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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

by Christopher Martin,
Director, DEEP Division of Forestry

As we continue to celebrate and reflect on 150 years of natural resource conservation in Connecticut, it is appropriate to recall the miraculous recovery of our trees and woodlands that today comprise approximately 60% of Connecticut's landscape. One should not assume the woodlands are sustainable without purposeful and responsible stewardship. This certainly was the conclusion in 1884 when the General Assembly passed a resolution instructing the State Board of Agriculture to investigate and report: 1) whether any legislation was necessary or practicable to prevent the destruction of forests; 2) whether any legislation was desirable to encourage the planting of forests; and 3) whether any plan could be devised in cooperation with Massachusetts, Vermont, and New Hampshire for the protection of forests located near the sources of streams flowing into and through Connecticut. At that time, only 30% of Connecticut contained woodlands as most were actively cut over numerous times for charcoal to feed the iron ore industry. Additionally, uncontrolled wildfires caused mostly by faulty railroads and careless land-use practices consumed tens of thousands of acres annually.

In 1901, with considerable advocacy from the Connecticut Forestry Association, now the Connecticut Forest and Park Association, the General Assembly created a State Forester position within the Connecticut Agricultural Experiment Station. On January 23, 1903, State Forester Walter Mulford acquired 70 acres of brushland in Portland and declared it Portland State Forest – the first state forest in New England and the second state forest in the nation.

Fast forward to today where the Division of Forestry sustains this statewide forest stewardship mission by 1) encouraging private landowners to practice responsible long-term woodland management (private landowners own 73% of Connecticut's forests); 2) protecting the state's forest resources from the effects of fire, insects, disease, and misuse; 3) providing accurate and timely information about Connecticut's forest resources; 4) certifying forest practitioners, thus ensuring the men and women providing woodland services to state residents are fully qualified and competent; 5) managing over 170,000 acres of state forests, in which exist many large blocks of unfragmented forest land critical to some of Connecticut's most imperiled wildlife; 6) engaging municipalities and citizens alike to improve the resiliency of urban and suburban woodlands and trees in the face of changing climatic influences; and 7) raising public awareness of Connecticut's sustainable forest industry.

However, it must be recognized that the success of the Division of Forestry accomplishing its mission is wholly dependent on collaboration, cooperation, and coordination with numerous partners, including other state and federal agencies, non-profit conservation organizations, municipal leaders, and regional planners.

Connecticut woodlands and trees filter the air we breathe, safeguard our drinking water sources, provide essential wildlife habitat, and contribute to livable cities and neighborhoods, In addition to these societal benefits, many are surprised by the economic contribution these same woods also provide. A recent analysis of Connecticut's forest-based businesses and recreation revealed a $3.3 billion annual contribution to the state's economy – most of which are associated with the production and sales of hardwood flooring,

continued on page 22

Cover:

Despite this year's low water, trout fishing on the Farmington River remains a popular recreational activity.

Photo by Paul J. Fusco

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The Federal Aid in Wildlife Restoration Program was initiated by sportsmen and conservationists to provide states with funding for wildlife management and research programs, habitat acquisition, wildlife management area development, and hunter education programs. Connecticut Wildlife *contains articles reporting on Wildlife Division projects funded entirely or in part with federal aid monies.*

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A Different Approach to Marsh Management

In the 1930s, the effects of mosquito ditching in salt marshes became a great concern for shorebird and waterfowl habitat:

1936: "*There appears to be little hope for any substantial increase in shore birds. The salt marshes which they formerly frequented in great numbers, have been so thoroughly drained in a popular effort to control mosquitoes, that the environment that they require has been largely destroyed. The drainage has also effected the supply of waterfowl by destroying aquatic and other vegetation upon which they depend for food.*" (Report of the State Board of Fisheries and Game)

Mosquito control practices began after the Civil War as returning soldiers brought malaria into Connecticut. By 1950, 90% of the tidal wetlands from Maine to Virginia (including the marshes of Long Island Sound) were ditched or filled to eliminate mosquito breeding sites in order to prevent transmission of the parasitic protozoan that caused malaria by *Anopheles* mosquitoes. These practices continued in an effort to control nuisance mosquitoes that originated in tidal wetlands as well. Habitat managers would even use dynamite explosions to create open water areas to provide habitat for waterfowl (see photograph on back cover). At this time in history, the biological effects of mosquito ditching and marsh blasting on wetland habitat and wildlife were poorly understood.

Fortunately, these practices are in the past. The current Wetland Habitat and Mosquito Management (WHAMM) Program uses an integrated approach to restore wetlands and manage mosquitoes that includes larval and adult mosquito population monitoring, public education, and cultural, biological, and chemical control methods. Specialized, low impact equipment is used to modify water flow, remove invasive plants, enhance native plant and animal diversity, and improve the overall habitat quality. The WHAMM Program uses a method called Open Marsh Water Management (OMWM), which rejuvenates the overall health of salt water marshes by improving the natural flushing of water and nutrients between marshes and adjacent bays. Unlike the parallel grid-ditch method used in the 1930s, which had adverse effects on tidal wetland hydrology and habitat, OMWM involves the selective excavation of shallow pools and ditches in mosquito-breeding areas. These pool and ditch networks are not connected directly to tidal channels and, therefore, do not drain at low tide. A higher water level is maintained in the pools, providing habitat for fish, waterfowl, shorebirds, and other wildlife, and encouraging revegetation of the surrounding marsh by native grasses.

Mosquito management is achieved by modifying egg-laying sites to be unsuitable for mosquito egg and larval development and by creating open water habitat for small naturally-abundant killifish, which prey on mosquito larvae and pupae. This method provides more permanent control of mosquitoes than insecticides, resulting in a substantial reduction in insecticide applications and costs.

Today, we have a better understanding of the benefits of saltwater marshes, wetlands, and the wildlife that live there. Healthy wetlands provide nursery grounds, food, and shelter to a wide diversity of wildlife, filter water, and offer flood protection to humans. With a better understanding of wetland ecosystems and improved technology, the WHAMM program can achieve its goal of controlling mosquito populations while improving our vital wetland habitats.

DEEP PHOTO ARCHIVES

These early wildlife habitat managers from the 1930s created open water areas in marshland at Great Island in Old Lyme and other marsh areas by using dynamite (see photo on back cover).

R. WOLFE, DEEP WILDLIFE DIVISION WHAMM PROGRAM

A low ground pressure (less than three pounds per square inch) excavator is used on soft marsh soils to create shallow pools and channels to enhance fish and water bird habitat and control mosquitoes.

R. WOLFE, DEEP WILDLIFE DIVISION WHAMM PROGRAM

An open marsh water management system on the Roger Tory Peterson Wildlife Management Area in Old Lyme draws in dozens of great and snowy egrets, shorebirds, and waterfowl.

Learn more about wetland habitat and mosquito management at www.ct.gov/mosquito.

110 Years of Connecticut Hunting Licenses

Article and photography by Bill Myers, retired State Conservation Officer and Curator of the Connecticut Conservation Officer's Association Archives.

Connecticut's "Online Sportsmen Licensing System" is a popular website where hunters, anglers, and boaters can purchase and print required licenses and certificates right from their home. This modern convenience, however, conceals a 110-year history of hunting licenses in Connecticut and has led to hunting, fishing, and trapping licenses from the past to be highly collectible, expensive, and quite historic.

(Top) 1926 hunting license with first-of-issue metal button and matching number. (Bottom) 1926 first-of-issue buttons.

1973 hunting license that reads Connecticut Department of Environmental Protection instead of Board of Fisheries and Game.

Licenses to hunt were not issued in Connecticut until 1906-1907. They were small, printed on heavy paper stock, and measured 4.5 inches long by 2.5 inches wide. This style continued through 1925. In 1926, the paper licenses began to be issued with a metal "pin on" button. Game wardens had complained that they needed to physically check each individual person for a license, and thought an outer clothing display of a license would make compliance checks easier and quicker. It became law that all hunters, fisherman, and trappers **must** display their license on outer clothing at all times while engaged in the sport. This style continued from 1926 through 1940. Many different styles of buttons were issued: hunting; angling; trapping; hunting and angling; hunting and trapping; hunting, angling, and trapping; landowner; and minor trapping. There were non-resident versions for each as well. The metal button styles and colors changed from year to year. The size of the metal buttons remained the same; about 1.5 inches round with a pin and clasp for outer clothing display.

