumed include beetles, flies, caterpillars, ants, spiders, millipedes, snails, and insect larvae. Fruits, such as berries from dogwoods, pokeweed, black cherry, Virginia creeper, and spicebush, also make up a large part of the thrush diet, especially in late summer and fall as the birds prepare for migration.

Conservation

Based on data and analysis from the Breeding Bird Survey of the National Audubon Society and the U.S. Geological Survey, the wood thrush population has declined by an estimated two percent per year since 1966. This factors out to be a drop of over 50% in the total population. According to survey data, some of the steepest declines have been in the Atlantic coast states and New England. The population trend in Connecticut had been close to the average, until the last 10 years when the rate of decline has increased.

Fragmented forests are a major concern for thrush conservation because when a forest loses its unbroken expansiveness, nest predation and parasitism by brown-headed cowbirds become more frequent. When occurring on a large scale, forest fragmentation has the potential of significantly reducing reproductive success throughout the wood thrush range. Wood thrushes do best in large, unbroken blocks of forest habitat.

Brown-headed cowbirds are members of the blackbird family. They were originally a bird of the prairie, but when the great eastern forests were cleared by settlers for agriculture, cowbirds expanded to the east. Cowbirds do not build a nest but rather lay their eggs in other birds' nests. The host species incubate the eggs and raise the chicks. Cowbird chicks are typically larger than the host chicks and grow faster by dominating the



Wood thrush nests are most vulnerable to predation and to cowbird parasitism in areas where forest habitat is fragmented.

nest, thus reducing the reproductive success of the host species. Cowbirds are impacting many songbird species. Not only is the wood thrush a frequent victim, but so are many species of warblers, vireos, towhees and sparrows.

Forest fragmentation and cowbird nest parasitism are not the only threats to the breeding wood thrush. Acid rain has been implicated as another threat because it leaches calcium from the soil and the invertebrate food supply. Wood thrushes require dietary calcium for proper egg formation.

Another impact in some areas is overgrazing of the forest understory by overabundant deer populations. When this occurs, little cover and fewer nest sites are left behind within the forest for the thrush. As if these threats were not enough, wood thrushes have to contend with habitat degradation and destruction on their wintering grounds, possibly forcing the birds to use lesser quality habitats which may lead to higher mortality rates.

One way for landowners to help the wood thrush is to become involved in a Forest Stewardship Program to protect forest habitat. Minimizing forest fragmentation and edge habitat will help the thrush. When forest cuts are done, selective logging, rather than clearcuts will lessen the impact for the wood thrush. Rotation times may need to be lengthened to permit the regrowth of large, mature trees.

The wood thrush is still a common bird. With good habitat stewardship, what is frequently described as one of the most beautiful of bird songs will continue to be heard well into the future.

The Perils of Migration for a Neotropical Songbird

Migration is a perilous time for songbirds. They must reach their breeding ground in an efficient amount of time to claim the best territory, avoiding all kinds of danger along the way.

Most neotropical songbirds will migrate at night, in part to avoid predators like hawks. But night flying comes with the risk of collisions with light towers, cell towers, wind turbines, guy wires, windows, high-rise buildings, and glass buildings. Bad weather can hamper migration. Fog and mist can reduce visibility, making navigation difficult or impossible. Free-roaming cats are a constant threat whenever birds become tired and stop to rest and feed. Safe stopover sites are imperative for these long-distance migrants, as is good quality habitat on breeding and wintering grounds.

Electrofishing: A Shocking Way to Sample Fish Populations

Written by Bob Jacobs, Inland Fisheries Division

It is midnight on Lake Lillinonah. The fog rolls in thick over the glass calm waters, evoking a feeling of eerie aloneness while enhancing the chill of the November night air. Suddenly, a faint humming sound catches your attention and you turn to see what appears to be two great glaring eyes penetrating the blackness. As the beast nears, the hum becomes a roar and you realize that it is not

ect to collect baseline data on largemouth bass populations. In 1986, the Division initiated a statewide lake, pond, and large river electrofishing survey, which involved sampling of all fish species and included the state's most important public lake fisheries. This became an ongoing statewide monitoring project which typically visits 40 to 60 sites a year. Since its inception, the Division has sampled over

bass. In a typical night of electrofishing, we handle hundreds and sometimes over a thousand fish.

The Division's electrofishing rigs are 18-foot jon boats with two booms protruding from the bow, much like antennae of an insect. Attached to these booms are arrays of electrodes (steel cables) which dangle into the water. For those who have a basic understanding of electric-



E. O'DONNELL, DEEP FISHERIES

DEEP Inland Fisheries Division crew night electrofishing at Mansfield Hollow Reservoir in Mansfield.

a leviathan from the deep, but perhaps an alien space ship on some mysterious reconnaissance mission. Closer inspection reveals two dark figures staring intently into the water, wielding what appears to be long spears.

Monsters? Aliens? No ... just DEEP Inland Fisheries Division biologists on a typical night of routine fish population sampling for the Statewide Lake and Pond Monitoring Project. The "monster" is one of the Division's "fleet" of four electrofishing boats. The Division began routine lake and pond electrofishing in 1980 as part of a five-year research proj-

200 sites across the state.

