

January/February 2017

Connecticut Wildlife

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



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From the Director's Desk



Winter provides a unique, and sometimes inhospitable, window to the natural world around us. While nighttime snowshoeing after a recent snowstorm, my headlamp and a half moon revealed the travelings of the more adventurous wildlife, with intrepid grey squirrels and white-tailed deer among the more plentiful trail tracks in the snow.

More wondrous still is star-gazing on the coldest, clearest nights. A recent midnight walk with our youngest daughter Amanda was among the most moving. It was the first time she enjoyed a clear and unblemished view of the Milky Way, and lent to pointing out some of the more prominent constellations – Orion with its noticeable three star belt and my favorite Canis Major, the greater dog containing Sirius – the dog star.

With all of that, Amanda was greatly taken with the most familiar of constellations – the Big Dipper – and the ability to follow the outer lip of the dipper to the North Star. It took some time to convince her that no, the brightest light in the sky was not a star at all but the blazing reflection of sun shining off the surface of one of the earth's closet neighbors, the planet Venus.

Ice fishing is yet another wonder unique to hardy winter souls. In late December, ice had finally formed on Day Pond in Day Pond State Park in Colchester. Every Saturday and Sunday morning, I would find at least one angler, auger in one hand and tip-ups and bait bucket in the other ready to give it a try. If you have never tried ice fishing, you should. It is a fantastic way to spend time with friends and family, sharing the excitement that comes with yelling "tips up" and running, sliding, and possibly falling in a hurry to find what is at the end of your fishing line.

But for many, even those normally attracted to all things wild, venturing out in the snow to stargaze on a frigid night or stand around on a frozen pond holds little appeal. Instead, they may turn to more social past times to remember time afield, retelling stories (and sometimes falsehoods), and planning new adventures. Occasionally, these events turn into traditions, and traditions turn into flights of fantasy.

However you do it, I challenge you to look at our natural world through the window that is winter. You will be amazed at what you see.

Rick Jacobson, DEEP Wildlife Division Director

Cover:

The DEEP Wildlife Division annually checks and maintains approximately 550 wood duck nest boxes on various state properties throughout Connecticut. Read the article on page 22 to learn more.

Photo courtesy of Paul J. Fusco

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Canada Goose Banding Goes to Hudson Bay

Written by Kelly Kubik, DEEP Wildlife Division, Photos provided by author

The Atlantic Population (AP) of Canada geese suffered a precipitous decline during the late 1980s and early 1990s. This decline eventually led to the closing of the regular Canada goose hunting season in the Atlantic Flyway in 1995. After the closure, waterfowl managers decided that AP Canada geese needed to be monitored directly on their breeding grounds in Canada rather than on their wintering grounds as was traditionally conducted. Part of this new monitoring program was the initiation of a breeding ground banding program in 1997. The objective of this program was to create a marked population of geese from representative portions of the breeding range to monitor survival, harvest rate, timing and distribution of harvest, and population delineation.

Banding is conducted in two separate areas on the Ungava Peninsula: Hudson Bay and Ungava Bay. This was my third time participating in the pre-season banding of AP geese along Hudson Bay. As in the past, our lodging was located 40 miles south of the Inuit community of Puvirnituq. An interesting fact is that the name Puvirnituq means “place where there is a smell of rotten meat.” There are two possible explanations as to how the name originated. The first is that a migrating herd of caribou was swept away by a local river and subsequently drowned. Their decomposing carcasses washed ashore near the village where they produced an awful odor. The second possible explanation is that an epidemic killed off the area’s residents. Their exposed bodies began to decompose and consequently produced a rotten smell.

Six individuals were in our camp: a pilot and an engineer from the Ontario Ministry of Natural Resources, a biologist and technician from the Canadian Wildlife Service, a biologist from the Maryland Department of Natural Resources, and myself. Because the area is comprised of roadless wilderness, we used a helicopter to locate, drive, and corral the geese into a portable net for banding.

Unfortunately, due to inclement weather, we were grounded for several days at camp. We ended up banding 1,272 geese, including 638 adults and 634 goslings. An additional 39 previ-



The banding crew consisted of (left to right): Bruce Winn (Ontario Ministry of Natural Resources), Shirley Orichefsky (Canadian Wildlife Service), Dan Berndt (Ontario Ministry of Natural Resources), Robbie Burrows (Maryland Department of Natural Resources), Kelly Kubik (CT DEEP), and Richard Cotter (Canadian Wildlife Service).



An Eurocopter EC130 B4 helicopter was used to locate, corral, and drive molting geese into a portable net. The net was carried in a container attached to a skid on the helicopter.

ously banded adults were recaptured. All of the captures were made in an area that ranged approximately 115 miles north to south along the northern Hudson Bay coast and extended 25 miles inland. Collectively, the operations along Hudson Bay and Ungava Bay banded a total of 3,996 AP geese this year.

A Blue Plan for Long Island Sound

Written by Penny Howell, DEEP Fisheries Division

When most people think of the State of Connecticut they envision a mostly square block of land between Westchester County, New York, and western Rhode Island. Such a map leaves out over 600 square miles of the state that make up our half of Long Island Sound. The Sound is the second largest estuary on the United States' Atlantic coast and contributes billions of dollars to the state's economy, not to mention it makes living here a whole lot nicer. Last spring, the State Legislature took a giant step forward to protect the value of this waterbody by enacting the Long Island Sound "Blue Plan." This legislation mimics legal steps already taken by Massachusetts and Rhode Island in the wake of threats to their coastal and marine resources (large whale ship strikes and offshore wind towers, respectively, to name a few). Current Connecticut programs protect coastal resources and guide development along the immediate coast. The Blue Plan will supplement existing authority in "offshore" reaches of the Sound.

The goal of the Blue Plan legislation is to develop an inventory of Long Island Sound's natural resources and their human uses, and provide a map to guide future use of the Sound's waters and submerged lands. Under the leadership of UCONN marine scientists, this map will be a result of a spatial synthesis of data from DEEP programs in Long Island Sound – the Bureau of Natural Resources' Trawl Survey of marine resources, the Water Bureau's Water Quality



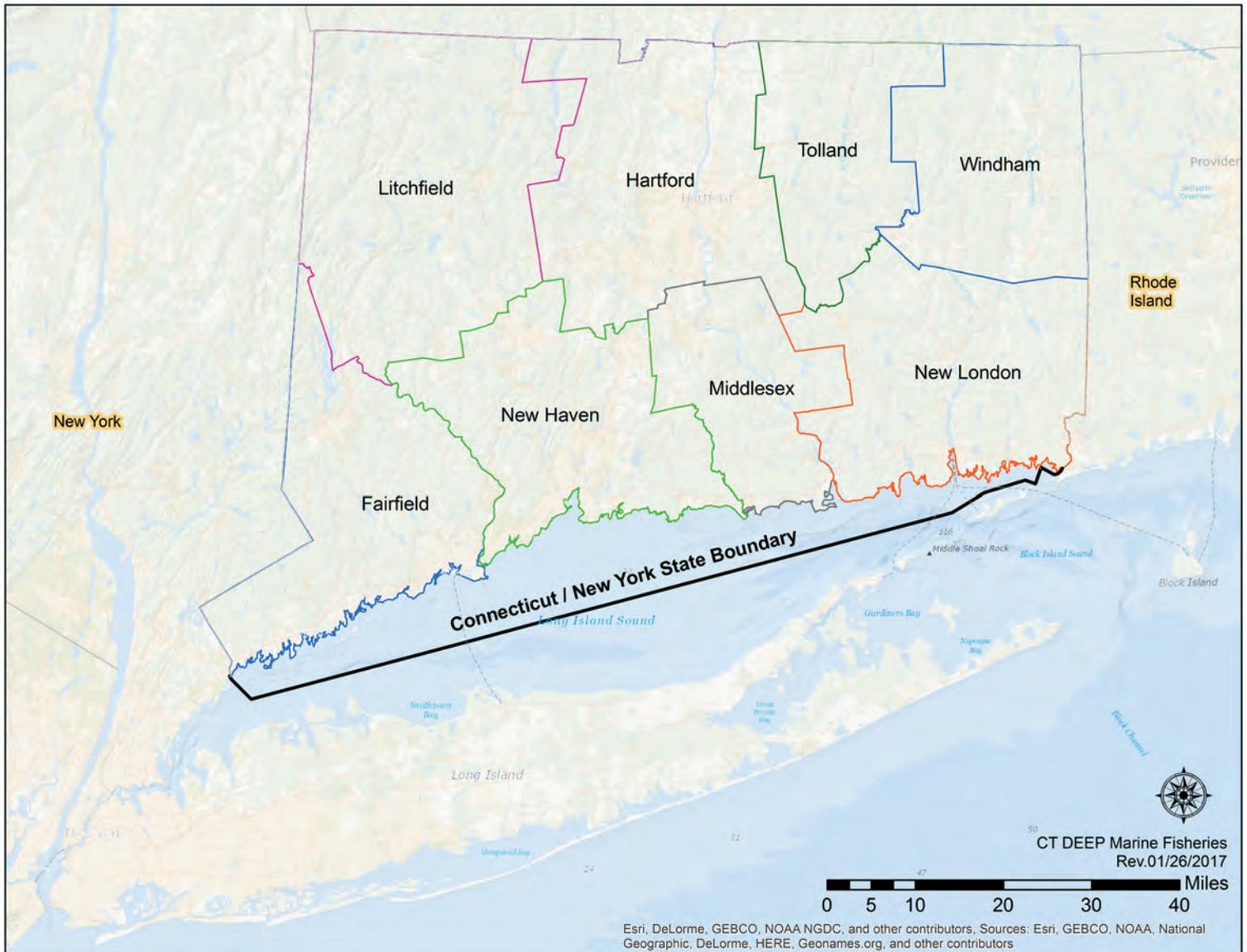
This map of Connecticut by Bernard Romans was published in Amsterdam in 1780. It was originally published in Hartford in 1777 and revised for the Dutch edition. Romans was a British surveyor who eventually took the American side in the Revolution. (Copperplate engraving, hand colored image provided courtesy of the John Carter Brown Library at Brown University).