In 1941, the department changed to an aluminum square metal frame "badge," or holder. The badge was 2.5 inches long by 1.75 inches tall. It also had a pin on the rear side and a solid back that slid out, making it easy to change the license from year to year. Instructions on the rear side read, "Please bring this badge with you when applying for next year's license." This style was used until the beginning of World War II. Metal was a commodity that was needed for the war. Hence, around 1942, the Department discontinued the metal frames and developed a clear plastic holder with a cardboard backing. This license style was issued for about three to four years until the end of the war around 1946. Some overlap always occurred to use up the extra license carriers. Printed on the rear of the cardboard was "War-time license holder adopted to save metal—Win the War." These special licenses are priceless treasures in the history of the Department and the issuance of licenses.

Aluminum frames were again issued in 1947, and continued until 1956. For a period of five to six years, from about 1950 through 1956, "women's" fishing licenses were issued. In 1957, the department changed the style of licenses and began issuing small, clear plastic carriers to hold licenses. These plastic carriers still had a metal pin on the back as the law continued to require hunters, fisherman, and trappers to display the license on outer clothing at all times while engaged in the sport.

From 1957 through 1972, the licenses read "State of Connecticut Board of Fisheries and Game." Beginning in 1973, they read "State of Connecticut. The Department of Environmental Protection" after the new department was established in 1971.

Around 1990, the Department stopped issuing plastic holders, and the law changed regarding outer clothing display. For the first time since 1925, sportsmen were now allowed to simply carry the license on their person without displaying the license on outer clothing.

This style continued until 2008. In 2009, the Department began the new "Online Sportsmen Licensing System" and licenses are now printed from home computers or at various DEEP offices, town halls, and outdoor equipment vendors.

The changing license styles were driven mostly by economics. Metal buttons, and then metal frames, were expensive. Plastic then came into existence and was substantially cheaper. Eventually, the plastic holders also became too expensive with limited budgets, and were discontinued. In our present day, the State no longer prints exclusive licenses, resulting in monetary savings.

This story and more historic information related to the 150th Anniversary of the DEEP Bureau of Natural Resources can be found at *www.ct.gov/deep/NaturalResources150*.

1907 Hunters' License Law

Hunters and anglers have been at the forefront of the conservation movement for over 100 years. They show their support through the purchase of licenses and hunting and fishing equipment which help fund wildlife and fish management, habitat restoration, hunter safety and angling education, and other conservation programs. The sale of hunting licenses in 1907 became a turning point for game protection and management in Connecticut. The following excerpt from the 1907-1908 Report of the Connecticut State Board of Fisheries and Game discusses the implementation of the hunter's license law in Connecticut:

(From left to right) 1911 hunting license and 1915 hunting license.

(From left to right) 1941 first-of-issue metal framed license holder with paper insert; 1941 to 1956 license holder with attached metal pin and slide out door; and 1956 women's angling license (last year of metal frames).

(From left to right) 1945 World War II license holder with cardboard insert stating "War time license holder adopted to save metal - Win the War" and a 1945 World War II plastic hunting license holder.

"The law is based on equitable principles, and is acknowledged to be the most satisfactory law that has ever been enacted for the maintenance of a department for the protection, preservation, and propagation of game…

The great advantage of the passage of this law has resulted in furnishing reliable statistics as evidence of the numbers of persons who are benefited by the game; it assesses the cost of protecting and propagating and enforcing the laws upon the person who secures the most benefits; it has reduced the number of a certain class of irresponsible hunters; it furnishes a positive means of identifying the hunter, which exerts a restraining influence over lawless individuals; it has been the means of developing intelligent public sentiment in favor of useful birds and their protection; it has furnished the means for paying an adequate force of wardens to give the best services possible which can be developed in a body of men who are equal, if not superior, to that of any similar force in the State, who have risked their health and prolonged exposure and who have not hesitated to risk life itself, deliberately, in the performance of duty; it has furnished funds for propagating birds.

1957 new style of paper insert with plastic holder.

Under this hunters' license law every person who hunts must first procure a license from a town, city or borough clerk which license entitles him to hunt game, anywhere in the State, during the open season when game may lawfully be killed, for one year from the date of issue. The fee for a resident is $1.00 and ten cents for recording. For non-residents the fee is $10 and twenty-five cents for recording… Any bona fide resident of the State, and his lineal descendants, may hunt on his own land without a license.

…the greatest good has resulted from moral influence in the prevention of violations, in the education of the people to the value of the birds to farming interests, which necessarily effects every person living. The increase in sentiment is evidenced in many ways; it is only a few years ago that all classes of people killed game and all species of birds, whenever opportunity presented itself irrespective of lawful season, but to-day there is everywhere an improved wholesome respect for bird protection…

From the returns of the clerks of the towns, cities and boroughs, who are the authorized to issue hunters' licenses, we find that during the season of 1907 there were sold hunters' licenses as follows: 19,575 resident licenses, 220 non-resident and 16 alien, from which the revenue would be $25,574…"

EnCon Police: A Look Back at the Early Years

Photos and historical information courtesy of Bill Myers, retired State Conservation Officer and Curator of the Connecticut Conservation Officer's Association Archives

While the DEEP Bureau of Natural Resources is celebrating its 150th Anniversary this year, the Environmental Conservation (EnCon) Police Division is marking its 121st year of service in 2016. The State EnCon Police began its tradition of protecting our state's natural resources in January 1895 when the State Legislature created the Commissioner of Fisheries and Game with authorization to appoint "Special Game Protectors" that were given statewide authority to enforce fisheries and game laws. Over the years, these Special Game Protectors evolved and became Game Wardens. As the role of the Game Warden continued to evolve beyond fisheries and game enforcement, so did the title. Today, Environmental Conservation Police Officers are responsible for much more than just fish and game enforcement. They also enforce laws related to boating, recreational vehicles, criminal offenses, and motor vehicles. Plus, they participate in several public safety, wildlife management, and homeland security initiatives. Take a look at Connecticut EnCon Police Officers over the years.

In spring 1966, Conservation Officers Frederick Pogmore and Fred Stula spent the day assisting young anglers from the Newington Hospital for disabled children with everything from tying knots, tending to fishing hooks, and untangling fishing line. For many of these children, this was their only opportunity to enjoy the outdoors. Today, you can still see the same level of dedication from EnCon Police Officers in the field as they promote outdoor recreation among our youth.

Connecticut Game Warden Seth Monroe checking a fisherman circa 1936.

This photo was taken in 1974 before regulated deer hunting seasons were established in Connecticut. This illegal nine-point buck and confiscated carbine rifle are shown following an illegal deer hunting arrest in Ridgefield.

NOTE: Conservation Officer James R. Jones (right) is wearing a .38 Colt revolver with a reverse "cross-draw" style holster. The mandatory wearing of handguns at all times was instituted in this time period.

The Deer Management Act was passed in 1974 by the State Legislature, establishing regulations to manage deer based on science. Connecticut held its first regulated deer hunting season in 1975.

Fishing at Diana's Pool in Chaplin

This photograph from April 12, 1941, provides a glimpse at what a very popular area looked like 75 years ago – Diana's Pool in Chaplin. Game Warden George A. Willis Sr. checks two unidentified women enjoying a day of fishing on the banks of the Natchaug River at Diana's Pool. Fast forward to the present and you will see a similar scene at Diana's Pool as EnCon Police Officers frequent the area to check anglers and ensure that individuals are enjoying the pool in a safe and responsible manner.

Diana's Pool in Chaplin has been a summer destination for many years for people from all over the Northeast. Not only are the falls and pools the perfect place for a hike or picnic, but the area is one of the best trout fisheries in the state.

Wildlife Rescue

Conservation Officer Leighton is shown rescuing a common loon that was stranded on the black ice of State Line Pond in Stafford in 1985. Loons need open water to take off, and once this bird had landed on the ice it was unable to leave. Officer Leighton transported the loon to the Connecticut River where there was plenty of open water for the bird to take flight. More than 30 years later, EnCon Police Officers still routinely respond to calls involving trapped, injured, or stranded birds, and it can be one of the most rewarding aspects of the job.

Keeping It Classy!

(Above) State Deputy Warden Harding Joray stands ready next to his patrol vehicle in the town of Sharon in 1935. (Right) During this time, a warden's uniform consisted of a tunic, "warden's cap," white shirt, black bow tie, and leather leggings (commonly referred to as "puttees," which provided a level of support and protection for the legs). The black bow tie remained a part of the daily uniform from the turn of the century through 1936 when the new "Class A" uniform was introduced.