Electrofishing refers to any method where an electric current in the water is used to immobilize fish so they can be captured. Electrofishing is one of the only nonlethal methods that captures large numbers and a wide variety of fish species in a fairly random manner with respect to size of the fish. It is vital to any scientific study of animal populations that the animals collected represent a cross-section of the entire population. Thus, we collect fish of all sizes and ages, from tiny sunfish and shiners only half an inch long to real bruisers, such as 30-pound carp or striped

ity, the cables are the positive electrodes (or anodes), whereas the boat hull serves as the negative terminal (cathode). Two biologists stand on a platform on the bow of the boat and snatch stunned fish from the water with long handled nets, placing them into an onboard livewell. One or two more people sit on either side of the livewell in the center of the boat and process the fish, while another person drives the boat. A gas generator (the monster's roar) powers a control box, replete with an impressive array of dials and gauges, that pumps a current of up to 350 volts at 10 amps into the water. For protection against



A typical electrofishing crew is comprised of two netters, two fish processors, and a driver.

the electric field, the netters wear rain gear and rubber gloves and boots, and one stands on a “kill switch,” which stops the current when the foot is removed.

Electrofishing typically stuns fish for a minute or so. Within this time, data processors identify and measure the fish and then release them unharmed. A few scales are taken from some of the fish for age determination (fish lay down annual “rings” on their scales similar to those in the trunks of trees).

Why are fish not electrocuted by the current? Mainly because the amount of current the fish receives in water is proportional to its body surface area. A fish’s body is relatively small, so it receives very little of the total current output but just enough to disrupt its ability to swim (thus becoming “stunned”). Although the thought of hundreds of volts of current passing through water seems ominous, the rig poses little danger for curious onlookers because the electric field only extends about six feet around the boat. The current also seems to have little to no effect on other animals like turtles, crayfish, and frogs.

Our electrofishing rig is only effective in water less than eight feet deep (being mostly limited by water clarity). For this reason, boat electrofishing is typically conducted in May-June and October-

November when water temperatures are cool because most fish species are in shallow water at night during this time. Electrofishing is best conducted at night because most fish are relatively inactive after dark and are less able to avoid the gear. During daylight hours, fish tend to spook easily; not only can they see and hear the boat coming, they can also feel the electric current and flee long before it is strong enough to affect them. At night, most fish species spend a lot of time lying motionless on the bottom in a kind of half sleep, so they are fairly oblivious to our approach. That we conduct our sampling at night is sometimes alarming to lakeside residents who do not know what those mysterious lights on the water might be. Believe me, we would much rather work in the warmth of the sunshine than in the frigid gloom of night! However, there is not much choice if we want to get the necessary data.

Anglers often ask us what was the largest bass we have ever caught. The answer to date is a 10-pounder from Beseck Lake in Middlefield. Most are surprised that we have not caught a larger one, but it must be remembered that bass over six pounds are relatively rare and bass over eight pounds are extremely rare in any lake. In Connecticut lakes, a five to seven pound bass is almost always over 10 years old. They

grow slowly after age 10 and only live a maximum of 12 to 15 years.

Lake monitoring via electrofishing yields important information on fish species distribution, abundance, growth rates, spawning success, and mortality rates (the proportion of fish in a population that die each year either by fishing or natural causes). The Inland Fisheries Lake and Pond Monitoring Program samples lakes for several reasons. It documents long-term changes in fish populations that may be influenced by climate change, watershed development, or

other factors. At some lakes, electrofishing data help determine the effects of human activities, such as winter lake drawdown, weed control, and lake dredging, as well as the impacts of introduced species, such as alewives or zebra mussels, on fish populations. Electrofishing data are also used to make lake-specific management recommendations for fish populations (such as special length limits) and to assess how well those management strategies are working.

The main purpose of the lake and pond sampling program is to fulfill the Division’s mission statement, which includes protecting aquatic environments and providing the best fishing possible to Connecticut anglers. So, if you should happen to see a bright and noisy boat prowling the waters of your favorite lake one spring night, please do not throw stones . . . it is just your friendly neighborhood fish biologists dauntlessly working toward a better understanding and management of our state’s fish resources.

Any questions or comments concerning this article or warmwater fish management in Connecticut can be directed to the DEEP Eastern District Headquarters, 209 Hebron Rd., Marlborough, CT 06447. Phone: 860-295-9524. Email: Robert.Jacobs@ct.gov.



Crossbows -- Expanding Opportunities for Hunters

Written by Andrew LaBonte, DEEP Wildlife Division

Crossbows are believed to have existed for more than 2,000 years, and most likely were developed in Asia or Europe. Early crossbows were used by noble sportsmen, as well as by the military, until they were replaced by the longbow, which was capable of releasing arrows more rapidly during combat. Crossbows were heavy and cumbersome.

Modern day crossbows have technological advances, such as self-cranking cocking mechanisms, carbon fiber limbs, and adjustable scopes, making them more precise, accurate, safer, and easier to use than early crossbows. In many states, the modern day crossbow has been permitted as a replacement to the bow for use during archery hunting seasons by individuals with a physical disability. The crossbow is popular with this demographic because once the crossbow is drawn, the string is held in place by a mechanism,

unlike a traditional bow. The crossbow also has gained increased popularity as a hunting tool throughout the United States, especially for use in urban areas where discharge ordinances often prevent firearms hunting, making it an effective option from the urban deer management perspective. Other additional benefits of using crossbows can be increased hunter recruitment and retention in the form of participation from youths and women who may have difficulty drawing a regular bow, and increased participation from aging hunters who have various physical limitations that make them incapable of using a standard compound bow.