Survey, and the Coastal Management Program – along with academic and private environmental groups, principally the Connecticut Chapter of The Nature Conservancy and Save the



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The goal of the Blue Plan legislation is to develop an inventory of Long Island Sound's natural resources and their human uses, and provide a map to guide future use of the Sound's waters and submerged lands.



A modern map of Connecticut counties and our half of Long Island Sound shows how much the Sound adds to our coastal geography, as well as the remarkable accuracy of the 1780 map.

Sound. In order to include as much of the entire encyclopedic information about the Sound as possible, widespread public comment was obtained through a series of well-attended meetings held in the summer and fall of 2016. Plan development also is being coordinated with New York state agencies and local planning bodies, as well as the federal Environmental Protection Agency (EPA) and National Oceanic & Atmospheric Agency (NOAA).

The Plan's inventory map will delineate the distribution of plants and animals in their diverse habitats in the Sound, as well as favored locations for human uses, including boating; commercial and recreational fin-fishing, shell-fishing, and aquaculture; waterfowl hunting; birding; navigation and shipping corridors; energy facilities; electric power and gas pipelines; and telecommunication crossings. Once this resource and use inventory is complete, that information will be a tool to develop a spatial plan that will identify "best use" areas. The Blue Plan will be a success if it helps minimize conflicts between marine life and human uses of the Sound. However, the Plan will not "zone" the entire waters of Long

Island Sound but rather establish priority use areas, such as utility corridors or shellfish beds, where no other use would be permitted to interfere with this primary use. The Plan may also identify critical areas that need greater protection and management with more intensive regulatory review. As stated in the original legislation, the Blue Plan is designed to be constantly updated as necessary with new information and changing needs. Vital to its usefulness is successful incorporation of dynamic changes due to sea level rise and other climate change impacts. The ultimate goal of this planning program is to encourage sustainable use of Long Island Sound's abundant natural resources now and for many generations to come.

Want to get involved? Join the Long Island Sound Blue Plan ListServ to receive notification of Blue Plan Advisory Committee meetings, web postings, and other information. Send an email to DEEP.BluePlanLIS@ct.gov or contact David Blatt at 860-424-3610 for more information about the Blue Plan for Long Island Sound.

Habitat Restoration Project at Tankerhoosen WMA

Article and Habitat Photos by Jane Seymour, DEEP Wildlife Division

In fall 2014, work began at the Tankerhoosen Wildlife Management Area (WMA) in Vernon to restore early successional habitat. Ten years earlier, while this property was still privately owned, it was home to a unique pine barren habitat and uncommon bird species, such as prairie warbler, willow flycatcher, field sparrow, and brown thrasher, a species of special concern in Connecticut. When the State acquired this property in 2011, the white pines on the site had formed a forest canopy with no undergrowth. Brown thrashers and willow flycatchers were gone and prairie warblers had declined. A restoration project removed most of the white pines, plus invasive autumn olive, and the unique pine barren habitat is returning.

The restoration site had been mined for sand and gravel in the early 1980s. Mature forest had been cut down and much of the sand and gravel had been dug up, leaving behind bare, sandy habitat. To the untrained eye, this may have looked like total destruction, but this process had actually created the beginning stage of forest succession.

Early successional habitats (those that occur in the early stages of forest succession) are home to a wide variety of birds, butterflies, bees, and other insects. Fires, floods, and, to a lesser extent, hurricanes, tornadoes, and ice storms are natural disturbances that create or maintain these habitats. Although the mining operation was certainly not natural, it achieved a similar result.

One of the species to benefit from this bare, sandy habitat was pitch pine. The seeds of pitch pine require exposed soil to germinate. Historically, seeds would germinate after a fire burned off accumulated leaf litter. Fire played a major role in shaping Connecticut's landscape, especially on dry sandy sites. But today, due to fire suppression, pitch pines and early successional habitats are disappearing, causing a decline in many of the species that depend on these habitats. In Connecticut, 47 species that use early successional habitats are identified as species of greatest conservation need (GCN). Brown thrasher and eastern towhee populations have declined by 90% in New England, and 80% of shrubland species overall are experiencing declines.

While early successional habitats in general are rare, those with dry sandy soil and sparse vegetation are even more so. Prior to European settlement, portions of Connecticut were covered with sandy soil, but these dry areas were desirable building sites. Today, pine barrens and other dry sandy habitats have been mostly lost to development and the species that depend on these habitats have become rare.

After the mining operation was completed on the Tankerhoosen WMA site in the 1980s, the vegetation grew back. Where sandy patches remained, tiger beetles, burrowing bees, and cicada killers made their burrows in the loose soil. Native pitch pines and white pines became established, providing food and cover for wildlife. At first, the white pines were short and thick, some growing in large patches that provided excellent cover for shrubland-dependent brown thrashers and willow flycatchers. However, the white pines spread rapidly,



Tankerhoosen WMA in 2004, prior to State acquisition.



Tree canopy is closing in by 2012.

outcompeting the pitch pines, and started to form a forest. With the canopy closing in, the site was losing its value as an early successional habitat.

While the white pines were tall enough to begin to form a canopy, they were still small enough to be mowed down with heavy equipment. A forestry mower was used to mow down invasive autumn olive and most of the white pines. A few small, shrubby white pines were left standing. The material left by the mower was scraped off the site to expose the sandy soil.

Currently, this site contains patches of exposed sandy soil and plants that are adapted to dry conditions, such as little bluestem, purple lovegrass, broomsedge, common yarrow, hawkweed, pearly everlasting, common milkweed, common evening primrose, and several species of native asters and goldenrods. Pitch pine seedlings are becoming established, and



Skidder with front-mounted mower removing white pine and autumn olive.



Tankerhoosen WMA after the site was scraped to expose the soil.

P. J. FUSCO



Brown thrasher



Native plants, such as pearly everlasting, showy goldenrod, and purple lovegrass, now thrive at Tankerhoosen WMA.

it is expected that white pine seedlings also will become re-established. As short, shrubby seedlings, the white pines will offer excellent cover for willow flycatchers and brown thrashers, which are expected to return as this habitat grows back. Eventually, the white pines will grow too tall, requiring further management. Routine cutting of taller trees will be necessary to maintain this important habitat.

A variety of native wildflowers at Tankerhoosen WMA provide nectar that attracts butterflies and other pollinators. Painted lady butterflies lay their eggs on pearly everlasting and pine sphinx moth caterpillars feed on pitch pine needles. Tiger beetles, burrowing bees, and cicada killers have all been found in the sandy patches.

While desirable native plants have become established at the area, some non-native invasive plants have reared their ugly heads. Worst among them is mugwort, which is an extremely aggressive perennial that can take over a site in just a couple of years. Two applications of herbicide and pulling of plants by staff and volunteers have kept it under control.

Even though Tankerhoosen WMA has a unique early successional habitat with dry sandy soil, early successional habitat can also occur on moist sites. To learn more about early successional habitats and the species that depend on them, view the Habitat History slide show at www.ct.gov/deep/belding.



Punctured tiger beetles (so named because of the markings that look like little puncture marks) and cicada killers burrow in a sandy patch at Tankerhoosen WMA.

What is early successional habitat?

Succession is the natural process where one group of plants is replaced by another group of plants over time. Each stage in the process of succession is important to different species of wildlife. The stages can progress from bare ground to grassland to old field to shrubland to young forest and, finally to mature forest.

Then and Now: DDT and Wildlife

Take a trip along the Connecticut River and you will most likely be treated to the sight of a bald eagle flying or roosting any time of the year. Visit the Roger Tory Peterson Wildlife Area in Old Lyme, Hammonasset Beach State Park in Madison, or other coastal marshes in summer and you will definitely see ospreys sitting on their nest platforms or soaring in search of food. If you ever hike in areas where rocky cliffs are nearby, be on the lookout for nesting peregrine falcons. Connecticut residents who are fortunate enough to observe these beautiful birds of prey may find it difficult to imagine that there was once a time in history when these

birds had either disappeared from or were extremely rare in our state. The stories of these raptors' decline are connected by the use of organochlorine pesticides, most notably DDT, and the devastating effects on the birds' reproduction.

According to the U.S. Environmental Protection Agency (EPA), DDT (dichlorodiphenyl-trichloroethane) was developed in the 1940s as the first of the modern synthetic insecticides. It was initially used to combat malaria, typhus, and the other insect-borne human diseases. Its use became more widespread for insect control

in crop and livestock production, institutions, homes, and gardens. During the 1950s and 1960s, DDT was used for mosquito control in Connecticut salt marshes. DDT accumulated in the food chain and, when contaminated food was ingested by eagles, ospreys, and peregrines, the birds began to lay eggs with weakened shells, resulting in nest failures due to cracked eggs. The populations of these three birds plummeted to the point where bald eagles and peregrine falcons no longer nested in Connecticut; the last bald eagle nest was documented in the 1950s and the last

documented peregrine falcon nesting occurred on the Travelers Tower in Hartford in the late 1940s. A significant decline was noted in the state's osprey population in the 1960s, and by 1974, only nine active nests were recorded in Connecticut.