Horse Patrols

During the 1980s and 1990s, mounted horse patrols were used at Rocky Neck and Hammonasset Beach State Parks and other DEEP properties as needed for crowd control, special events, and public relations. This photograph shows State Park Rangers John Johnston (left) and Tim Skaats (right) on patrol at Haddam Meadows State Park. While you won't see any EnCon Police Officers patrolling on horseback nowadays, officers are still out in force to ensure that everyone can have fun and be safe in our parks.

Beautiful Cities without Trees Are Impossible . . .

Written by Chris Donnelly, Division of Forestry

The view looking east on Chapel Street in New Haven in 1886. To the left are the iconic elms of the New Haven Green, before the arrival of Dutch elm disease. To the right is the future site of the Taft Hotel, along with some early (and tall) utility poles.

COURTESY JOSEPH TAYLOR COLLECTION (Magrissoforte.com)

"Beautiful cities without trees are impossible." So begins a 1903 report published by the Connecticut Society of Civil Engineers. The purpose of this century-ago report was to discuss the state of the street trees within the City of Hartford. In it, the authors expressed deep concern about the condition of the city's trees and the kind of care those trees were receiving.

It is interesting, from our 21st century perspective, to look back at these comments. Much has changed, while much also remains the same. The upshot of this historical report was that trees along its streets were important to the city at the time; therefore, Hartford's city government needed to take control of the planting and management of those trees. The City should not leave this management up to "owners of the adjoining ground." According to the report, "All trees standing within the limit of all highways of the city of Hartford, should be planted, maintained, and controlled by the city government; and it is further resolved, that it is the opinion of this meeting that a forestry department should be created … and should be clothed with sufficient power to carry out its work after a uniform and systematic plan."

Not mentioned is that the Connecticut General Assembly passed a bill in 1901 that gave municipalities the ability to appoint a "tree warden." The tree warden as described in the 1901 law is similar to the tree warden described in recent statutes, which give "care and control" of the public's trees to the tree warden. There is one major exception – the language of the early years did not require each town to appoint a tree warden. That requirement did not come in until 1929.

From the report, it is not clear why the term "tree warden" is not mentioned. Perhaps there was some political context at that time concerning this legislation. Regardless, the document clearly supports something similar to a tree warden or city forester.

In 1910, the City of New Haven's Civic Improvement Committee issued a report, authored by no less than Cass Gilbert, architect, and Frederick Law Olmsted, landscape architect, which expressed concern about the state of that city's trees. The authors wrote, "Regardless of any natural pride that New Haven might have in justifying her name as the 'City of Elms,' there is urgent need of action if the street trees are not to fall below the standard even of the average careless American town."

This report, part of a larger report on New Haven's infrastructure, was not about making a case for a forestry department. Instead, it presented a list of issues and concerns. The authors extensively quoted the City Engineer of Hartford, F. L. Ford. Mr. Ford stated, "Overhead wires in a city are always objectionable." After discussing the dangers posed by the "heavily charged" wires, Mr. Ford went on to say, "They [wires] damage shade trees, which have to be cut to avoid any wires on the street, and if the wires are numerous the shape of the trees is often ruined."

Conflicts between trees and utility

wires were recognized in state statute at least back to 1879. An early law stated, in its entirety, "No telegraph, telephone or electric light or power company shall cause to be cut down or injured any tree growing on the highway, for the purpose of constructing or maintaining any electrical wires or fixtures of any kind without the written consent of the adjoining property owner."

It would be misleading to present this statute as if it were the only legislation regarding trees on the books at the time. For one thing, in that time period, citizens could be paid a bounty for planting shade trees along the roads of Connecticut. This might explain, in part, the deference towards the adjoining property owner. Also, a separate statute gave the first selectman authority to require a permit before a tree along a road could be removed – authority which was later transferred to the tree warden.

Still, it is interesting that these laws did not create a direct tie between the actions of the utilities regarding trees and the authority of the town – a disconnect perhaps partly responsible for the complaint of the Hartford City Engineer.

Flash forward just over 100 years. Connecticut, reeling from the devastating effects of two storms that occurred in 2011, looked to the Governor's Office for direction. In late 2011, the Governor appointed a Two Storm Panel that, in turn, recommended that the Commissioner of DEEP establish a State Vegetation Management Task Force. This Task Force was created in early 2012 and concluded its work by the fall of that year, just ahead of the arrival of yet another major storm, Sandy, in 2012.

The Task Force tackled several longstanding issues. In the years since 1901, the concept of the tree warden had taken hold, but there were still gaps in how towns implemented the statute. The Tree Wardens Association of Connecticut, formed in 1992 and keenly aware of these gaps, had long supported a requirement that tree wardens become qualified through some type of official credentialing. The creation of a tree warden qualification standard was a key recommendation of the Task Force, and was soon enacted into law.

The Task Force saw this step as necessary for bolstering support for the tree warden's authority. It also saw the need to find a balance between the towns, which have ownership of most of the public's trees, and the electric utilities, which have the responsibility for reliable, safe, and efficient electric distribution. The route to that balance passes through the tree wardens.

Perhaps most illustrative of how this worked out is the solution reached by a spin-off Task Force committee, formed to deal with the question of trees and shrubs in close proximity to the wires. The utilities initially sought a "utility exclusion zone," which would give them exclusive responsibility to control vegetation within that zone, eight feet outside of the outermost wire. After extensive debate, the committee came to a consensus. They agreed to a "utility protection zone," now defined in statute, that gives the utility the right to protect its equipment within this zone to ensure the reliability of service but that does not take away ownership rights from those who own the land below the wires, be it a municipality, the state, or a private property owner.

This may not seem like much, but it is an effort to bring things one step closer to a fully workable resolution, with all who need to be included. Is this the solution that our esteemed predecessors of 100 or more years ago would have sought? No one knows for sure – but the answer is never just in good laws, but also in cooperative agreement. We would like to think that the authors of the historical reports would have appreciated the existence of that spirit in these modern efforts. The members of the Task Force also hope our successors will recognize that spirit when they look at our efforts 100 years from now, long after we are gone.

P. J. FUSCO

Serviceberry, more commonly known as shadbush, is a small native tree that flowers in early spring, at the time of the shad runs on the Connecticut River. Serviceberry is a popular ornamental planting in many cities and towns.

Front Street in Hartford, in 1906, near Talcott Street. This neighborhood was the center of Hartford's Little Italy. This photo shows the extent to which electric wires and other overhead utilities had become fixtures of 20th century life.

COURTESY CONNECTICUT HISTORICAL SOCIETY

Project Thunderbass: Improving Bass Fishing

Written by Justin Davis, DEEP Inland Fisheries Division

The July/August 2016 issue of *Connecticut Wildlife* reviewed the history of bass management in Connecticut and described how the advent of the "catch and release era" has created new challenges. The article also described how anglers often complain that they do not catch as many bass as they used to, despite electrofishing survey data indicating an abundance of bass in many Connecticut lakes.

To tackle these issues, DEEP biologists embarked on a cooperative research project in 2012 with UConn Professor Dr. Jason Vokoun and his PhD student Jan-Michael Hessenauer. One of the goals of this project, affectionately dubbed "Project Thunderbass," was to investigate whether bass behavior and physiology have fundamentally changed in Connecticut lakes as a result of decades of fishing pressure.

The "tail" of two bass: "High" vulnerability bass are more aggressive and easily caught. They are often removed from the population by harvest or cumulative fishing mortality caused by being caught and released multiple times.

PHOTO COURTESY A. S. VECCA

"Low" vulnerability bass are more likely to avoid anglers, survive, reproduce, and pass on their "hard to catch" genes. Over time, bass in the lake become harder to catch (this could negatively impact fishing quality).

Are Anglers Making Bass Tougher to Catch?

In recent decades, multiple studies have discovered that fishing can be an agent of natural selection, causing fish with certain traits to survive at higher rates and thus producing evolutionary changes in fish populations over time. "Fisheries-induced evolution" (FIE) has most frequently been demonstrated in marine fish populations subject to large-scale commercial fisheries, but there also is evidence that FIE can occur in freshwater recreational fisheries – and some of the best evidence concerns largemouth bass.