Since 1993, crossbows have been permitted in Connecticut for physically disabled hunters. However, up until 2008, hunters were required to go through a formal interview process to acquire a special crossbow permit. In 2009, that

application process was simplified to just requiring an application and physician's certification. Also in 2009, crossbows were permitted as a management tool in specific urban deer management zones (zones 11 and 12) during the January archery season only. The percentage of deer harvested with crossbows has steadily risen due to the use of the implement during the January season.

In 2013, crossbows were legalized statewide for use during the entire archery deer season. Interestingly, the percentage of deer harvested with crossbows the first year they were legalized statewide was 28%, the same as the first year crossbows were legalized for hunting in deer management zones 11 and 12 during the January season.

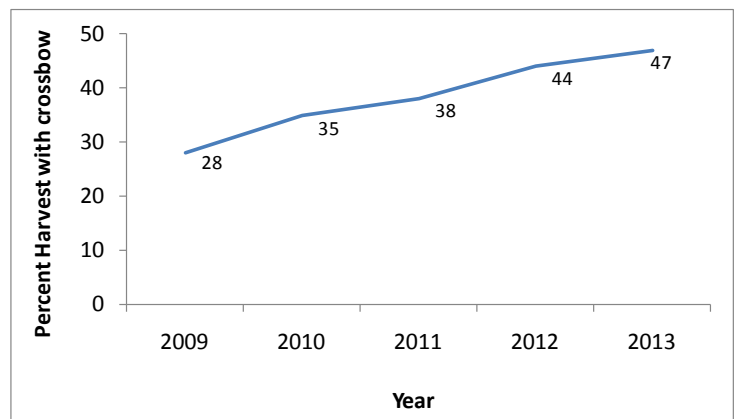
Over the past four years, two percent of all archery permits were purchased by women, two to four percent by youths

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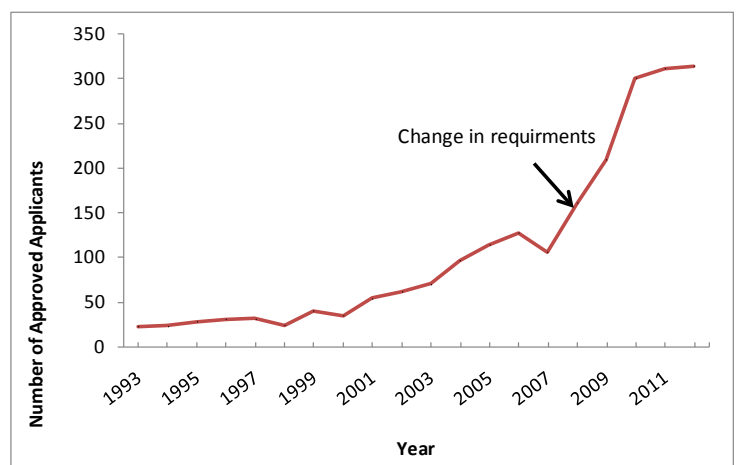


The benefits of using crossbows can be increased hunter recruitment and retention in the form of participation from youths and women who may have difficulty drawing a regular bow.

January Archery Deer Season



Disabled Hunters Seeking Crossbow Permits



18 and under, and 18-21% by individuals 60 and over. Now that crossbows can be used during the entire archery season, it is expected that permit issuance to those particular hunting groups will increase. From 2012 to 2013, permit sales to women increased 33%. Sales also increased by 130% for hunters age 15 and under and by 44% for hunters between 16-18 years of age. There is no way to say with certainty, but the legalization of crossbows may explain some of the increase in permit sales to these groups of individuals.

In 2012, no hunters 18 years and under harvested a deer with a crossbow. However, when crossbows became legal statewide in 2013, 17% of the deer

harvested by that group of hunters were with a crossbow. Hunters between the ages of 19-59 harvested 10% of deer with a special crossbow permit in 2012 and 26% in 2013 when they became legal for everyone to use. Hunters 60 years and older harvested 40% of deer with a special crossbow permit in 2012 and 57% in 2013. Of women who harvested a deer in 2012, six percent did so with a special crossbow permit, while 22% harvested a deer with a crossbow in 2013 (38% of those were 15 years of age or younger).

Becoming proficient with a crossbow requires much less time than it does with a compound bow. Therefore, more archery hunters may switch to the crossbow, and hunters who have only hunted

with firearms may give the crossbow a try. A further assessment of crossbow use will be made in the future as more and more hunters become aware of the recent regulation change.

Legal crossbows must have a minimum draw weight of 125 pounds and a permanent fixed rifle stock with a functional mechanical safety device. The bolt length must be at least 18 inches, excluding broadhead. Crossbows are considered loaded when fully drawn with a bolt in place. Telescopic sights are permitted. Additional details about the use of crossbows can be found in the current Connecticut Hunting and Trapping Guide at www.ct.gov/deep/hunting.