These three birds were also facing other challenges at the time: lack of nest sites, development of habitat; collection of eggs and adults (peregrines); and illegal shooting (eagles). The disastrous effects of DDT on the reproduction of these birds precipitated their decline, and the declines did not go unnoticed.



The speed and global scale of the peregrine falcon's decline make it one of the most remarkable events in recent environmental history. The most significant factor in the bird's recovery was the ban placed on DDT use.

Historic Osprey Egg Heist

In the 1960s, when the causes of the decline in osprey populations were not immediately obvious, Connecticut ospreys played a major role in the solution to the nest failure puzzle. As scientists looked for answers, environmental contaminants became prime suspects. If pollutants were responsible for nest failures, how so? Were there toxic effects on the eggs? Or, were nest failures a result of pesticide-induced behavioral changes that altered the nest attentiveness of the female or even the ability of adult birds to catch and provide fish for nestlings.

Aware that production by Chesapeake Bay ospreys had remained stable, researchers proposed an "egg switch" program. In the springs of 1968 and 1969, osprey eggs were taken from failing Connecticut nests and placed in productive Chesapeake Bay nests, and vice versa. After the switch, incubation of 30 Connecticut eggs by Maryland ospreys did not improve the hatching rate. However, 45 Maryland eggs incubated by Connecticut ospreys hatched at their normal rate of success. This result indicated that nest failures were not due to aberrant adult behavior and that the most probable cause was contamination of the eggs. Further testing solved the mystery and verified that DDT-induced eggshell thinning was responsible for the nest failures.

Early Warning Signs

DDT's effect on people did not go unnoticed either. According to Connecticuthistory.org, in the late 1940s, Dr. Morton Biskind, a physician from Westport, Connecticut, began noticing new ailments in his patients, as well as in domestic animals and wildlife. The ailments he observed included degenerative problems in the brain, internal organs, and muscles. In 1949, he and Dr. Irving Beiber published "DDT Poisoning: A New Syndrome with Neuropsychiatric Manifestations" in the *American Journal of Psychotherapy*. Biskind's warnings about DDT were largely ignored.

In 1950, he testified before the U.S. Congress about the harmful effects of DDT. As more studies and observations showed the devastating impact of DDT spraying on wildlife, as well as direct links to cancer and other diseases in people, Biskind's message began to be heard.

The publication of Rachel Carson's famous book, *Silent Spring*, in 1962 was eye-opening, causing widespread concern over the dangers of improper pesticide use (including DDT) to nature and people and demonstrating the need for better pesticide controls.

Taking Action

According to an article in the *New York Times* in August 1964, the Connecticut Board of Pesticide Control was established on January 1, 1964, under a new law, which was inspired by *Silent Spring*. The Board had no jurisdiction over the private use of DDT or other insecticides but it required permits for aerial spraying. Use of DDT for aerial spraying of wooded areas in Connecticut to control gypsy moths was banned by the State Board of Pesticide Control in 1965. Many communities in Connecticut voluntarily stopped using DDT to combat Dutch elm disease and substituted other insecticides. According to the *New York Times*, Arroll Lamson, chief of the game division of the Connecticut Board of Fisheries and Game, said that conservationists were "very happy" over the ban on DDT spraying.

Even more limitations on the use of DDT were implemented in Connecticut and several other states by 1969.

In 1970, President Richard Nixon created the U.S. Environmental Protection Agency – an independent agency to regulate the environment. At that time, politicians on both sides of the aisle were concerned and responding to real and serious pollution and environmental problems in cities, towns, and rural areas throughout the country. By 1972, the EPA banned the use of DDT nationwide based on its adverse environmental effects, such as those to wildlife, as well as its potential human health risks.

In response to the drastic decline in bald eagles and other wildlife, the federal Endangered Species Act (ESA) was enacted in 1973 during President Nixon's tenure to protect rare species



DDT spraying at Jones Beach State Park in New York in 1945 while people are enjoying the beach.

PHOTO COURTESY OF THE DOCUMERICA PROJECT BY THE ENVIRONMENTAL PROTECTION AGENCY

of plants and animals. The ESA was considered one of the most important wildlife conservation laws in American history, passing the U.S. Senate with a vote of 92 to 0. Building on the success of this federal program, the Connecticut Endangered Species Act was passed in 1989 to conserve, protect, restore, and enhance endangered or threatened species and their essential habitats.

Actions Led to Results

Populations of bald eagles, peregrine falcons, and ospreys eventually began to recover due to the ban on DDT use, habitat and nest protection measures, and successful reintroduction programs in the case of bald eagles and peregrines. Connecticut saw the return of a nesting bald eagle pair in 1992 and, by 2016, there were 51 nesting territories and 34 successful nests that produced 58 eagle chicks. By 2007, the bald eagle was officially removed from the federal Endangered Species List and it was reclassified from endangered to threatened in Connecticut in 2010 (bald eagles are still protected on the federal level by the Bald Eagle and Golden Eagle Protection Act of 1940 and the Migratory Bird Treaty Act of 1918). The peregrine falcon was removed from the federal Endangered Species List in 1999 due to its remarkable recovery; it was reclassified from endangered to threatened on Connecticut's list in 2010. Nesting pairs returned to our state in the mid-1990s and continue to increase; sightings of peregrines are becoming more common. The osprey was originally listed as a

species of special concern in Connecticut in 1992, but it has since been removed from the state list because of its dramatic recovery and the increase in nesting pairs in both coastal and inland areas. The Wildlife Division continues to monitor the nesting activities of all three of these raptors in our state, with help from a dedicated group of volunteers.

The stories of these birds demonstrate that protections afforded by both state and federal regulations, whether they are related to pesticide use, habitat conservation, or restoration efforts, have had a significant impact on the recovery of these once rare raptors.

Connecticut's Pesticide Control Act

While the U.S. Environmental Protection Agency (EPA) had authority to review and register pesticides for specified use, it also gave states primary enforcement and certification (licensing of applicants) authority over this type of activity, provided that their laws were adequate to protect people and the environment. The 1975 Connecticut Pesticide Control Act was our state's response. With DDT banned on both the state and federal levels three years earlier, the Pesticide Control Act and regulations promulgated under it provided a route to start restricting and eventually banning the more environmentally damaging pesticides of that era. The federal law allowed states to make determinations about the use of chemicals. As a result, products such as kepone, dieldrin, chlordane, phosphorus paste, and lindane were either restricted severely or banned outright. In several cases in Connecticut, these actions predated those taken by the EPA.

Today, pesticides undergo more testing and evaluation before marketing. New pesticides reaching the market are safer than those of the 1970s and the control over their use is much tighter. Most of the older products have been phased out or severely restricted. Virtually all of the states have active regulatory programs, and Connecticut had one of the first. In addition, there is greater public awareness that the most effective means of controlling pests is understanding the entire system and using an integrated approach, not just reaching for the nearest poison.

To learn more about DEEP's Pesticide Management Program, visit the DEEP website at www.ct.gov/deep/pesticides.

Resolve to Fish for Something New in 2017

Written by Mike Beauchene, DEEP Fisheries Division

For many of Connecticut's early residents, fishing was a necessity, a way to provide food to sustain their families. With only a few large native species able to be harvested as food, fisheries managers throughout the mid- to late 1800s quickly introduced a number of large game fish species that were native west of Connecticut (i.e., pike, bass, walleye, channel catfish, rainbow trout, and Pacific salmon) and from as far away as Europe (i.e., common carp and brown trout). Over time, the primary reason to fish has shifted towards sport and recreation.

Without a doubt, trout and bass are the most popular freshwater fish in Connecticut and what many, if not most, anglers desire to catch. The Fisheries Division would like anglers to discover the diversity of fisheries that are managed in Connecticut so that they can enhance their recreational fishing opportunities. Detailed reports about each of these fisheries are available on the DEEP website at www.ct.gov/deep/fishing or by request at 860-424-3474.



Walleye, stocked as fingerlings (4-6 inches), quickly grow to a quality fish, like this one sampled by fish biologist Ed Machowski.

Walleye: The history of stocking walleye in Connecticut dates back to the early 1900s. During a 47-year period (1911-1958), approximately 77 million walleye fry were stocked into a number of waterbodies throughout the state. In 1993, after a lapse of 35 years, the Fisheries Division resumed stocking walleye as fingerlings (4-6 inches) into a handful of lakes. All of the walleye fingerlings purchased by the Division are funded with Federal Sport Fish Restoration money and originate from commercial vendors in the Midwest. Walleye anglers often fish at night with live shiners, a variety of jigs, or through the ice. As of 2016, the following were stocked by the Division: Mount Tom Pond, Squantz Pond, Lake Zoar, Batterson Park Pond, Cedar Lake, Gardner Lake, Coventry Lake, Mashapaug Pond, West Thompson Reservoir, and Beach Pond. In addition, Woodridge Lake, Saugatuck Reservoir, Lake Saltonstall, Lake Pocotopaug, and Lake Terramuggus are stocked by the respective water company, lake association, or municipality responsible for the lake.

State Record: Vincent Deledda, Beach Pond, Voluntown, 2015 (15 pounds, 4 oz.).