In a ground-breaking study in the 1980-90s, a group of scientists demonstrated that "angling vulnerability," or the relative ease with which bass can be fooled into biting a bait or lure, has a genetic component. Certain bass are just born easier to catch (high vulnerability) than others (low vulnerability). But that was not all. Researchers also discovered that by selectively breeding low vulnerability bass in the lab, they could produce successive generations of bass that became less and less vulnerable. Essentially, they proved that natural selection from angling could, in theory, cause bass in a lake to become harder to catch over time. The lingering question was – could evidence of FIE be found in "wild" bass populations?

One of the challenges to finding an FIE "signature" in wild bass populations is that fished populations need to be compared to populations that have never been exposed to fishing. Bass populations that have never been touched by anglers are generally hard to find, but several occur in Connecticut because many of our drinking water reservoirs have never allowed fishing.

During the 1990s, DEEP biologists documented that bass in unfished reservoirs tend to be larger and grow faster than bass in public lakes, and they are easier to catch on rod and reel. The high vulnerability of reservoir bass is certainly, to some degree, about naivety. But could part of the difference between reservoir and public lake bass be explained by FIE? DEEP and its research partners at UConn decided to try to find out.

Project Thunderbass

Over a period of years and through a series of controlled experiments, results from Project Thunderbass pointed to evidence of FIE in "wild" Connecticut largemouth bass populations and tested the feasibility of strategies to mitigate the effects. Some important findings thus far:

- *High speed and low speed bass:* Bass from unfished reservoirs have higher average resting metabolic rates than bass from public lakes – basically, their "engines," even at idle, are running at higher rpms. This finding conforms to the previous research on bass FIE done "in the lab," which discovered that low vulnerability bass also tended to have lower metabolic rates.
- *Creating bass that are "harder" to catch:* Lower average metabolic rates in wild bass populations exposed to angling provide some of the first concrete evidence (from anywhere) that FIE may actually be occurring in wild fish populations as a

FIE (fisheries induced evolution) is a theory that the act of fishing can be a major factor in "natural selection," or the process by which organisms that are born with inherent advantages or gain advantage because of changes in their environment are more likely to survive and pass on their genetic makeup to the next generation.

result of recreational (hook and line) fishing.

- *Less efficient predators:* If bass in public lakes have evolved lower metabolic rates, they likely consume less food (a lower-revving engine requires less fuel) and may, therefore, have a reduced ability to control stunted sunfish populations. This has implications for lake ecosystems and fisheries management as a whole.
- *"Genetic rescue:"* A total of 150 adult bass were transplanted from two lakes into a third public lake in early spring (prior to the spawn). Subsequent analyses revealed that about half of all young bass collected that fall had genetic contribution from at least one transplanted parent.
- *Instant results:* In a single night of work, the Inland Fisheries Division and UConn were able to capture and transplant approximately 300 adult bass from an unfished reservoir to a public lake. The pay-off for that single night of work was roughly a doubling of the average angler catch rate for bass in the public lake.
- *Catch and release mortality:* Despite very low harvest rates, most adult bass transplanted from the unfished reservoir to the public lake did not survive through the fishing season. Interestingly, a similar transplantation of bass from one public lake to another produced a different result – angler catch rates did not appreciably increase and the majority of transplanted bass survived the fishing season. The results of this "control" experiment suggest that the most likely culprit for high mortality of reservoir transplants was fishing mortality – the fish were not harvested, but the combination of their high vulnerability and high catch and release rates in the fishery caused them to be caught repeatedly, and they eventually died from repeated hooking injuries and stress.

DEEP FISHERIES ARCHIVES (2)

Transplanting bass (and all gamefish) from public drinking supply reservoirs was common practice in the 1930s through the 1940s. The rationale was that the fish were "going to waste." In addition to an instant boost in catch rate (success), application of this approach could help to infuse more aggressive genes into bass populations in public lakes.

In this photo from the Fisheries archives, bass fishing was prohibited during the spawn in many Connecticut lakes up until the 1950s. Agency fisheries managers will be challenged to evaluate the benefits of implementing similar protections in the future if and when pre-spawn bass from unfished populations are stocked into public lakes to reintroduce beneficial genes to public lake bass populations.

The Future of Bass

These findings have given DEEP new and valuable insights into the dynamics of Connecticut bass populations. However, like any good research project, the study has raised more questions than it has answered.

There is now preliminary evidence that FIE has occurred in wild bass populations. However, questions remain as to how widespread it is and to what degree it accounts for the substantial differences evident between unfished bass populations and public lake populations.

Although FIE may have caused average vulnerability to decrease in public lakes, some high vulnerability bass are almost certainly present. Are there ways in which we could better protect these valuable fish (i.e., lower the risk of mortality) and improve their chances for successful reproduction?

Moving naïve, aggressive bass from unfished reservoirs to public lakes is a relatively low-cost method for improving fishing quality, but how many public lakes can DEEP realistically transplant bass to?

How many unfished reservoirs in the state support bass populations substantial enough to withstand occasional "cropping" for transplant purposes, without effectively becoming "fished" populations themselves?

Might it be more effective to raise a line of aggressive Connecticut "Thunderbass" in a hatchery setting, and use those fish to supplement public lake populations (similar to the trout "Survivor" program)?

How can we best assess whether "genetic rescue" makes a measurable difference in a bass fishery over the long haul? What is the appropriate time scale for such an assessment?

These questions and others are now at the center of internal DEEP discussions on how to move Connecticut bass management into the future. Amongst the many unknowns, one thing is certain: we are entering a new and exciting chapter in bass management in Connecticut. Stay tuned!

The “Fly Up the Creek” Bird

Article and photography by Paul Fusco, DEEP Wildlife Division

The green heron is a wetland bird commonly seen as it flies “up the creek.” This heron has had a number of common and colloquial names over the years. The official taxonomic classification also has been in dispute. In the early 1980s, scientists at the American Ornithologists’ Union determined that the green heron needed to be reclassified. So, in 1983, the green heron became the green-backed heron, a collective reference that would combine three different types of green herons into one single species. That classification lasted until 1993, when the green-backed heron was once again split into three arguably distinct species. The type found in North America became the green heron (*Butorides virescens*), the type found in the Old World tropics and South America which was called the striated heron (*Butorides striata*), and the third type, the lava heron (*Butorides sundevalli*), is found only in the Galapagos Island archipelago. This most recent classification is recognized by most North American bird authorities, but not by some international groups.

At about 18 to 20 inches in length, the green heron is about the size of a crow. It has short legs and a more compact body than most of the other herons. At first glance, the green heron appears to have a short neck, but it is able to stretch its neck out to an amazing length. When excited, a green heron may be seen raising the feathers on top of its head into a bushy crest.

The plumage of this small heron is dark glossy green on the back, and rich chestnut on the neck and sides of the head. The bird has a black crown and long bill, which is all dark on adults. The legs are greenish-yellow, becoming bright yellow-orange in the breeding season. Juveniles have a boldly streaked neck.

In flight, the green heron looks dark and crow-like. It flies with deep wingbeats and bowed wings. Vocalizations include a loud and sharp *kuck*, and a loud and low-pitched *skow*, or *skeow*, which is easily recognized once it is learned.

Habitat and Distribution

The green heron is widely distributed as a breeding species in Connecticut. It is found statewide, but not in large numbers. Densely wooded vegetation bordering shallow water ponds is the typical haunt of the green heron. This bird can be found near almost any body of water, including rivers, lakes, swamps, marshes, and creeks. It is at home in either saltwater or freshwater habitats.

Herons require quality wetland habitats for feeding, as well as habitats that provide low-disturbance opportunities for nesting and raising young.

Migration occurs in spring from March through May, and in fall during September through November. Migrating individuals or small flocks may be found roosting at coastal or inland wetlands during daylight hours. Migrational movements often occur at night.

In the east, the green heron breeds as far north as southern Maine and southern Ontario. It is not a cold tolerant species and is extremely rare during winter in Connecticut. Most of the population winters south of the Carolinas.

Behavior

Green herons are opportunistic hunters. They hunt by stalking, lying in wait, or sometimes diving into the water from a log or the shoreline. Striking with an explosive burst of energy, green herons quickly extend their neck and bill to grab prey. They consume primarily small fish, but the diet also consists of frogs, crayfish, large insects (including dragonflies), worms, small snakes, mice, and snails. Green herons have been known to bait small fish by dropping items they find, such as bread crumbs, popcorn, small twigs, flies, and feathers, into the water as they lay in wait for whatever unlucky fish comes close enough for them to grab.