Annual Wood Duck Nest Box Checks Completed

Written by Kelly Kubik, DEEP Wildlife Division

Each winter, DEEP staff and volunteers conduct wood duck nest box checks and maintenance at over 100 sites throughout Connecticut. Currently, the Wildlife Division maintains approximately 500 wood duck boxes on various state properties. Attempting to check this many boxes by kayak would be practically impossible, so most of the checks occur during winter after safe ice forms. This allows access to the majority of the boxes by foot rather than trying to paddle through thick vegetation, over downed trees, or across mudflats during other times of the year. This past winter, conditions were ideal for the formation of safe ice as bitterly cold temperatures persisted throughout the season.

The nest boxes at each site were thoroughly inspected and cleaned, and then new nesting material was added. The contents of each box were examined to determine what species of duck used it. The number of membranes, whole eggs, broken eggs, or dead chicks were tallied. Box condition also was assessed and recorded. Any other observations regarding each box were noted, as well.

A total of 428 boxes were checked at 122 sites this past winter. Overall duck use was 59%. Wood ducks were found to be the dominant duck species using boxes in eastern Connecticut, while hooded mergansers were the most prevalent duck species that used



boxes in western Connecticut. Thirty two percent of the boxes were successful, producing 976 ducklings.

A seasonal employee was hired this past winter using Connecticut Duck Stamp funds to conduct an assessment of all wood duck boxes located on state properties in the western district (area west of the Connecticut River). The Wildlife Division was able to devise a complete mapping system for all of the boxes from this assessment. This will facilitate future box checks in the western district. The employee

also assisted with statewide box checks, installation, maintenance, and construction.

Installing and maintaining wood duck boxes is a fun activity that can help bolster wood duck populations in your local area. For more information about constructing, installing, or monitoring wood duck nest boxes, please contact Kelly Kubik of the Wildlife Division at kelly.kubik@ct.gov or 860-642-7239.



New Insights into Connecticut's Woodland Owners

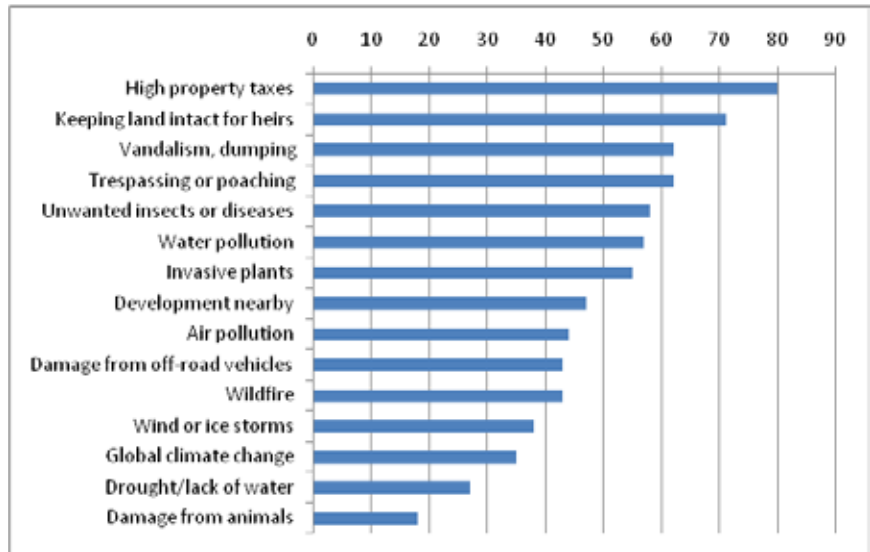
Written by Mary Tyrrell, Yale School of Forestry & Environmental Studies

Half of Connecticut's forestland is loved, cared for, and yes, owned, by families. They have a strong conservation ethic, wanting to protect their woods and keep them healthy and intact for their families, their communities, and the good of Connecticut's environment. Research conducted by the Yale School of Forestry & Environmental Studies and the U.S. Forest Service Family Forest Research Center shows that these woodland owners love the beauty and scenery of their land, and highly value biological diversity, nature, and wildlife. Ninety-one percent say that protecting nature or biodiversity is an important reason for owning their property; 60% say the same for wildlife habitat. But, it is not just their own self-interest at play – they are well aware of the values of an intact forested landscape. A resounding 80% agree that keeping their land intact benefits the community and improves the environment. Despite this high conservation ethos, awareness of programs that could improve biodiversity and wildlife habitat on their property is extremely low. Opportunity abounds to engage these stewardship-minded folks in more active management for the things they care about: conservation values.