Channel Catfish: One of the most popular freshwater game fish in the country – channel catfish – has been present in the Connecticut River since the mid-1950s, with the Fisheries Division management program beginning in 2007. Stocking channel catfish provides a high-quality shoreline fishery during summer, especially in urban areas. As with walleye, these fish are purchased using Federal Sport Fish Restoration funds. Each May, juveniles and adults are transported to Connecticut from a private hatchery in Arkansas. Channel catfish are stocked as adult-sized fish (to provide immediate harvest opportunity) and as juveniles (to provide a longer-term fishery as these fish take a couple of years to reach harvestable size). Channel catfish will take a variety of baits, including live minnows and worms. They also are fond of cut baits, like mackerel or herring.

State Record: Appleton Barrows, Mashapaug Lake, Union, 2004 (29 pounds, 6 oz.).



Large pike, like this one caught by Joe Jacobowitz, are the goal of pike management.

Northern Pike: Though not native to Connecticut, northern pike have been present in the Connecticut River since the mid-1800s. The Fisheries Division began actively managing pike in the early 1970s by importing and stocking them into Bantam Lake to control stunted panfish populations. Shortly after introduction, a popular pike fishery developed in Bantam. In the 1980s, to expand pike fishing opportunities, the Fisheries Division began raising fingerling pike in managed marshes and stocking them into additional lakes (Winchester Lake, Mansfield Hollow Reservoir, Pachaug Pond, and Quadick Reservoir), as well as in the Connecticut River. A quality pike fishery also exists in Lake Lillinonah (supported through stocking by the Lake Lillinonah Authority), as well as other impoundments of the Housatonic River (likely due to downstream movement from Massachusetts).

State Record: Joseph Nett, Lake Lillinonah, Brookfield, 1980 (29 pounds).

Without a doubt, trout and bass are the most popular freshwater fish in Connecticut, and what many, if not most, anglers desire to catch.



The Broodstock Atlantic Salmon Program offers a unique opportunity to catch a fish that has not been commonly caught in Connecticut since the early 1800s.

Broodstock Atlantic Salmon: This unique fishery started in 1992 when a limited number of fish that were past reproductive prime for the restoration program were stocked into the Shetucket and Naugatuck Rivers. Beginning in 2007, broodstock have occasionally been stocked into Mount Tom Pond, Beach Pond, Crystal Lake, and Mashapaug Lake. The broodstock Atlantic salmon fishery is very popular and Fisheries Division stocking is anticipated by many anglers. In order to support this fishery, the Division is specifically producing about 1,000 to 1,200 two- to three-year-old fish and 200 to 250 four- to six-year-old fish to stock annually.



Common carp are Connecticut's largest minnow. They are also the largest freshwater fish averaging over 20 pounds. A fan-tail is a genetic mutation where the fins have a "feather-like appearance."

Common Carp: Introduced by the United States Fisheries Commission in 1870s, common carp were imported from Europe as a solution to feed a growing nation. Common carp are widespread across the state and support an increasing number of anglers who specifically fish for our largest freshwater fish. Traditionally snubbed by many fishermen, Connecticut's carp are gaining international recognition as an excellent fishery due to the number of large fish (over 25 pounds) that can be caught in a short period of time.

State Record: Mike Hudak, Connecticut River, Hartford, 2012 (43 pounds, 12 oz.).



Unlike the Atlantic salmon, kokanee or sockeye salmon undergo physiological, shape, and color changes just prior to spawning.

Kokanee Salmon: A landlocked version of a Pacific sockeye salmon, the Kokanee, was first introduced into a couple of lakes in the 1930s. Each fall, reproductively mature adults undergo changes to body shape and function, most notably turning crimson red. The Fisheries Division traps these mature fish and transports them to the Burlington State Fish Hatchery where they are spawned. Each spring, the recently hatched fry are stocked into West Hill Pond and East Twin Lake. Kokanee are a challenge to catch, though "sharpies" do well by very slowly trolling small lures or using "corn" at night by lantern light.

State Record: Tom Pasko, East Twin Lake, 2011 (2 pounds, 14 oz.).

Sea-Run Brown Trout: A program to enhance sea-run brown trout ran from the 1950s through the 1960s. Since that time, the Fisheries Division has been receiving annual reports of beautiful returning fish in some of our major tributaries to Long Island Sound. Beginning in 2016, the Fisheries Division has been stocking Latimer Brook with two-year-old sea-run brown trout smolts hatched from eggs imported from the Iijoki River in Finland. In order to be able to identify an "Iijoki" fish, one of their ventral fins was removed prior to being stocked. Returning sea-run brown trout should be over 15 inches in length and missing one of their ventral fins. Should you be fortunate to catch one of these amazing fish, please send an email to timothy.wildman@ct.gov or call 860-447-4315.

State Record: Ronald J. Merly, Saugatuck River, Westport, 2006 (10 pounds, 8 oz.).

Funding to support the diverse recreational fisheries in Connecticut is comprised by a combination of state General Fund dollars, fishing licenses fees, and the Federal Sport Fish Restoration fund (administered by the U.S. Fish and Wildlife Service). Those interested in details about how many fish are stocked and where should refer to the "Annual Fish Stocking Report" or the annual project reports (in the publication section) at www.ct.gov/deep/fishing.

Starting this year, 2017, we encourage you to expand your fishing skills by fishing for a species that is outside of your normal "casting zone." We are confident that you will be hooked!

Boreal Butcher - The Northern Shrike

Article and photography by Paul Fusco, DEEP Wildlife Division

One of the more interesting and unusual birds that can be found in Connecticut is the northern shrike. Considered to be a rare and irregular winter visitor, the northern shrike typically shows up erratically and in very small numbers. During some winters, none may be observed in Connecticut, while in incursion years there might be a few. Incursions are periodic and happen when there is a shortage of food farther north, forcing numbers of shrikes to migrate farther south than they normally would go.

Shrikes are unusual in that they are the only predatory songbirds. Northern shrikes, in particular, consistently prey upon vertebrate animals. Small birds and mammals make up the majority of their diet. The list of birds preyed on include chickadee, junco, downy woodpecker, horned lark, goldfinch, mourning dove, crossbill, redpoll, and many types of sparrows, including the house sparrow. Shrikes will catch and eat large insects, such as grasshoppers and beetles. Reptiles and amphibians may also be taken when available.

Description

Having a length of approximately 10 inches, northern shrikes are about the size of a robin. The body plumage is gray on top with a pale underside. The wings are black with white patches, and the tail is black with white outer feathers. The white patches in the wings and tail are conspicuous when the bird is in flight. The long tail gives them an agility advantage when in pursuit.

One notable feature of the northern shrike is the heavy black mask extending from behind the eye to the edge of the bill. Shrikes have a large head compared to other similar-sized birds. The large, heavy bill has a blunt end with a strongly hooked upper mandible. In northern shrikes, the bill is black with a pale base on the lower mandible. Similar to a falcon, this songbird has a tooth-like notch in the upper mandible that helps it kill by severing the neck of its prey.

Adult northern shrikes have faint barring on the breast and belly, while immature birds are brownish overall, and have



Shrikes can be easy to spot when perched in the open, but they may stay hidden in thick cover for long periods of time, making them difficult to find.

slightly heavier barring on the underside.

The typical flight pattern of a shrike is undulating and swooping, albeit direct. Flight can be aggressive and persistent when the shrike is after a meal. This behavior has been likened to the aggressiveness of a goshawk or merlin as the shrike will sometimes attack a bird larger than itself.

Another bird that is loosely similar in appearance to the northern shrike is the northern mockingbird. Mockingbirds are about the same size and have superficially similar plumage and a long tail. They also inhabit similar open and shrubby habitat as the shrike. However, mockingbirds have a thin, pointed bill and a smaller head, but lack the black wing and tail plumage and black mask.

Habitat / Range

Northern shrikes have a widely scattered distribution across the boreal regions of northern North America and Eurasia in places where the boreal forest transitions to tundra. The North American population migrates to spend the winter in the northern United States and southern Canada.

In breeding areas, the shrike's typical habitat is open tundra with a component of willows and scattered taller spruces. In

winter, northern shrikes use early successional habitats, such as fields, shrublands, wetlands, and forest edges. The habitat typically has a component of thorns or barbed wire fences.

Behavior

Away from the breeding season, wintering northern shrikes are solitary, occurring in seemingly barren and desolate places where they are able to eke out a living. With tail held horizontally, a shrike may be seen perched atop a tree or other commanding position. A wary and watchful sentinel, the shrike will scan for potential prey. When a target is spotted, the bird will launch into a swift and aggressive flight to chase down the prey in an active pursuit that may be reckless and relentless. The shrike may knock a small bird from the air with its heavy bill or feet. Upon downing the prey, the shrike inflicts killing bites with its hooked and notched bill. In the case of a mouse or vole, the shrike attacks the back of the neck or head with blows from its heavy bill as the small mammal tries to escape. Once the prey is disabled, the shrike makes a series of killing bites to the neck. Shrikes also hunt by hovering over potential prey.

Shrikes are known to kill more than



In Connecticut, northern shrikes are found in early successional habitats, such as fields, shrublands, wetlands, and forest edges. The habitat typically has a component of thorns or barbed wire fences which the birds use to impale and hang their prey.

they will eat, bringing the excess to a “pantry,” which can be a barbed wire fence or thorns, where the prey is impaled. Prey may also be hung in the fork of small branches. A shrike may have multiple victims hanging in its larder, returning to feed on them when food becomes scarce. Because of its aggressive nature and the habit of maintaining a grisly food cache, the northern shrike is also known as the “butcher bird.”