The nest is typically well hidden in dense vegetation near a body of water. Shrubs, small trees, and vine tangles provide adequate cover for their loosely built and well concealed stick nests. Connecticut's green herons are typically solitary nesters as opposed to most of the other herons that routinely nest in colonies called rookeries. In some parts of the country, green herons may nest in small groups.

The clutch size is normally 4 to 5 pale green or blue-green eggs. Incubation is conducted by both adults. The eggs hatch after approximately 20 days and the young fledge after 22 days. The young continue to be fed by the adults for a period of time after they leave the nest.

Green herons are often solitary and secretive. At times they can be shy, while sometimes they can be bold and unconcerning.

Conservation

Green herons are susceptible to habitat loss and degradation due to the draining, filling, and development of wetlands and bordering acreages. They also are impacted by human disturbance near nesting locations. In some places, the birds may be impacted by pesticides, as well. As with all wetland dependent birds, the conservation and preservation of their wetland habitats and buffer areas are critical if populations are to remain stable and healthy.

According to North American Breeding Bird Survey data from the National Audubon Society and the U.S. Geological Survey, the green heron population has declined by an estimated 82% in Connecticut during the last 40 years. The per year decline is estimated to be over four percent. While this is a significant and continuing decline, the green heron is still considered a fairly common breeder in Connecticut. The DEEP Wildlife Division has undertaken many wetland restoration and impoundment projects that have benefitted wildlife, including wetland birds like the green heron.

The length of the green heron's neck is not always apparent until the bird is seen stretching it out.

Odd Folknames

Many birds have odd folknames rooted in cultural dialogue. Some examples for the green heron include:

"Fly-up-the-creek"
"Little green heron"
"Kop-kop"
"Shite-poke"
"Green bittern"
"Chalk-line"
"Skeow"
"Rubber-neck"

Small Menhaden and Large Whales

Written by Penny Howell, DEEP Marine Fisheries Division

Among the many effects we are experiencing from the global warming trend is a steady rise in the abundance and diversity of fish species historically more abundant to the south of Connecticut. One of those species is menhaden (aka bunker), which has always been notorious for large fluctuations in numbers. The menhaden commercial fishery is one the nation's largest, in terms of pounds landed and dollar value. The majority of landed pounds become fish meal and fish oil, which is used for everything from farm feed to cosmetics. But the ecological value of this species far outweighs its economic worth because it also is the favorite food of every sport fish and fish-eating shorebird and marine mammal.

A clear demonstration of the role menhaden plays in the marine food web came this past summer when at least two humpback whales took a detour from their seasonal migration from the Gulf of Maine to their wintering grounds in the West Indies and spent several days in western Long Island Sound gorging on the huge number of menhaden there. Coastwide, the menhaden population has increased dramatically since 2000, reaching abundance levels not seen since the early 1970s. In the Sound, the 2015 Marine Fisheries Division Trawl Survey abundance index for menhaden was the highest seen in 32 years.

COURTESY HANNAH DOYLE

A humpback whale enjoys a banquet of menhaden in western Long Island Sound this past July.

Humpback whales also are on the rise along the east coast of the U.S. and Canada. Recent estimates by the National Marine Fisheries Service put their abundance at about 10,000 individuals. In September, these population estimates prompted the Service to partially remove this majestic species from the federal endangered species list. Worldwide, nine of 14 identified population groups, including the one we see off the east coast,

P. J. FUSCO

Ospreys take advantage of the abundance of menhaden to help raise their chicks when the fish are running.

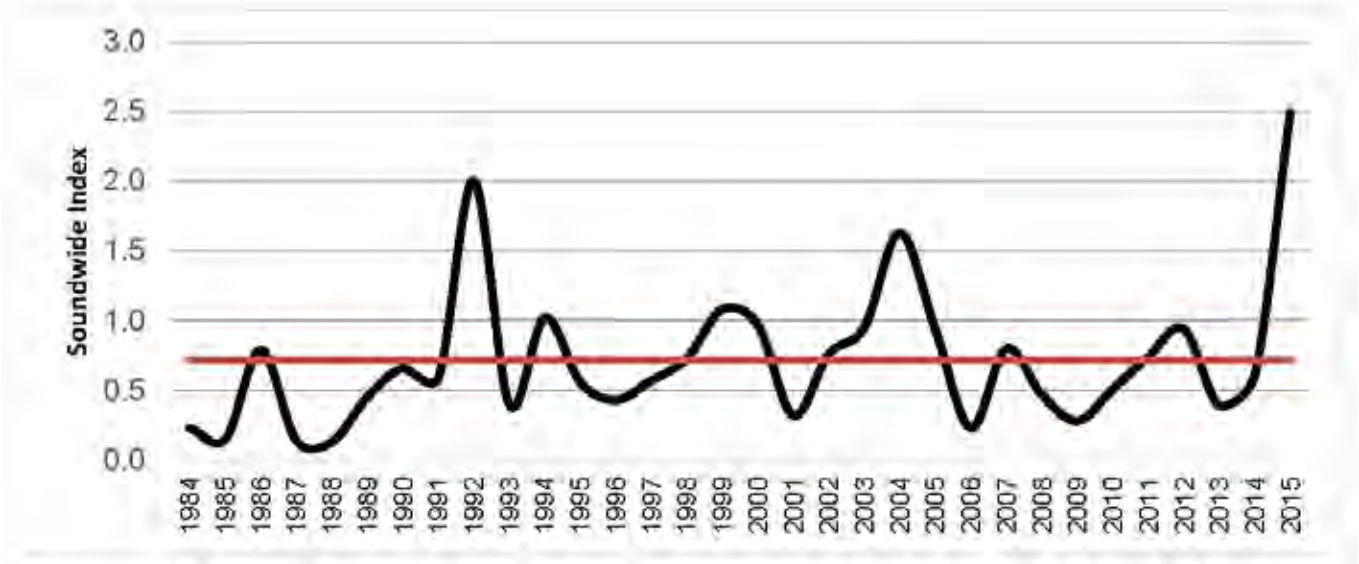
have recovered enough to move out of the threatened and endangered classification. National and international conservation efforts to protect these whales over the past 40 years have proved successful. However, all humpback whales remain protected in U.S. waters and internationally under the Marine Mammal Protection Act. People still need to watch the dramatic and sometimes playful antics of humpbacks at a safe distance to give them plenty of room to roam (federal law requires vessels to operate at a slow, safe speed when near a humpback whale and prohibits any vessel from approaching within 100 yards – 91 meters – of a humpback whale and to not, in any way, disrupt the normal behavior of the whale).

P. J. FUSCO (3)

Humpback whales have a habit of waving goodbye with their tails as they dive deep into the ocean. This behavior gives scientists a good look at each whale's flukes, which are as individual as fingerprints and are used to identify each whale that swims into the area.

Menhaden baitfish are used as a food resource by a multitude of creatures in Long Island Sound, including many tern species and some shorebirds. Common terns and greater yellowlegs are shown with their catch.

CT DEEP Long Island Sound Trawl Survey fall abundance index for menhaden.



CT DEEP Long Island Sound Trawl Survey fall abundance index for menhaden reached a record high in 2015, more than three times the average (red line).

Paul Capotosto: A Leader in Restoring CT's Wetland Habitat

Paul Capotosto, supervisor of the Wildlife Division's Wetland Habitat and Mosquito Management (WHAMM) Program, recently retired after spending more than 30 years in state service with the Department of Public Health (DPH) and also DEEP. He was well-known for his ground-breaking work in Integrated Marsh Management, not only to control mosquitoes but to also restore and maintain valuable tidal and fresh water marshes throughout the state of Connecticut. His vast knowledge and expertise will be greatly missed by DEEP and others who had the opportunity to work with Paul over the years. We wish Paul the best in this new chapter of his life!

Paul Capotosto (right) with fellow biologists Roger Wolfe and Ann Kilpatrick of the Wildlife Division's Habitat Unit.

Why did you become interested in your career at DEEP?

I was always interested in wildlife biology and earned my degree from the University of Rhode Island. However, at the time, it was difficult to get a state biologist position. So, instead, I started a job in 1975 as the assistant Mosquito Control Officer in the small town of Barrington, RI. I was interested in working in tidal marshes and on marsh restoration projects that controlled mosquitoes. Our crew was noted in the Northeast circles of mosquito control for being the chain saw marsh guys (a private joke!).