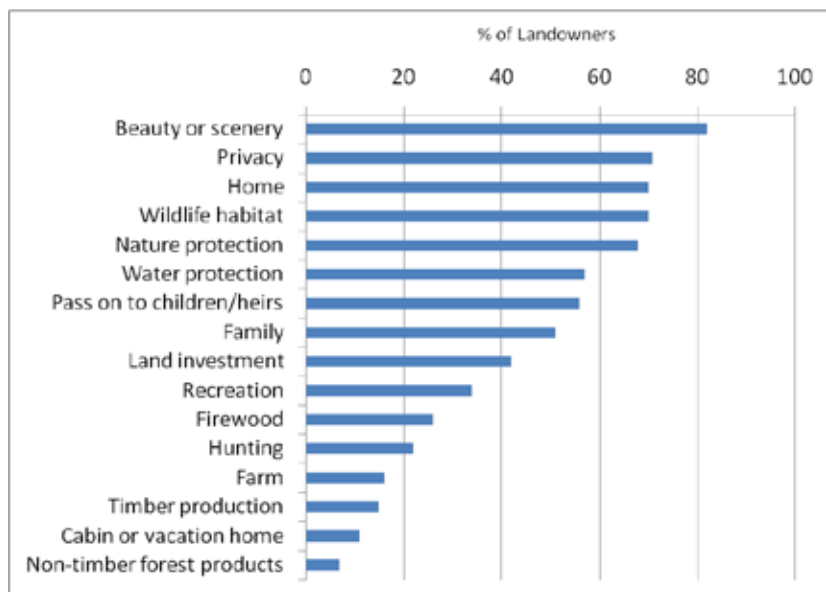
It should come as no surprise to those who love the outdoors that recreation is a big deal with landowners. Hiking/walking is the most common activity, followed by hunting. Many woodland owners are actively building or maintaining trails on their land and more than half cut their own firewood. The way to engage these owners in more active management and conservation is to develop and promote programs that meet their needs and address their concerns about the long-term security and health of their property. The research shows that their biggest concerns are property taxes, keeping land intact for future generations, vandalism and trespassing, followed closely by invasive plants and insects. When asked what would be helpful (in addition to more favorable tax policies), advice on caring for their property, invasive plants, insects, diseases, and wildlife management are at the top of the list.

Funding for this study was provided through a USDA Forest Service Competitive Grant in cooperation with The Sustaining Family Forests Initiative and USDA Forest Service National Woodland Owner Survey.

Percentage of landowners owning 10 or more acres who indicated as important or very important concern about their woodland.



Percentage of landowners owning 10 or more acres who indicated as important or very important reason for owning their woodland.



Percentage of landowners owning 10 or more acres of woodland who say that advice on these topics would be helpful or very helpful.

More favorable tax policies	68%	Wildlife habitat	42%
Caring for your property	52%	Cost sharing for woodland mgmt.	33%
Invasive plants	51%	Payments for ecosystem services	32%
Insects and diseases	49%	Stronger timber markets	19%
Woodland management	47%	Selling/giving away development rights	19%
How to transfer land to the next generation	42%		

Source: National Woodland Owner Survey for Connecticut, 2011.

Dusky Salamander

Desmognathus fuscus

Background and Range

The northern dusky salamander is in the lungless salamander family (Plethodontidae). This species was historically distributed widely in streams, springs, and seepage areas throughout Connecticut. However, it has become scarce in more developed areas of the state, especially in Fairfield, New Haven, and Hartford Counties.

The northern dusky salamander ranges from south Quebec and southern New Brunswick, down the Appalachians to its southernmost point in mid-South Carolina. Its western extent reaches east Indiana and the eastern half of Kentucky. In Connecticut, it is found statewide but only sparsely in New London and Fairfield counties.

Description

This stout, medium-sized salamander exhibits variable brown coloration with mottling, and a translucent belly that has “salt and pepper” patterning. The tail is flattened laterally, with a knife-like top edge. A small white line runs from the jaw to the eye, and a groove goes from each nostril to the jaw edge. Hind legs are noticeably larger than forelimbs.

Younger individuals have a greater range in color from olive to chestnut to dark tan. Larvae possess a few pairs of yellowish spots bordered with a dark, wavy lateral line that goes along the back. Larvae can be confused with the larger two-lined salamander; however, the two-lined has less pronounced rear limbs.

Habitat and Diet

The northern dusky is usually found in or near freshwater, such as streams, springs, and/or areas with seepage. These sites tend to be associated with closed canopy deciduous or coniferous forests. Much of the aquatic portions of habitat have soft substrates. The salamanders usually use rocks, logs, or other debris for shelter. Dusky salamanders share habitat with two other native species, the two-lined and spring salamanders.

The diet includes crustaceans, insects, spiders, worms, snails, millipedes, and other invertebrates. Dusky salamanders also may prey on other amphibian larvae.

Life History

Unlike many other salamanders, the northern dusky is a late breeder. Courtship can be quite extensive, with the male working hard to impress the female. He may rub her back, snap his body, brush against her chin, and even nibble at her, all while releasing pheromones (a chemical substance that is emitted to produce a response out of another animal) to entice



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her. Females deposit approximately 10-50 eggs in or near water and underneath organic debris from June to September. They then remain with the eggs, aggressively protecting them during the roughly 5-week incubation period. Larvae hatch with fully functioning limbs and external gills and spend about 2 weeks terrestrially near the female before taking to the water where they will overwinter. Transformation (metamorphosis) to the adult stage occurs the following spring/summer and sexual maturity occurs in 3 to 4 years.

Interesting Facts

In closed canopy, shaded areas, dusky salamanders will spend time foraging in almost any weather condition. However, in areas with direct sunlight, they will hide beneath shelter, being more active at night.

Dusky salamanders are altitude tolerant, being found from sea level to high in the Appalachians.