Nests are bulky structures built with small twigs and roots that are woven together with feathers and hair. Nests may be built in a dense conifer or willow shrub. Four to six greenish-white eggs is the typical clutch size. Eggs are heavily blotched and spotted with brown and purple. Once the eggs hatch, the young fledge after about 20 days and may be tended to and fed by the adults for another 10 days.

The voice is a complex mixture of warbles, trills, whistles, and harsh tones that at times may be gentle, musical, or raspy. Northern shrikes are known to have a skill for mimicry, sometimes imitating the songs of other birds.

Conservation

Northern shrikes are currently not considered a species of conservation con-



Immature northern shrikes have brownish plumage with distinct barring on the underside.

cern, primarily because of difficulties in conducting surveys and population assessments due to the bird’s remote breeding range. In addition, this uncommon species has a wide distribution.

Northern shrikes are not commonly encountered in Connecticut. When they are here, they are almost always found in

early successional or inland wetland habitats. Efforts to protect and manage early successional habitat for the New England cottontail, American woodcock, chestnut-sided warbler, and other young forest wildlife will also benefit the conservation of the northern shrike.

How Far We've Come: A Century of Woodland Owner Assistance

Written by Casey Watts; based on a PowerPoint presentation by retired Connecticut Service Forester Rob Rock

When the conservation movement started over a century ago, Connecticut was at the forefront. The first State Forester position was created more than 100 years ago, and some of the practices those early foresters performed are still used to this day. Currently, about 59% of Connecticut, 1.8 million acres, is covered in forest, which is significant considering Connecticut is the fourth most densely populated state in the nation. Private individuals own 88% or 1.6 million acres of Connecticut's woodlands. This goes to show that Connecticut has a long-enduring relationship with forests and seeks to protect them against the lasting effects of colonization, urbanization, and industrial needs, all of which drastically decreased the percentage of forest cover over history.

Before the DEEP Forestry Division

To understand why assistance to woodland landowners developed into a core practice in Connecticut, one needs to understand the history of our state's woodlands. When colonists first arrived in Connecticut, nearly 95% of the state was forested. The land was quickly colonized by settlers who created farms and pastures by clearing forests. Timber also was cut to export to England and for use in Connecticut's shipbuilding industry. The demand to clear trees decimated the state's woodlands over time.

By the mid-1800s, the forests that the first settlers had seen were essentially gone. However, farms were eventually abandoned as settlers moved West in search of better farmland and other opportunities, allowing the forests to grow back. With the arrival of the Industrial Revolution, the demand



The tradition of a State Forester visiting a landowner's property at their request is still being practiced, now providing landowners with a wealth of information, such as a description of the landowner's forest cover, stewardship options, and recommended actions.

PHOTO: DEEP FORESTRY DIVISION

for charcoal for fuel to make iron, brass, bricks, and glass exploded, resulting in the repetitive cutting of massive portions of Connecticut woodlands. At the height of the charcoal production, an estimated 14,740 acres (23 square miles) of woodland were cut each year to provide for this industry.

During this same time period, steam locomotives caused numerous forest fires as they traversed across the state. Asian chestnut blight decimated the American chestnut, resulting in a massive salvaging operation. The invention of the portable steam

powered sawmill allowed industries to increase the speed and volume of timber cutting. When all of these factors were put into play, the majority of Connecticut woodlands had either been cut down or burned at least once by the 1920s.

Origins of the Forestry Division

Around 1875, the first forestry associations were established. At that time, roughly 30% of Connecticut was forested, which was a far cry from the original estimate of 95%. This helped spur the need for conservation of Connecticut's forests. In 1875, the Connecticut Agricultural Experiment Station was established, and in 1895, the Connecticut Forest Association was created (which later became the Connecticut Forest and Park Association in 1928). In 1901, the Agricultural Experiment Station hired Walter Mulford as the first State Forester, who was tasked with establishing state forests to be used as demonstration areas for educating Connecticut's landowners about forestry and encouraging them to implement forestry practices on their lands.

In 1904, Austin F. Hawes became Connecticut's second State Forester and its first Service Forester.

He began the Service Forestry Program in 1905 by visiting landowners and offering forestry advice and assistance. Hawes said, "Most of Connecticut's landowners were small farmers who preferred getting first-hand information by conversation with the forester to following a written working plan. Accordingly, the forester visits such tracts and advises the owner as to what open land may be profitably planted with trees and what woodlots should be thinned." This practice has since continued in Connecticut, as State Foresters keep up with



Today, about 59% percent of Connecticut is covered with forest. This can largely be attributed to State Foresters who instructed landowners on how to sustainably manage their woodlands.

this tradition by going out at landowners' request to walk through their property and offer advice on how to manage woodlands.

Woodland owner assistance programs were established after a series of natural disasters, including the Hurricane of 1938, and concerns of widespread forest fires created a need for Connecticut to push sustainable forest practices. The Extension Forester position was established in 1926 at the University of Connecticut, followed by the Farm Forestry Program in 1940, which was a cooperative effort by state and federal agencies to provide additional assistance to private landowners. To accomplish this task, four Farm Foresters were funded in 1941 by the State and the U.S. Department of Agriculture's former Soil Conservation Service (now known as the Natural Resources Conservation Service). In 1945, The U.S. Forest Service (USFS) took over for the Soil Conservation Service. The USFS started to play a huge role in Connecticut's service forestry around 1950, when it began to assist private landowners through state forestry agencies, promoting forest stewardship and sustainability and becoming one of Connecticut's biggest partners in landowner assistance to this day. The USFS provides

much of the funding and research that the DEEP Forestry Division and landowners depend on. In 1951, the Farm Forestry Program was renamed the Service Forestry Program, establishing today's State Service Foresters. By the early 1970s, the eight counties in Connecticut each had a State Forester that administered the Service Forestry Program.

Today's Forestry Division

Today's Forestry Division has adopted many more responsibilities and functions compared to its original predecessors. Currently, only two State Service Foresters, who are certified professionals, **offer one-on-one professional advice and technical assistance at no charge to promote forest stewardship and sound multiple use management on privately and municipally-owned Connecticut woodlands.**

The tradition of a State Forester visiting a landowner's property at their request is still being practiced, now providing landowners with a wealth of information, such as a description of the landowner's forest cover, stewardship options, and recommended actions. Many studies have

found that landowners benefit significantly from these visits, as they are more likely to use proven conservation methods for their property and have increased awareness of the value of their property. Service Foresters encourage the healthy growth of woodlands, which might require cutting down trees. This approach is beneficial as it promotes healthy forest growth and can provide monetary benefits to the landowner.

Today, about 59% percent of Connecticut is covered with forest. This can largely be attributed to State Foresters who instructed landowners on how to sustainably manage their woodlands. About 88% of the woodlands in Connecticut are privately-owned. A large percentage, 1.3 million acres, of Connecticut's woodlands are owned by a small percentage – 25,000 – of the state's population in holdings of 10 acres or larger. This group of private landowners is the target audience of Service Foresters because these individuals have a huge impact on the health and well-being of almost all of Connecticut's woodlands. For this reason, the DEEP Forestry Division aims to empower landowners with methods and information for conserving one of Connecticut's best natural resources.

Midwinter Waterfowl Survey Cuts

Written by Min Huang, DEEP Wildlife Division

The Midwinter Waterfowl Survey was one of the longest continuous surveys conducted in North America. All states in the Atlantic Flyway annually participated in this cooperative effort in conjunction with the Atlantic Flyway Council and the U.S. Fish and Wildlife Service (USFWS). The results of this survey were used as an index to wintering populations and provided relative information on waterfowl distribution and habitat use. These data were used by the habitat Joint Ventures as measures of habitat condition and the relative success of habitat delivery programs.

The traditional survey area in Connecticut covered the entire coastline, the three major river systems (Housatonic, Connecticut, and Thames), and a sample of inland reservoirs within a 10-mile radius of the coastline. The survey area was delineated into nine segments.



P.J. FUSCO (2)

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Tundra swans are rare winter residents in Connecticut. More frequently, they stop over in spring on their way north and west to their breeding grounds.

In 2015, the USFWS, due to budget cuts, suspended their participation in this survey. The survey has traditionally been used for setting hunting regulations for only two species, Atlantic brant and eastern tundra swan. To address that need, the Atlantic Flyway states continue to fly the survey, but only concentrate on those two species. In Connecticut, the Wildlife Division has not been counting all waterfowl during the survey since 2015. Flying, particularly in winter, is dangerous and by only counting brant, the survey time has been cut in half (the tundra swan does not occur in regular numbers in the state). This results in a cost savings and also a potential increase in safety for the biologists doing the survey. What is lost by not doing the entire survey is a snapshot of wintering waterfowl population size and distribution.

The loss of funding for this survey by the USFWS is just the latest in a long list of surveys and activities that have recently been suspended or lost due to budget cuts. The USFWS Division of Migratory Bird Management budget has been cut some 20% in the past decade and with that has come a significant loss of conservation delivery. Conservation is a luxury, and as our economy has struggled, so has funding for critical conservation programs. The future for migratory birds may be a bit bleaker should current funding woes continue.



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Brant are distributed throughout coastal Connecticut during winter and early spring, particularly around New Haven Harbor and New London.