What year did you begin working for DEEP and what were the different positions that you held?

Although his career focused on mosquito control and wetland restoration, Paul has a keen interest in wildlife management.

In August 1985, I started working for DPH as Chief of the Mosquito and Vector Control Department in the Environmental Health Bureau. After our program was eliminated from DPH, the staff was transferred to DEEP in 1994 as the Wetlands Restoration Unit in Support Services. Thanks go to Art Rocque and Ron Rozsa of the Office of Long Island Sound Programs for saving the crew and the specialized wetland equipment.

Briefly describe some of your job responsibilities with DEEP.

As the Wetlands Biologist and Mosquito Management Supervisor, I was responsible for managing mosquitoes in tidal marshes using an Integrated Marsh Management technique to reduce the threat of mosquito borne disease to the public. This included larviciding and conducting marsh management work, such as open marsh water management (OMWM).

What were some of your major accomplishments?

One of my major accomplishments was to bring in over $5,462,000 to the state for restoring or enhancing about 5,000 acres of tidal and fresh water marshes in Connecticut. My best accomplishment was the purchase of several low ground pressure excavators (four machines in the past 30 years) and other pieces of equipment without using any general funds.

What was your favorite project?

I loved working on fill removal projects to show that what we do really does work if the proper elevations were set, such as Mumford Cove in Groton (1993), Hammonasset State Park near the rotary in Madison, Lynde Point in the Borough of Fenwick, Old Saybrook, and McKinney Wildlife Refuge, Area 4 in Stratford. Our crew was noted for restoring filled tidal wetlands into natural tidal wetlands.

What part of your job will you miss the most?

What I will miss the most is having the opportunity to be in and see the portions of wildlife management areas and tidal marshes where the public usually is not allowed. I was at Barn Island recently, walking the tidal marshes with some people, when I realized it would be the last time I would see this portion of the area again.

What part of your job will you not miss?

I will not miss dealing with people who think they know everything because they saw it on the Internet – you cannot believe everything you read online! Look at the source. Scientists and biologists base their decisions and conclusions on actual science.

What are the three major issues currently facing wetland restoration?

1) Lack of state funding has been and still is a major issue facing wetland and habitat restoration. Our program conducted projects that could be funded by other sources. Reduction of permanent state employees that can do this work was another issue. At one point, I supervised at least eight full-time employees but by the time I retired, I only supervised two. The number of seasonal employees working over the summer was also reduced over the years from at least 10 to now three.

Always eager to be on the water, Paul and seasonal resource assistant Bonnie Lathrop look for native Phragmites on the Connecticut River.

What major changes have you seen since you first joined DEEP?

I would say the introduction of several key legislative issues involving pesticides; lobsters; and mosquito borne diseases like West Nile virus. The environment is always changing and adapting. Techniques change over time, so we have to change with them.

What has remained the same?

We are in a constant battle with change. Technology has changed over the years – my first computer was a WANG! I wish we could bring these changes into the field like the rest of the world.

What is the most memorable event that happened during your time with DEEP?

Being recognized by the Commissioner in 1997 for mosquito control efforts during an outbreak of Eastern equine encephalitis (EEE) in southeastern Connecticut and also having the crew be recognized by the Commissioner for the outstanding work they did in restoring marshes in 2009.

P. J. FUSCO

In wetland restoration, things do not always go smoothly, as an experimental pontoon system failed during this vendor field trial.

What advice do you have for your colleagues?

For all the seasonal employees, hang in there and maybe you will get that break to become a wildlife biologist. For my colleagues, thanks for supporting the WHAMM Program.

What are your plans after retirement?

My wife and I are moving to the Florida Gulf Coast where our daughter, son-in-law and grandchild live. We love the area where they live – "Best Beaches in the USA" – and there will be new experiences camping in the southeastern part of the country.

Hunting and Fishing Day Success

Written by Andy LaBonte, DEEP Wildlife Division; photos by Paul Fusco, DEEP Wildlife Division

In 1866, the Connecticut State Legislature took action and created the Fisheries Commission. Over time, the original "commission" evolved and grew to encompass the Divisions of Wildlife, Inland Fisheries, Marine Fisheries, Forestry, and Environmental Conservation (EnCon) Police, and is now known as the DEEP's Bureau of Natural Resources. In celebration of the 150th anniversary of the Bureau, two events celebrating Hunting and Fishing Day were planned in September 2016.

For several years now, the Bureau of Natural Resources has hosted a Hunting and Fishing Day event at the Sessions Woods Wildlife Management Area (WMA) in Burlington in celebration of National Hunting and Fishing Day. However, due to our 150th anniversary in 2016, it was decided that an additional event would be held at the Wildlife Division's Franklin WMA in North Franklin.

The Chairs and members of the planning committees for these events felt a great sense of accomplishment as staff from the Bureau and volunteers, vendors and others came together and worked side by side to create a memorable day for everyone. Nearly 30 local vendors participated in both events, with over 1,600 attendees from at least three different states joined in the fun.

Highlights for the days included shooting the coda net gun, dart gun, laser shot, and blow pipe, along with shooting trap and archery. Volunteer certified instructors from DEEP's Conservation Education/Firearms Safety Program played a critical role in the success of the events and cannot be thanked enough for their efforts, not only for supporting Hunting and Fishing Day but for volunteering to teach free hunter safety courses throughout the year. Appreciation is also extended to the Norwich Archery Club for running the archery range at the Franklin event, and to both the High Rock Shooting Association for running the rifle range and the Congress of Rough Riders of Connecticut for running the BB gun range and conducting cowboy action shooting demonstrations at the Sessions Woods event.

Attendees at the Franklin event had the opportunity to meet the 2014 Connecticut Angler's Guide photo cover winner and the sisters from the 2016 Connecticut Hunting and Trapping Guide cover, while those at the Sessions event observed a rifle competition demonstration given by the Metacon Junior Rifle Team. At both events, participants observed a live fish touch tank and practiced their casting skills at the backyard bass and fly casting areas, where kids fishing poles donated by Cabela's were given away to some successful casters! The Connecticut Aquatic Resources Education (CARE) trailer, as well as EnCon Police's TIP (Turn in Poachers) trailer, were present, as well as a special boat for capturing fish using electrical currents and the marine fisheries boat that provided a smoke show with some flares. Other equipment included wetland habitat and mosquito management air boats and low impact ground equipment.

Certified volunteer Conservation Education/Firearms Safety (CE/FS) instructors helped hundreds of kids and adults at the .22 rifle range. Participants shot at targets and honed their shooting skills. For many, this was their first time handling a firearm.

Various hunting dog demonstrations were held throughout the day by several local dog kennels/organizations, and DEEP EnCon Police K-9's were on hand to meet participants. Live raptor demonstrations were popular at both events – A Place Called Hope was at Franklin WMA and the Connecticut Falconers Association and Livingston Ripley Waterfowl Conservancy were at Sessions Woods.

Additional demonstrations included trapping, timber milling, taxidermy, animal tracking, tree stand safety, taxidermy and field care prep, and a moose calling demonstration and competition. Handmade moose calls created from coffee cans were given out as prizes for the moose calling competition; one was even used to call in a nice bull moose a few weeks after the events.

There were a variety of kid's activities too, such as duck decoy painting sponsored by the Connecticut Waterfowl Association; constructing a tool box kit with Home Depot of North Windham; and building bluebird nest boxes with DEEP staff at Franklin WMA and staff from Home Depot of Southington at Sessions Woods WMA. Kids also had the opportunity to make wildlife crafts, get a wildlife tattoo, look for tracks, and play the big fish bait toss and waterfowl ring toss. Many kids participated in the Hunting and Fishing Day scavenger hunt and quiz, which required them to visit different exhibits and interact with knowledgeable staff and volunteers and learn about fish, wildlife, and hunting safety. Those who completed the quiz received a special prize.