Conservation Concerns

The dusky salamander is an important indicator of healthy streams, springs, and seeps. Conserving this species relies heavily upon protecting its habitat and preventing encroachment. The population decline observed in Connecticut is attributed to changes in stream hydrology that are a result of large increases in the amount of impervious surfaces (e.g., roads, roofs, parking lots, patios). Large areas of impervious surfaces result in increasingly rapid runoff of stormwater and increased flood frequency. The ecological result of this rapid runoff is a process known as stream scouring. Scouring radically alters a streambed choked with organic detritus, mud, and fallen logs, which is the favored habitat of the dusky salamander, to a rocky streambed flushed clean of organic material.

Did You Know? There are more than 600 species of salamanders worldwide; nearly half of those species are threatened with extinction.

Spring Salamander

Gyrinophilus p. porphyriticus

Background and Range

The northern spring salamander is a brightly-colored member of the lungless salamander family (Plethodontidae). True to its name, it resides in cool water springs and streams, making it an excellent indicator of a clean, well-oxygenated water source.

Due to its strict habitat and clean water requirements, it is only found in a handful of locations within Connecticut. The Central Connecticut Lowlands divide this amphibian's range into distinct populations. Litchfield and Hartford Counties support the greatest populations of spring salamanders. This salamander is listed as a state threatened species in Connecticut.

In North America, the spring salamander occurs from extreme southeastern Canada south through New England, west to Ohio, and south down the Appalachians as far as northern Georgia and Alabama.

Description

This large, robust salamander ranges in color from salmon to reddish-brown to purplish-brown, with a translucent white underbelly. The snout appears "square" when viewed from above and the salamander has well-defined grooves near its eyes to its snout. The tail is laterally flattened with a fin-like tip. Young spring salamanders are lighter in color and have small gills. Their coloration does not have deeper reddish tints until adulthood. Total length ranges from 5 to 7.5 inches.

Habitat and Diet

Spring salamanders require very clean, cool, and well-oxygenated water. They can be found in streams, brooks, and seepage areas. Preferred habitat lies within steep, rocky hemlock forests. This species is intolerant to disturbances.

Insects, worms, spiders, crustaceans, small invertebrates, and other salamanders make up the diet of spring salamanders.

Life History

These salamanders may remain active in springs and seepage areas year round. Breeding occurs in spring, and larvae can



D. QUINN for DEEP WILDLIFE

hatch from April through June. Larvae and young salamanders share the same habitats as adults. The larval stage is estimated to last 4 years, with sexual maturity occurring after 4 to 6 years.

Interesting Facts

Some spring salamanders can be cannibalistic, eating the young of their own species. Predators include northern water-snakes and gartersnakes.

Conservation Concerns

Conserving the spring salamander relies heavily upon protecting its habitat and preventing encroachment. Habitats that may seem "ideal" could lack populations entirely due to their sensitivity. Groundwater pollution from fertilizer runoff, pesticides, road salt, and industrial chemicals can degrade the preferred cool, clean water. Damming of streams can lead to increased water temperatures and reduced oxygen levels. Intensive logging removes the forest canopy, thus increasing water temperature. Construction, agriculture, and poorly performed clear-cutting are all activities that can degrade high quality streams, produce thermal pollution, and reduce oxygen in the water.

The spring salamander is protected by Connecticut's Threatened and Endangered Species Act. Collection of individuals is strictly prohibited.

What You Can Do

Awareness and education of the life history and habits of spring and dusky salamanders are invaluable tools for conservation. Consider the preservation of important spring and seepage habitat types. Not only are the salamanders important, but their presence indicates a healthy wetland.

If you happen to find a spring or dusky salamander, admire it from a distance and then let it be. These species are sensitive to disturbances. If you lift any rocks while searching through springs and seepages, remember to place them back exactly how they were. Salamanders should never be collected from the wild. Report any observations of spring and dusky salamanders to the DEEP Wildlife Division at 860-675-8130 or deep.wildlife@ct.gov.

Avoid the use of fertilizers, herbicides, and insecticides in your yard. If you need to use these products, purchase ones that are natural and organic.

Additional information about salamanders is available on the DEEP website at www.ct.gov/deep/salamanders.

Northern Shovelers to Be Featured on 2015 CT Duck Stamp

In an extremely close contest, a panel of judges selected wildlife artist Guy Crittenden's depiction of three northern shovelers as the winner of DEEP's 2014-2015 Connecticut Migratory Bird Conservation (Duck) Stamp Art Contest. Mr. Crittenden's painting was chosen out of 15 entries submitted by artists from across the country, including three from Connecticut. Paintings were judged in five categories: originality, artistic composition, anatomical correctness, general rendering, and suitability for reproduction. Mr. Crittenden's painting will be the image for the 2015 Connecticut Duck Stamp. A pair of gadwall painted by Broderick Crawford was voted a close second; a painting of a pair of northern pintail by Jeffrey Klinefelter placed third. The top three paintings will be on display through the end of August 2014 at the DEEP Wildlife Division's Sessions Woods Conservation Education Center in Burlington. Sessions Woods is located at 341 Milford Street in Burlington, and is open to the public on Mondays through Fridays from 8:30 AM to 4:00 PM.

Do your part for conservation. Buy a Connecticut Duck Stamp and contribute to habitat protection and restoration.