Crossbows Continue to Provide Hunting Opportunities

Written by Andrew LaBonte, DEEP Wildlife Division

In 2009, crossbows were permitted as a management tool in deer management zones (DMZs) 11 and 12 during the January archery season. In 2013, crossbows were legalized statewide for use during the entire archery deer season. Crossbows can increase participation from youths, women, and aging hunters whom may have physical difficulty drawing and holding a regular bow. They are becoming increasingly popular since first becoming legal in our state, and use has continuously increased over the years, especially during the January archery season.

In 2014, 62% of deer harvested during the January archery season were taken with a crossbow, up from 38% in 2011. Proportion of deer harvested with crossbows has declined slightly (54%) in the past couple of years, with one possible reason being that warmer temperatures allowed hunters to continue using their traditional or compound bows even throughout January. Those types of bows are more difficult to draw and hold during cold weather, while crossbows can pose few challenges in drawing and holding. Based on conversations with some hunters, they may still prefer the challenge of harvesting deer with more traditional methods when the opportunity presents itself, especially those archers who consider themselves to be more elite hunters.

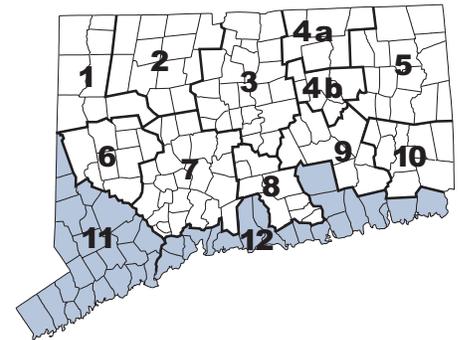
In spring 2016, the Wildlife Division sent an email to hunters who purchased an archery permit in 2015 to further assess archery deer hunter participation, equipment use, and harvest opportunities in Connecticut. No responses were received from hunters under the age of 18. When

hunters were asked which type of hunting implement they used when they first began hunting deer, five percent of hunters indicated they began using only a crossbow, while 18% of females indicated they began only using a crossbow. Crossbows which hold arrows/bolts mechanically in place allow female and young hunters, who may not have the physical strength to hold other types of bows at full draw, the opportunity to archery hunt.

When hunters were asked why they originally took up archery hunting, the opportunity to hunt deer with a crossbow ranked low on the list (14%) as it did for the reason why they purchased their permit in 2015 (13%), although slightly more (18%) indicated that they recently began archery hunting because of the opportunity to use a crossbow.

When hunters were asked which type of archery equipment they primarily hunt with, most used compound bows (69%) and crossbows (28%), while few (3%) used recurve or long bows. Of female hunters, 35% primarily used crossbows. When hunters were asked if they switched from another type of bow to a crossbow when they became legal, most did not switch (63%), while some began hunting with a crossbow (9%). Nineteen percent of hunters switched when crossbows were legalized statewide, five percent switched when they became physically disabled, and four percent switched when it was legalized in DMZs 11 and 12. Most hunters (58%) felt that switching to a crossbow increased their harvest potential, 15% were unsure, and 27% felt it did not. All female hunters who switched from

Deer Management Zones



a standard bow to a crossbow when it was legalized believed it increased their harvest potential.

About half of hunters who began using a crossbow (47%) or switched to a crossbow because of a physical disability (51%) indicated they would not be archery deer hunting if crossbows were not legalized. Few hunters (12%) who switched to crossbows when they became legal in DMZs 11 and 12 indicated they would not be archery deer hunting if crossbows were not legalized.

Archery hunters are considered an elite group which enjoys the challenge of harvesting deer at close range with more primitive equipment than gun hunters. Over half of archery hunters (51%) surveyed were over the age of 50. This is similar to the national age of the hunting public, which has been increasing over the past decade. With this aging trend, providing hunters the opportunity to archery hunt with a crossbow enables them to continue enjoying the challenge.

Use Your Tax Refund to Protect Wildlife and Habitat

Connecticut's "Endangered Species/Wildlife Income Tax Check-Off Fund" was created in 1993 by the State Legislature to allow state income taxpayers to voluntarily donate portions of their tax refund to support efforts aimed at helping Connecticut's endangered species, natural area preserves, and watchable wildlife. When you donate all or a portion of your tax refund for wildlife and endangered species, funds will be used for projects to help state-listed plants, reptiles and amphibians, bats, ospreys, and more. Look for the Refund section on your tax return, and check the box for the Wildlife Fund. You can deduct your donation from next year's federal income tax. Donations also can be sent to DEEP Bureau of Financial and Support Services, 79 Elm Street, Hartford, CT 06106-5127. Learn more at www.ct.gov/deep/endangeredspecies.



On behalf of Connecticut's nature – we thank you!

How Science Guides Habitat Management for Wildlife

Written by Min Huang, DEEP Wildlife Division

The only way to increase wildlife populations is through increasing the quantity and/or quality of habitat. The old adage of “build it and they will come” is often used in the wildlife profession. But, just as often, there is rarely the opportunity to quantify the actual outcome of habitat management on the intended species being managed. The link between improving habitat quality and increasing wildlife populations is certainly less straightforward than the link between increasing the amount of a given habitat and subsequent growth in wildlife populations. Over the years, the Wildlife Division has had the opportunity to examine and measure the effects of habitat management practices on species of interest. In some cases, only changes in abundance have been measured. In other cases, population parameters, such as survival or productivity, have been measured and assessed.

American Woodcock

Research efforts are geared to inform and dictate subsequent management strategies. As an example, in 2002, in response to the concern over American woodcock, the Wildlife Division initiated



Seasonal Resource Assistant Deb Simon holds a woodcock fitted with a radio transmitter prior to release at Roraback Wildlife Management Area in Harwinton.

PHOTO BY P. LAUDANO

a research project to assess population status, delineate current and potential habitat, and determine habitat use and survival rates of woodcock in the state. As part of the research, study sites were

either excellent quality (large, contiguous blocks of habitat specifically managed for early successional species) or lower quality (disjunct and patchy habitat, mostly in suburban areas). It was hypothesized that survival rates and, potentially, habitat use would differ between woodcock inhabiting large, high quality blocks of habitat and those found in more patchy, fragmented, lower quality habitats. Researchers discovered that survival differed between high and low quality areas in two of three years. Survival rates in high quality sites averaged about 58% and close to 34% in low quality areas. This study informed future land management for woodcock.

The traditional mantra that numerous small openings within a matrix of younger aged forest stands represent the most beneficial management for woodcock does not apply to urbanized states like Connecticut. Using knowledge gained from the study, a habitat project for woodcock was conducted at Roraback Wildlife Management Area (WMA) in Harwinton in 2009. The Wildlife Division assessed woodcock survival before the habitat work, and is now assessing it seven years after the work. The first year (2016) of the study indicated high survival rates and smaller home ranges for woodcock than before the habitat work was conducted. A five-fold increase in woodcock abundance also has occurred at the site. Birds will be monitored for at least one more year to more definitively determine how the habitat work has benefited woodcock.

East River WMA

Another example of how research can inform habitat management comes from a marsh restoration project at East River WMA in Guilford and Madison that was conducted by the Wildlife Division's Wetlands Habitat and Mosquito Management (WHAMM) Program in 1999. This heavily-ditched marsh has been an important site for waterbirds and passerine birds. The restoration work encompassed approximately 38.67 acres and involved the plugging of approximately 21 ditches and the creation of 16 ponds.

An initial assessment of bird use of both treated and untreated areas was undertaken in 2002 through 2003. The area was divided into six plots, three



Restoration at East River Wildlife Management Area consisted of plugging ditches, creating new creeks, and creating small, shallow ponds.

R. WOLFE, DEEP WILDLIFE DIVISION

treated and three untreated. Treated plots had consistently higher waterbird use than untreated plots. Wading bird use was three times higher, shorebird use was more than four times higher, and waterfowl use almost two times higher on treated sites than control sites. Similar surveys were conducted every three years through 2009. Three separate avian use assessments of the restoration efforts at East River WMA, spanning nine years post-restoration, consistently indicated that wading bird, shorebird, and waterfowl use of treated areas was significantly higher than on untreated areas. Furthermore, the use of treatment areas increased over the course of the three separate assessments.

Inland Impoundments

Science in the form of waterfowl and wading bird data has guided management of inland impoundments across the state. In the absence of water level management, many inland impoundments are too deep and do not support the rooted aquatic vegetation that is desired by waterfowl and prey animals of wading birds. Surveys of bird use and associated brood counts have verified that many impoundments do not support the vegetation structure and water levels they should for their intended purpose. As a result, efforts have been focused on a number of high priority impoundments. The Wildlife Division has procured grant monies to install more water control structures and devoted limited manpower towards impoundment management. These efforts have created desired vegetation and water conditions and increased the use and productivity of these high priority impoundments.

Ruffed Grouse

Ruffed grouse have been disappearing from Connecticut's landscape for the past 30 years. Research conducted by the Wildlife Division indicated that maturation and fragmentation of habitat have led to the decline of Connecticut's grouse population, resulting in the existence of small remnant populations. Colonization of new habitats by grouse is poor due to the habitat fragmentation. Grouse populations will only recover if large scale forest management is undertaken, and this may not be compatible with other forestry and wildlife objectives.

Forest Interior Birds

Science has been used to better guide forest management practices for forest



P. J. FUSCO

The wood thrush, a forest interior bird, is declining throughout most of its breeding range.

interior birds. Approximately 30% of forest interior birds are currently declining. Over 80% of young-forest dependent birds also are declining. This situation creates a management quandary: how do we best serve both groups of birds? Currently, only six percent of Connecticut's forest is classified as young forest (early successional habitat). A healthy landscape should contain a minimum of 15%.