The Bureau of Natural Resources would like to thank all the exhibitors, cooperators, staff, and volunteers who helped support the events, including Boy Scouts of America Troops #27 (Winsted) and #29 (Waterford) who offered a wide variety of food and refreshments for sale

at the events. Special thanks are also extended to those who provided door prizes or financial support: U.S. Sportsmen's Alliance Foundation, Weatherby Foundation International, Cabelas, Connecticut Waterfowl Association, Dynamic Outdoor Concepts, Eastern Mountain Sports of Manchester, Friends of Sessions Woods, High Rock Shooting Association, L.L. Bean, Newbury Archery, Rocky Mountain Elk Foundation, Safari Club International: Central Connecticut Chapter, and recently retired Wildlife Division Supervisor, Paul Capotosto, who gave several generous donations. (Learn more about Paul and his contributions to wetlands habitat and mosquito management during his career with DEEP on page 16).

CE/FS instructor Keith Hoffman assisted people of all ages at the Franklin WMA shotgun station where they received pointers and shot at clay pigeons.

CE/FS instructors also assisted at the archery ranges.

Environmental Conservation Police Officers showed off the TIP Trailer and answered a variety of wildlife and hunting questions throughout the day.

Several kid's activities were available, such as constructing a tool box with Home Depot of North Windham and building bluebird nest boxes with DEEP staff at Franklin WMA and staff from Home Depot of Southington at Sessions Woods WMA.

The live fish touch tank was a popular attraction before attendees practiced their casting skills at the backyard bass fishing game.

Live raptor demonstrations were popular at both events. A Place Called Hope (above) came to Franklin WMA, while the Connecticut Falconers Association and Livingston Ripley Waterfowl Conservancy were at Sessions Woods WMA.

Important Bird Areas Established in Connecticut

Five sites will help protect habitat and imperiled bird species

In July, DEEP announced the establishment of five Important Bird Areas (IBAs) in the state – a step taken with Audubon Connecticut to enhance efforts to protect Connecticut's bird species. Identification of the five sites was approved by a technical committee of Audubon Connecticut, and endorsed by DEEP's Important Bird Area Advisory Committee. Establishment of the sites is the result of a partnership between DEEP, Audubon Connecticut, other conservation NGOs, and private landowners who are working together to protect, restore, enhance, and increase awareness about these critical areas.

The goal of Audubon Connecticut's IBA program is to identify a network of key areas in the state that support sustainable populations of birds in greatest need of conservation. For official recognition as an IBA, the site must meet one or more of a set of standardized scientific criteria that were developed by a committee of bird experts from throughout the state. Once an area is identified as an IBA, Audubon Connecticut works with the landowner, conservation partners, and the public to increase awareness of bird species of greatest conservation need, improve habitat in the area, and find funding to support these efforts.

Connecticut ranks sixth in the nation in terms of the number of individuals who care about and enjoy watching birds, so it is important to note that IBA status helps enhance habitat protection for species of global concern, such as the cerulean warbler, saltmarsh sparrow, and wood thrush.

Identification of IBAs is an essential first step to protecting habitats crucial to birds in Connecticut. A second, vital step is public recognition of these sites. Public recognition benefits IBAs by increasing landowner, local community, and visitor knowledge on the value of the site to birds. People may visit or live near an IBA and be unaware of its value to birds and other wildlife. But once engaged, they become familiar with the birds an IBA protects, make an effort to prevent disturbing the birds or their habitat, and may become active stewards.

The five landscape level IBAs being recognized include both state and privately-owned lands:

Mouth of the Connecticut River – This area is located in Old Lyme and Old Saybrook. It includes the Roger Tory Peterson Wildlife Area and Ragged Rock Creek Wildlife Management Area (WMA).

Lyme Forest Block – This area includes lands in several towns within Middlesex and New London Counties. The state lands in this IBA are Devil's Hopyard State Park, Babcock Pond WMA, Zemko Pond WMA, Eightmile River WMA, Nehantic State Forest, Seldon Neck State Park, and Beckett Hill State Park.

Macedonia Forest Block – This area is located in Kent and Sharon. It includes Audubon Sharon and Macedonia Brook State Park.

Meshomasic Forest Block – This area covers lands in Hartford and Middlesex Counties, including Meshomasic State Forest and Gay City State Park.

Miles Wildlife Sanctuary and Housatonic State Forest Block – This area is located in Sharon and Lakeville, and includes Housatonic State Forest and the Audubon Miles Wildlife Sanctuary.

Any landowners that have property within the boundaries of these forested landscapes could be eligible for the benefits of recognizing their property as part of the IBA Complex, including eligibility for IBA small matching grants or using the IBA status as a way to bolster other grant applications. Contact the DEEP Wildlife Division for more information (860-424-3011).

Cerulean warbler, a Connecticut species of special concern.

P. J. FUSCO (2)

Forest habitat in the Housatonic State Forest and surrounding area is critical for many neotropical songbird species, including the cerulean warbler.

Introducing CWA's Conservation Connecticut Fund

Written by Greg Chasko, Connecticut Waterfowl Association

P. J. FUSCO

American black ducks rest on an ice flow in a Connecticut marsh.

The mission of the Connecticut Waterfowl Association (CWA) is to conserve wetlands and waterfowl in Connecticut, and only Connecticut. In CWA's case, membership dues and funds raised from our annual banquet have been largely successful in accomplishing this mission! Since its inception in 1967, CWA has spent thousands of dollars and conserved hundreds of acres of wetland habitat benefitting waterfowl and many other wildlife species.

But, there is more work to be done! Therefore, CWA is announcing a new program called "CWA's Conservation Connecticut." The goal of this initiative is to raise additional money through CWA's Conservation Connecticut Fund (CCF) to protect and enhance more wetlands to better benefit waterfowl, other wildlife, and waterfowl hunters.

CWA has been efficient in using its existing funds for wetland conservation. However, the organization has administrative costs (e.g., mailings, website maintenance, scholarship fund, insurance, and purchasing items for the banquet raffles). These costs can absorb up to 20% of members' annual dues. But, if a tax-deductible donation is made to the CCF, all of those monies will be kept in a separate account to be used only for habitat conservation management activities – that is, wetland restoration, enhancement, or acquisition. CWA guarantees that there will be total transparency and accountability of these funds.

While these monies could be used for any wetland conservation project, the primary focus will be on providing funds to support the habitat work of the DEEP Wildlife Division. The Wildlife Division has been largely successful in obtaining federal grants for wetland conservation, but these funds have to be matched by state or private funds. Currently, the availability of state funds is minimal. Recent federal grants have been matched by Connecticut Migratory Bird Conservation Stamp funds and by CWA and other conservation partners. Future projects could include Phragmites control, creation of shallow ponds/pannes in tidal marshes, replacement or enhancement of water control structures for seasonal flooding purposes, or other efforts. The CCF Program will further enhance CWA's excellent long-running partnership with the Wildlife Division.

Why now? Because the need has never been greater! There are fewer waterfowl hunters to support the resource and the State of Connecticut has less funds and less people for conservation work. CWA is "stepping up to the plate" to do its best to fill this void and conserve habitat and the cherished traditions of waterfowl hunting – and, it costs money to do that!

CWA greatly appreciates the phenomenal support members have shown to the organization and the resource over the years. As Connecticut's waterfowl organization, all of our habitat work occurs only in Connecticut. While CWA understands the importance of the great work being done by other waterfowl groups to benefit waterfowl on the northern and mid-continent breeding grounds, quality habitats are needed in Connecticut for migrant and wintering birds to use when they get here.

Interested in learning more about CWA's Conservation Connecticut Fund or in making a donation? Contact CWA at 29 Bowers Hill Road, Oxford, CT, 06478, or visit CWA's website at *www.ctwaterfowlers.org*.

You can help waterfowl and wetland habitat by supporting the Connecticut Waterfowl Association and also by purchasing a Connecticut Migratory Bird Conservation Stamp and/or Conservation Edition (CE) prints of the 2017 Stamp created by nationally renowned artist Mark Thone. Those interested in purchasing a CE print should email min.huang@ct.gov or call 860-418-5959.