Guy Crittenden is an artist and professional photographer whose studio is located in Richmond, Virginia. He prefers to work in oils and his subjects are best described as landscapes, wildlife, and sporting scenes. Mr. Crittenden's paintings have placed in several state and federal Duck Stamp competitions. His painting of a pair of canvasbacks placed second in Connecticut's Duck Stamp competition in 2012, and he was recently announced the winner of this year's Virginia Duck Stamp competition. More information about winning artist Guy Crittenden can be found on his website at www.crittendenstudio.com.

The Connecticut Duck Stamp Program has generated over \$1.2 million for the enhancement of wetland and associated upland habitats, as well as garnered additional monies for Connecticut through matching grants from federal conservation initiatives.

Hunters are not the only ones who



First place winner of the Connecticut Duck Stamp Contest: Northern Shovelers painted by Guy Crittenden.

can purchase Connecticut Duck Stamps. Anyone who wishes to support wetland conservation and restoration in our state should buy a Duck Stamp. Stamps can be purchased for \$13 each wherever hunting and fishing licenses are sold: participating town clerks, participating retail agents, DEEP License and Revenue (79 Elm Street in Hartford), and through the online Sportsmen's Licensing System (www.ct.gov/deep/sportsmenlicensing). Upon request, stamps can be sent through the mail. To learn more about the Connecticut Duck Stamp and the Art Contest, visit www.ct.gov/deep/ctduckstamp.

Reproduction prints of the winning Duck Stamps that are signed by the artists and suitable for framing and display are also available. Please contact the Wildlife Division's Migratory Bird Program at 860-642-7239 for more information on purchasing reproductions.



Second Place: Pair of gadwall by Broderick Crawford.



Third Place: Pair of northern pintail by Jeffrey Klinefelter.



Report Spotted Turtle Observations

The DEEP needs your help in documenting observations of spotted turtles. The spotted turtle is not a state-listed species but is recognized by experts as declining in Connecticut. This small turtle (approximately 4.5 inches in length) is characterized by a smooth, bluish-black carapace (top shell) with yellow-orange spots. It is sometimes referred to as the “polka-dot turtle,” as the number of spots can range from a single dot to multiple dots per scute (scale). The plastron (bottom shell) is yellowish-tan with dark markings. The sides of the head and chin are often marked with reddish-orange to yellow blotches, and the forearms may also be bright orange. Males are distinguished by a tan chin, brown eyes, concave plastron, and a longer, thicker tail. Females have a more domed shell, yellow chin, and orange eyes.



Spotted turtles are found throughout the Connecticut lowlands, close to slow-moving bodies of water. They use shallow water bodies, including bogs, pond edges, ditches, marshes, fens, vernal pools, red maple swamps, and slow-moving streams. Water bodies with a soft, murky bottom and abundant aquatic vegetation are preferred. These turtles are active only during daylight hours, and spend the night under water on the pond bottom. They are often seen basking on logs or rocks during spring and summer, but may retreat to an aquatic or terrestrial spot (under the leaf litter) when there is intense heat.

Anyone who observes a spotted turtle is asked to submit an official DEEP Special Vertebrate Survey Form, which can be downloaded from the DEEP website at www.ct.gov/deep/cwp/view.asp?a=2702&q=323460&deepNav_GID=1628. DEEP is especially interested in the location, date of observation, and photographs of the turtle. Questions can be directed to the Wildlife Division’s Sessions Woods office at 860-675-8130.

Banded Plover Observed in Connecticut

An article in the March/April 2014 issue of *Connecticut Wildlife* asked for readers’ help in reporting sightings of piping plovers with leg bands. Colored leg bands were placed on plovers by researchers from Environment Canada and Virginia Tech as part of an effort to determine where the plovers spend their summers, where they migrate for the winter, and where they stop to rest in between. Sighting reports from the public, biologists, and birdwatchers are crucial in collecting this information.

A banded plover has been observed nesting at one of Connecticut’s coastal beaches this year. The

location and banding pattern was sent to researchers at Virginia Tech, who identified the bird as being banded by them on the coast of South Carolina in September 2013.

The Connecticut Wildlife Division is currently monitoring the nesting activities of this banded plover and will provide details about nesting success to Virginia Tech at the end of the nesting season.

Salamander Day, July 20, from 1:00-4:00 PM

Celebrate the Year of the Salamander with the DEEP Wildlife Division and the Friends of Sessions Woods at the Sessions Woods Conservation Education Center (341 Milford Street in Burlington). Families and anyone interested in salamanders are invited to attend Salamander Day, which will feature themed crafts, informative talks, and live salamanders. View artwork from the Salamander Art Contest for Kids. Best of all, it is all FREE! Pre-registration is requested, but not required. Call the Sessions Woods office at 860-675-8130 (Monday-Friday, from 8:30 AM-4:30 PM) with any questions or to pre-register.

2014 marks the bicentennial for the completion of Alexander Wilson’s nine-volume series, *American Ornithology*. *American Ornithology* represents the first major scientific publication out of the newborn United States and stands today as the foundational text of American ornithology (study of birds). For his work, Alexander Wilson is known as the Father of American Ornithology.