The Wildlife and Forestry Divisions have made concerted efforts to increase the amount of young forest in Connecticut, largely through clearcutting. If young forest habitat is to occur at higher frequencies, it is critical to understand how this will potentially fragment an already fragmented forested landscape. Also, it is paramount to understand how forest interior birds respond to large disturbances, such as clearcuts. Understanding the effects, whether positive or negative, will better inform where and how to create young forest habitat. The Wildlife Division conducted a study to assess nesting success of forest interior birds in relation to disturbance (forestry activities) to better inform placement of young forest habitat on the landscape and within New England cottontail and American woodcock focus areas. Wood thrush and ovenbirds were the focus of the study, which was designed to encompass relatively undisturbed, core forest areas and disturbed core forest areas. Nests of these birds were monitored in four study sites for a three-year period.

Nesting wood thrush in Connecticut appear to be sensitive to disturbed forest

blocks, and may prefer to nest in relatively undisturbed areas. Ovenbirds were not as sensitive to disturbance as wood thrush in Connecticut. Ovenbird nest distribution between core study areas and moderately disturbed study sites was similar, and nest success in disturbed study sites was actually higher than in core areas. Overall, nesting success of ovenbirds and wood thrush in Connecticut was comparable with the published values for the species. Ovenbirds seem to be more tolerable in their nesting preferences than wood thrush. This ability to nest successfully in more disturbed, fragmented forest patches than wood thrush may be the reason for the disparate population trends that both species currently exhibit. In Connecticut, ovenbirds are stable to increasing whereas wood thrush are declining. It is estimated that 5.3% of the core forest in our state has been lost since 1985. This loss of habitat, as demonstrated by this study, likely reduced the overall productivity of wood thrush in the state.

As Connecticut's habitat base for birds continues to disappear, and what habitat there is becomes more degraded, it is imperative that we find not only the means, but the tools, to maintain and enhance the habitats these birds need. Science must continue to identify those tools and guide how habitat management is conducted so that we know what works and is the best and most efficient way to achieve desired outcomes. Managers and the general public must support and embrace those efforts.



MDC Controlled Deer Hunt at Barkhamsted Reservoir

In an effort to maintain healthy forests and promote quality drinking water, the Metropolitan District Commission (MDC) has an active forest management program, which maintains a variety of forest age classes to ensure that forests remain diverse and productive. Timber harvest is an important tool for reaching this goal. During routine monitoring of forest regeneration, MDC foresters documented that white-tailed deer browsing had begun to impact tree species diversity and hinder tree growth. This research raised a red flag, prompting MDC to contact the DEEP Wildlife Division's Deer Program to identify what could be done to address this issue. After much discussion, it was decided that a deer hunt was the most efficient and economical means to deal with the overabundant deer population. Therefore, during the 2016 firearms deer hunting season, MDC opened up approximately 4,300 acres in the vicinity of Barkhamsted Reservoir to a controlled deer hunt.

A total of 120 deer permits were made available for two nine-day hunt periods in Barkhamsted and Hartland through the annual deer lottery. Preliminary harvest totals indicated that 37 deer were removed from the Barkhamsted Reservoir watershed. Through a cooperative effort between MDC, DEEP, and the Connecticut Agricultural Experiment Station, a variety of research techniques will be used to monitor deer browsing and evaluate the effectiveness of the controlled deer hunt.

Michael Gregonis, DEEP Wildlife Division

Operation Game Thief Coming to Connecticut

DEEP's Division of Environmental Conservation Police (EnCon Police) is responsible for the enforcement of the state's wildlife and fisheries laws and providing public safety and law enforcement services in Connecticut's state parks and forests and on the state's waterways. The men and women of the Division are dedicated officers that take pride in their mission that supports the protection and management of Connecticut's natural resources. A new initiative for the Division is Operation Game Thief. For many years, the Turn-In-Poachers (TIP) program assisted the Division by offering rewards for fish and game violations and providing funds that supported EnCon Police's public outreach programs. Due to several issues, the TIP program disbanded several years ago. In an effort to resurrect this type of program, the Division has joined the National Wildlife Crime Stoppers Association and plans on starting Connecticut's Operation Game Thief, a program that has been successful nationwide. The EnCon Police Division is organizing a board of directors, looking for corporate sponsorship and alternative funding methods, and working with university students to further this project. The goal for this program is to promote hunting and fishing, bring awareness to the public of the consequences of poaching, be a recruiting tool for new officers, and help identify and apprehend wildlife violators.

Through education, outreach, and enforcement, the Environmental Conservation Police Division will continue to provide public safety and protect the state's natural resources. Citizens are encouraged to take an active role in this mission by reporting fish and game violations to our 24-hour toll free line at 1-800-842-4357.

Be sure to check out the Environmental Conservation Police Division's new Facebook page at www.Facebook.com/CTEnConPolice.



P. J. FUSCO



Migratory Bird Hunting Regulations Meeting

The annual Migratory Bird Hunting Regulations Meeting is scheduled for Friday, March 31, from 6:00 to 8:00 PM, in the rear conference room at DEEP Marine Headquarters, 333 Ferry Road, Old Lyme. DEEP will present proposed hunting regulations for the 2017-2018 migratory bird seasons and interested parties will have the opportunity to make comments. Final hunting season dates will be formulated shortly after the comments are compiled and evaluated.

Hunters are reminded that DEEP accepts comments on the migratory bird hunting regulations year round; however, this meeting serves to finalize the regulations and is being held just prior to when the Department will make its final season selections to the U.S. Fish and Wildlife Service (USFWS). Each year, the USFWS works in partnership with states from four Flyway Councils (Atlantic, Pacific, Central, and Mississippi) to establish regulatory frameworks for hunting season lengths, dates, and bag limits. States select their individual seasons from within the federal frameworks.

Updates for Anglers

2017 Angler's Guide:

The guide will be available at vendors, DEEP facilities, and on the website by mid-March. All of the inland rules and regulations for 2016 will carry forward for 2017. Changes to marine fishing regulations will be in the 2017 guide. Visit www.ct.gov/deep/fishing to view the guide.

FishBrain: The Fisheries Division is pleased to be on FishBrain, the most popular social media app for anglers. It is a free download for Iphone and Android. Users take advantage of the free angling support features (or elect to subscribe for premium features). Follow CTDEEPFish and we will follow you back! Learn more at www.fishbrain.com.

CT Fishin' Tips E-newsletter: This monthly electronic newsletter provides news and information about DEEP's freshwater and marine fisheries programs. With a free subscription to **CT Fishin' Tips**, you will receive the latest fishing information delivered right to your fingertips. Sign up at www.ct.gov/deep/fishing.



Live Long and Prosper

You never know what you will find when you wander around Connecticut's woodlands. I happened on this big boulder while walking along a trail in Naugatuck State Forest in Ansonia. It looked like the character Mr. Spock from Star Trek. Could it have been left here by aliens or some other space creatures?

Actually, it is a glacial erratic. According to the website for the National Snow and Ice Data Center (www.nsid.org), erratics are stones and rocks that were transported by a glacier thousands of years ago, and then left behind after the glacier melted. Erratics can be carried for hundreds of miles, and can range in size from pebbles to large boulders. Scientists sometimes use erratics to help determine ancient glacier movement.



J. MILNE, DEEP FORESTRY DIVISION

They can identify the kind of rock and trace where it came from originally.

Rocks may come to mimic recognizable forms through the random processes of formation, weathering, and erosion. Can you

really see faces in a boulder? Perhaps Mr. Spock would say "it is highly illogical!" Live long and prosper!

Jerry Milne, DEEP Forestry Division

Wild Turkey Hunting Safety Seminars

Be well prepared for Spring Turkey Hunting Season – April 26 - May 27, 2017 – by attending a Wild Turkey Hunting Safety Seminar. Both experienced and first-time turkey hunters stand to benefit from attending one of these seminars which provide information on safe hunting practices, specialized equipment, calls and decoys, site setup, and other strategies for harvesting turkeys. A DEEP Wildlife Division biologist will present information about wild turkey biology, population trends, and management history in Connecticut. Seminar participants will have an opportunity to pattern their shotguns for turkey hunting following classroom instruction.

Maximum enrollment for each seminar is 50 participants. Pre-registration is **REQUIRED**. Call 860-424-3015 to register.

Western Connecticut Wild Turkey

Hunting Seminar: Saturday, March 11, 2017, from 8:00 AM to 2:00 PM, at the Fairfield County Fish and Game Protective Association, 310 Hammertown Road, Monroe, CT, 06468

Eastern Connecticut Wild Turkey Hunting Seminar: Saturday,



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April 1, 2017, from 8:00 AM to 2:00 PM, at the DEEP Wildlife Division's Franklin Swamp Wildlife Management Area, 391 Route 32, North Franklin, CT, 06254.

The most current hunter safety course listing can be found on the DEEP website at www.ct.gov/deep/hunting.