New Wildlife-related Laws and Regulations

The following became effective on July 1, 2016 (*these changes are not included in the printed version of the 2016 Connecticut Hunting and Trapping Guide; however, updates have been made on the web version*):

- Junior Pheasant Hunter Training Days are now allowed on both state and private land.
- The seasonal possession limit for snapping turtles harvested during the regulated season dates of July 15-September 30 was reduced from 30 to 10.
- The "long rifle" limitation on the array of .22 caliber rimfire ammunition to be used for hunting on state-owned lands was removed.
- The squirrel season begins on September 1 and continues through February 28 (excluding Sundays).
- The woodchuck season is from March 15 through November 15 (excluding Sundays).
- The coyote hunting season is from January 1 through December 31 (excluding Sundays).
- The chukar partridge season was extended until the last day in February.
- A season was established for Hungarian partridge which starts on the third Saturday in October and runs through the end of February. The daily bag limit for Hungarian partridge is two and the season bag limit is 10.
- The quail season was extended through the last day in February on the following state-controlled field trial or dog training areas: Dr. John E. Flaherty Field Trial Area, Mansfield Hollow Dam, Nod Brook Wildlife Management Area, and Sugarbrook Field Trial Area.
- Non-toxic shot is now required for hunting coot and rail (it is already required for waterfowl hunting).

New: Public Act 16-27

This new legislation established a Resident Game Bird Conservation Stamp, changed the Connecticut Migratory Bird Conservation Stamp, created a three-day out-of-state bird hunting license, and set specific reduced fees for hunters under the age of 18.

- ***Resident Game Bird Conservation Stamp:*** The Pheasant Stamp AND all turkey permits have been replaced with a single $28 Resident Game Bird Conservation Stamp. This new stamp is required to hunt any resident (non-migratory) game birds, including pheasants, wild turkey, ruffed grouse, partridges, and quail. The cost of the stamp is $14 for Connecticut hunters ages 12 through 17. All revenues from the sale of Resident Game Bird Conservation Stamps will be deposited into a separate, non-lapsing account to use **exclusively** for the purchase and management of game birds and their habitat. For the remainder of 2016, pheasant hunters will need either a Pheasant Stamp (if purchased on or before June 30, 2016) or a Resident Game Bird Conservation Stamp (if purchased on or after July 1, 2016). Wild turkey hunters planning to hunt in fall 2016 will need either a Fall Turkey Permit or a Pheasant Stamp (if purchased on or before June 30, 2016), or a Resident Game Bird Conservation Stamp (if purchased after July 1, 2016).
- ***Connecticut Migratory Bird Conservation Stamp:*** The $13 Connecticut Duck Stamp has been merged with the $4 Harvest Information Program (HIP) Permit into a single Connecticut Migratory Bird Conservation Stamp, which costs $17. This new, single stamp is required for anyone hunting waterfowl, rails, snipe, woodcock, and crows. All migratory bird hunters who want to hunt the latter portion of the 2016-2017 season (after Jan. 1, 2017) will have to purchase the 2017 Connecticut Migratory Bird Conservation Stamp, which will be valid through 2017.

The biggest changes with this legislation are that crow hunters must now purchase the Connecticut Migratory Bird Conservation Stamp, and ALL migratory bird hunters, regardless of age, must have a Connecticut Migratory Bird Conservation Stamp. Junior hunters (ages 12 to 15), who previously only had to purchase a HIP Permit in addition to the junior license, must now obtain a Connecticut Migratory Bird Conservation Stamp (if they did not purchase a HIP Permit before July 1, 2016). However, the cost of the stamp for resident junior hunters is $9. Hunters under the age of 16 do not need to purchase a federal Duck Stamp to hunt waterfowl. All of the proceeds from the Connecticut Migratory Bird Stamp will continue to go into a dedicated account that is to be used solely for wetland habitat management and acquisition or for improving hunter access.

- ***Three-day Out-of-state Bird Hunting License:*** This license costs $35 and allows out-of-state hunters to hunt migratory and resident (non-migratory) game birds for three consecutive privilege days (Sundays not included). The fee ($35) from this license will go into the Game Bird Conservation account. Out-of-state hunters still need to purchase a Connecticut Migratory Bird Conservation Stamp and/or a Connecticut Resident Game Bird Conservation Stamp, depending on what species they intend to hunt.
- ***Reduced Stamp and Permit Fees for Junior Hunters:*** In 2014, Public Act 14-201 established a 50% reduction in all license fees, as well as a 50% reduction in hunting and sport fishing permit, tag, and stamp fees, for resident 16 and 17 year old hunters and anglers. In 2016, Public Act 16-27 extended the 50% fee reduction for permits and stamps to encompass hunters and anglers less than 18 years of age.

From the Director's Desk

continued from page 2

dimensional stock for cabinetry and furniture, recycled paper products, wood mulch, and firewood.

Maybe the most obvious display of Connecticut's forest resource recovery since the 1800s is Connecticut's spectacular fall foliage, which drives 25% of the annual $1.2 billion forest-based recreation economic engine.

So, as you commute to work or enjoy time with family and friends at your favorite outdoor venue, look about and contemplate all the benefits we derive daily from these wonderful trees and woodlands we call Connecticut's forested landscape and consider how you can contribute to their long-term care.

Christopher Martin, Director, DEEP Division of Forestry

Correction: In the July/August 2016 issue of *Connecticut Wildlife*, the article "Saving the Puritan Tiger Beetle in Connecticut" should have listed Richard Cronin as being from the Aquatic Resource Center (not National Salmon Station) located in Sunderland, Massachusetts. The facilty was renamed to be more in line with its current responsibilities.

Conservation Calendar

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 emailing laura.rogers-castro@ct.gov or calling 860-424-3011 (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.

Dec. 10 ..... **Children's Program: Fall to Winter**, 1:30 PM. Children and their caregivers are welcome to join Wildlife Division Natural Resource Educator Laura Rogers-Castro for a look into the world of winter readiness. Participants will learn about migration, hibernation, winter dormancy, and more. This indoors/outdoors program will be followed by a complimentary cup of hot chocolate. Take a break from the busy holiday season. All children must be accompanied by an adult.

Hunting Season Dates

Sept. 15-Dec. 31 ..... Deer and turkey bowhunting season on private land and state land bowhunting only areas.

Nov. 16-Dec. 6 ..... Statewide firearms deer hunting season on private land. Consult the 2016 Connecticut Hunting and Trapping guide for specific dates for the shotgun season on state lands.

Dec. 7-20 ..... Muzzleloader deer hunting season on state land.

Dec. 7-31 ..... Muzzleloader deer hunting season on private land.

Dec. 21-31 ..... Second portion of the turkey bowhunting season on state land.

Consult the 2016 Connecticut Hunting and Trapping Guide and 2016-2017 Connecticut Migratory Bird Hunting Guide for specific season dates and details. The 2017 Connecticut Hunting and Trapping Guide will be available by mid-December 2016. Printed guides can be found at DEEP facilities, town halls, bait and tackle shops, and outdoor equipment stores. Guides also are available on the DEEP website (www.ct.gov/deep/hunting). Go to www.ct.gov/deep/sportsmenlicensing to purchase Connecticut hunting, trapping, and fishing licenses, as well as required deer permits and bird hunting stamps. The system accepts payment by VISA or MasterCard.

P. J. FUSCO

New England cottontail

Nation's Newest Wildlife Refuge – Great Thicket – Represents Coordinated Response to Conserving Key Shrubland Habitat in the Northeast

Following an extensive public process, and with overwhelming public support, the U.S. Fish and Wildlife Service recently finalized the creation of Great Thicket National Wildlife Refuge (NWR), dedicated to conserving and managing shrubland and young forests for wildlife in New England and eastern New York. Great Thicket NWR responds to the need to preserve and manage land to benefit shrubland-dependent wildlife, such as the ruffed grouse, golden-winged warbler, box and spotted turtles, whippoorwill, blue-winged warbler, and Hessel's hairstreak. The agency will begin working with willing and interested landowners in 10 target areas of Connecticut, Maine, Massachusetts, New Hampshire, New York, and Rhode Island to acquire up to 15,000 acres through various methods, including conservation easements, donations, or fee-title acquisition. A more detailed article about this new refuge will be in a future issue of *Connecticut Wildlife.* More information about the new refuge can be found at:

www.fws.gov/northeast/refuges/planning/lpp/greatthicketLPP.html.

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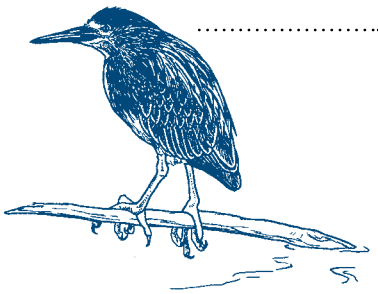
Connecticut Wildlife



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DEEP PHOTO ARCHIVES

Marsh management in 1934 looked like this, when dynamite was used to blast duck ponds in the saltmarsh at Great Island in Old Lyme.