Wilson was born in Scotland in 1766 and began working as a weaver in 1779. During this time of political and social unrest in Scotland, Wilson began writing poetry to comment on and criticize a variety of current events, including poor working conditions. His most famous poem exposed the exploitation of weavers by employers, causing him a mess of legal trouble. Spending more time writing than weaving, and drowning under a tide of legal fees, Wilson fell into a life of poverty and left Scotland for America in 1794. After settling as a teacher in Philadelphia, Wilson met famous American naturalist William Bartram. Bartram reignited Wilson’s childhood infatuation with birds and encouraged him to embark on a mission to comprehensively identify and illustrate America’s birds.

From 1804-1814, Wilson travelled tirelessly, traversing over 10,000 miles of rugged terrain, by boat or on foot and often alone. During his travels, Wilson identified, described, and drew by hand over 260 species of birds, 48 of which had not been previously described. The former poet turned ornithologist excelled as an illustrator, spending nighttime hours hand engraving and coloring the pages of his masterpiece. Wilson’s role as America’s ornithologist did not end with his epic birdwatching adventure. As a devoted marketer and sales person, Wilson trekked thousands of miles to sell subscriptions to his nine-volume series. Unfortunately, Wilson did not live to see the completion of his series. He died in 1813 of dysentery and exhaustion. The final volume of *American Ornithology* was published posthumously in 1814.

Iconic ornithologist John J. Audubon overshadows Wilson’s place in history for his publication *Birds of America*, a series of 435 vivid, life-size paintings of birds. Audubon’s *Birds of America* was published 20 years after *American Ornithology* and serves as a building block on the foundation laid by Alexander Wilson. In celebration of the 200-year anniversary of the trail-blazing efforts of Alexander Wilson, keep an eye out for his namesake birds, such as Wilson’s storm petrel, which may make an appearance on Connecticut’s shoreline this summer.

Written by William Conway, DEEP Wildlife Division Seasonal Resource Assistant

P. J. FUSCO (2)



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Conservation Calendar

- May-August Respect fenced and posted shorebird and waterbird nesting areas when visiting the Connecticut coastline and also when viewing fireworks displays near these areas. Keep dogs and cats off shoreline beaches to avoid disturbing nesting birds. Herons and egrets are nesting on offshore islands in Long Island Sound. Refrain from visiting these areas during the nesting season.
- June 22-28 **National Mosquito Control Awareness Week** – Go to www.mosquito.org for more information. Visit Connecticut's mosquito webpage at www.ct.gov/mosquito to learn more about mosquitoes and West Nile virus.

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.

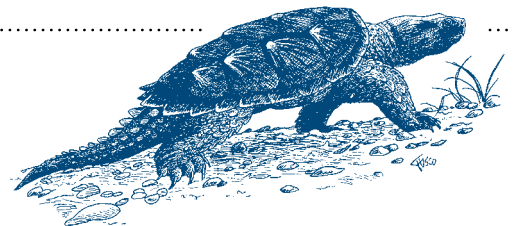
- July 16 **Butterfly Walk**, starting at 10:00 AM. Visit the flowers and fields at Sessions Woods to identify the local butterfly fauna with Wildlife Division Natural Resources Educator Laura Rogers-Castro. Participants will learn the basics to butterfly identification, including tips on distinguishing the various butterfly families. This program will begin in the classroom area located in the exhibit room of the Education Center.
- July 20 **Salamander Day**, from 1:00-4:00 PM. The DEEP Wildlife Division and the Friends of Sessions Woods are sponsoring a special day to celebrate salamanders. Families and anyone interested in salamanders are invited to attend Salamander Day, which will feature themed crafts, informative talks, and live salamanders. View artwork from the Salamander Art Contest for Kids. Best of all, it is FREE!
- August 13 **Survivor Skills**, starting at 10:00 AM. Wildlife Division Outreach Program Assistant Hillary Clifton will present a program for children, ages 10 years and older, on tips and skills for surviving in the outdoors. Hillary will introduce participants to map reading and orienteering; how to pack a backpack; and more! Each participant will make a mini-survival kit to take home. Be sure to register early for this "back by popular demand" program. All children must be accompanied by an adult.
- August 19 **Beaver Marsh Evening Hike**, starting at 6:00 PM. Join Wildlife Division Natural Resource Educator Laura Rogers-Castro on an evening walk to the beaver marsh at Sessions Woods. Learn about beavers and other marsh creatures as we explore this beautiful and serene location in the wildlife management area. Dress appropriately and bring water for the two-mile roundtrip trek.
- September 13 **Stream and Marsh Exploration**, starting at 10:00 AM. Explore the streams and beaver marsh at Sessions Woods with Wildlife Division Outreach Program Assistant Hillary Clifton. Hillary will introduce participants to the creatures, including salamanders, discovered in a freshwater stream. Then, the group will walk to the marsh to identify the wildlife found in this unique habitat. The hike will total over 2 miles roundtrip. Please bring water and wear appropriate shoes as there is a possibility of getting wet feet!

Summer is the best time to sign up for a Conservation Education/Firearms Safety class. Plan ahead before the hunting seasons start. Regularly check the DEEP website at www.ct.gov/deep/hunting to find out about upcoming classes.



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Piping plover chicks blend in to their beach habitat and are difficult to see, so keep an eye out for these small birds running across the sand and give them plenty of space when visiting coastal beaches.