Fish and Wildlife Recreation Provide a Boost to Connecticut's Economy

Connecticut's diverse habitats and wide variety of wildlife species provide the perfect opportunity for residents (and non-residents) to enjoy a wide range of wildlife recreational activities. Those activities contribute to our state's economy in a big way. During 2011 in Connecticut (the most recent year from which data are available), 50,000 hunters (aged 16 and older) were in the field an average of one million days and spent approximately \$302 million while enjoying their sport. Add to that the 1.2 million wildlife watchers (observers, photographers, park visitors, etc.) who spent approximately \$935 million while enjoying wildlife recreational activities in our state. Similar to fishing, these expenditures lead to dollars spent in local economies on hunting equipment, wildlife viewing accessories, food, gasoline, and lodging. They also translate into state tax dollars and federal excise tax dollars from the purchase of hunting equipment. Nationwide, 13.7 million hunters and 71.8 million wildlife watchers contributed a total of \$88.6 billion to the nation's economy in 2011 for equipment, services, travel, lodging, and more.

Fishing continues to be a valued tradition among Connecticut's families and DEEP continues to recruit new, reactivate lapsed, and retain active anglers. The state is fortunate to have a tremendous diversity of fisheries resources, freshwater, marine, or both within five to 10 miles of everyone.

Fishing is big business as nationwide sportsmen and women pumped an estimated \$145 billion into the nation's economy in 2011, approximately one percent of the country's gross domestic product. More importantly, fishing is big business in Connecticut. During 2011, 342,000 people fished an average of 14 days and spent a total of \$436 million, equating to \$1,259 per angler. These expenditures lead to dollars spent in local economies on food, equipment, gasoline, and lodging. They also translate into state tax dollars and federal excise tax dollars from the purchase of fishing equipment.

Trip-related expenditures (food, lodging, transportation, equipment rentals, etc.) totaled \$259 million; equipment expenditures (fishing equipment, tents, fishing clothing, boats, etc.) equaled \$163 million; and \$15 million was spent on special equipment such as magazines, membership dues, licenses, permits, etc.

Since 1955, the National Survey of Fishing, Hunting, and Wildlife-Associated Recreation has collected information on the number of anglers, hunters, and wildlife watchers and their expenditures every five years. The 2011 Report contains more specific details and data collected during the survey (https://wsfrprograms.fws.gov/subpages/nationalsurvey/national_survey.htm).

License Fees Fund Hunting and Fishing Programs: 100% of the fees collected from the sale of hunting and fishing licenses, permits, and stamps goes to support fish and wildlife conservation, preservation, and recreation programs administered by the Bureau of Natural Resources (Connecticut General Statutes 26-15, 20-15(a), 26-15 (b)). Each time you purchase a license your contribution goes to support hunting, fishing, and open space in Connecticut. The next time you see a bald eagle, harvest a white-tailed deer, pheasant, or turkey, or catch a brown trout or striped bass, give yourself and your fellow sportsmen a pat on the back! You are making a difference and we thank you for your support!



Native Bee Was Supposed to Be the First Listed as Federally Endangered

The U.S. Fish and Wildlife Service recently announced that the rusty patched bumble bee was to be added to the Federal Endangered Species List on February 10, 2017. It would have been the first bumble bee listed as endangered, and the first bee listed in the continental United States. However, the rule to add the bee to the list was suspended by the new federal administration. The effective date for the final rule to list the bee as endangered has been delayed to March 21, 2017. However, the Natural Resources Defense Council (NRDC) has filed a lawsuit claiming that the administration broke the law by freezing the bumble bee's endangered species listing without public notice or an opportunity for comment. In its complaint, NRDC contends the agencies cannot suspend the listing because the rule was final when published in the Federal Register.

The rusty patched bumble bee is on Connecticut's List of Endangered, Threatened, and Special Concern Species, but it is currently considered extirpated in our state and is listed as a species of special concern. The last time the rusty patched bumble bee was documented in Connecticut was in the early 1990s. Breaking ground, Connecticut was the first state to add bees to its Endangered Species List when the rusty patched bumble bee and four other bee species were added to the list in 2010. The rusty patched bumble bee was once common and abundant across 28 states, but populations plummeted by 87%, leaving only a few small, scattered populations in 13 states and one Canadian province.

Like other bees, rusty patched bumble bees pollinate many plants, including economically important crops such as tomatoes, cranberries, and peppers. Bumble bees are especially good pollinators.

Learn more about the rusty patched bumble bee at www.fws.gov/midwest/endangered/insects/rpbb/index.html or check out the Wildlife Division's pollinator webpage for information on native pollinators (www.ct.gov/deep/pollinators). Stay tuned to this developing story.

Nest Boxes for Wood Ducks

Wood duck populations were on the brink of extinction by the early 20th century due to habitat destruction and overhunting. Astonishingly, today, the wood duck is the third most abundant breeding waterfowl species in Connecticut, behind the mallard and Canada goose. While the dramatic rebound of wood ducks can be largely attributed to the passage of the Migratory Bird Treaty Act in 1918, their recovery also was assisted by the advent of wood duck nest boxes. These structures also benefit other wildlife species, such as eastern screech owls, hooded mergansers, and northern flickers.

The Wildlife Division annually checks and maintains approximately 550 nest boxes on various state properties throughout Connecticut. Due to the unpredictability of safe ice conditions, wood duck box checks and maintenance begin in September each year with the use of a boat. A total of 398 boxes located at 131 unique sites have been checked so far this season. In addition, 23 nest boxes have been replaced and 19 boxes have been raised. Checks continued throughout winter, along with box installation and repair. Data from these checks are analyzed each year, providing the Division with information on use, predation, and productivity. A seasonal employee funded by the Connecticut Migratory Bird Conservation Stamp Program conducts the majority of the work associated with this project.

Kelly Kubik, DEEP Wildlife Division



Conservation Calendar

- January-April Donate to the **Endangered Species/Wildlife Income Tax Check-off Fund** on your 2016 Connecticut Income Tax form. See page 17 and also learn more at www.ct.gov/deep/EndangeredSpecies.
- March 31..... **Migratory Bird Hunting Season Regulations Meeting**, from 6:00-8:00 PM, at the DEEP Marine Headquarters, 333 Ferry Road, Old Lyme (see article on page 20).
- Mid-April-August..... Respect fenced and posted shorebird and waterbird nesting areas when visiting the Connecticut coastline. Also, keep dogs and cats off of shoreline beaches to avoid disturbing nesting birds.
- May 13..... **International Migratory Bird Day** – Celebrate this special day that highlights “Stopover Sites: Helping Birds Along the Way.” Learn more at www.birdday.org.
- May 19..... **Endangered Species Day**, which was initiated by Congress in 2006, is an opportunity for people of all ages to learn about the importance of protecting endangered species and the everyday actions they can take to protect our nation’s disappearing wildlife and last remaining open spaces. Find out more at www.endangeredspecies.org. Learn about endangered species in Connecticut at www.ct.gov/deep/EndangeredSpecies.



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 sending an email to 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.

- March 26 **March Mushroom Madness**, starting at 9:30 AM. Join the Connecticut Valley Mycological Society’s (CVMC) Annual Meeting at Sessions Woods for a free program on mushrooms. The meeting provides an opportunity to talk with others interested in the field of mycology and view some of the resources available to learn more about mushrooms. The CVMC meeting will include a coffee and refreshments period at 9:30 AM, with the presentation from 10:00 to 11:00 AM. Questions and answers will follow the program.
- April 30 **Talons! A Birds of Prey Experience**, starting at 12:30 PM. The 2017 Friends of Sessions Woods Annual Meeting will be on Sunday, April 30, beginning at 12:30 PM with the infamous Dessert Extravaganza Potluck. At 1:00 PM, there will be a brief, 10-minute business meeting before the featured presentation. This year’s program will be “Talons! A Birds of Prey Experience” with Master Falconer Lorrie Schumacher. Lorrie will provide an up-close opportunity for the audience and enlighten attendees about the conservation of these beautiful birds.

Hunting and Fishing Season Dates

- April 8 Opening Day of Trout Season at 6:00 AM.
- April 26-May 27 Spring Turkey Hunting Season on state and private land. Turkey hunters are reminded that they must obtain a **Resident Game Bird Conservation Stamp** in place of a turkey permit to hunt turkeys during this season. The stamp covers all turkey seasons for 2017, as well as seasons for pheasants, ruffed grouse, quail, and partridges.

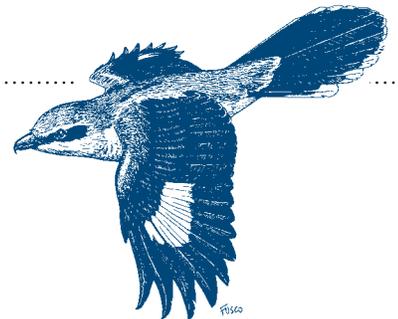
Consult the 2017 Connecticut Hunting and Trapping Guide and the 2017 Connecticut Angler’s Guide (available by mid-March) for specific season dates and details. The guides are available at DEEP facilities, town halls, bait and tackle shops, and outdoor equipment stores, and also on the DEEP website (www.ct.gov/deep/hunting and www.ct.gov/deep/fishing). Go to www.ct.gov/deep/sportsmenlicensing to purchase Connecticut hunting, trapping, and fishing licenses, as well as required permits and stamps. The system accepts payment by VISA or MasterCard.

Sign up to receive **Wildlife Highlights**, a free electronic newsletter for anyone interested in Connecticut’s wildlife and the outdoors! www.ct.gov/deep/WildlifeHighlights



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These black ducks are resting in a salt marsh. The black duck was formerly one of several waterfowl species that were monitored during the long-running Midwinter Waterfowl Survey. However, due to budget cuts, the U.S. Fish and Wildlife Service suspended their participation in the survey. See article on page 16 to learn more.