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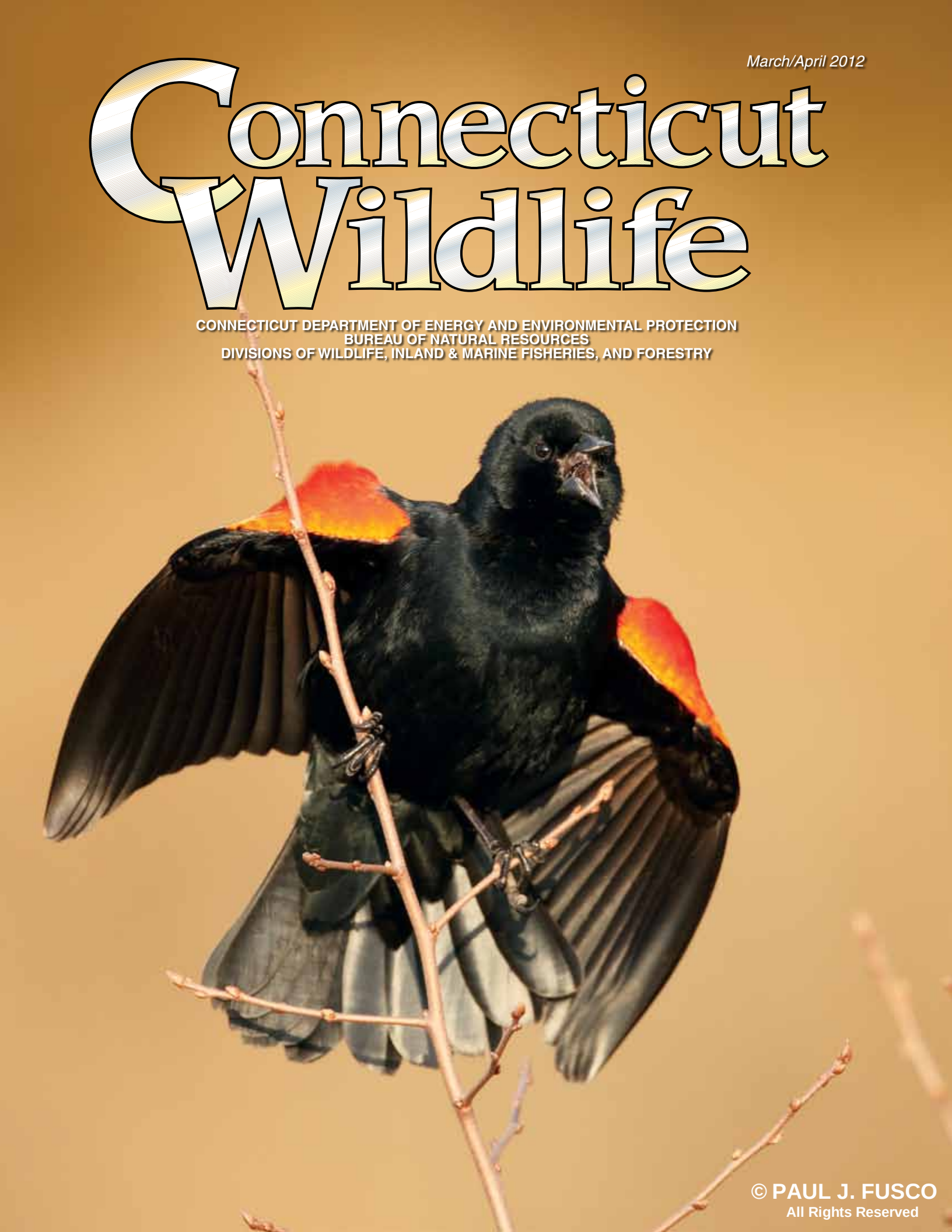
Connecticut Wildlife

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



From the Director's Desk

Guest Column by Inland Fisheries Division Director Peter Aarrestad

While we navigate our way into the future, it is wise to do so with an eye toward the past. As stewards, supporters, and managers of our state's natural resources, we are fortunate to be ably guided by many visionary forebears, including those instrumental in creating the Federal Aid in Wildlife Restoration Act (1937) and Sport Fish Restoration Act (1950) that you read about in the previous edition of Connecticut Wildlife*. Collectively, these noteworthy and successful pieces of federal legislation have enabled our state and others to establish relevant and effective natural resource management programs for the conservation and human enjoyment of our fish and wildlife resources. I encourage you to learn in this edition about our diverse freshwater fisheries management programs (angling is now a year-round activity in our state), reconnecting migratory fish runs with historic habitat, state wildlife management areas, and the deer management program, all of which rely to some degree upon these important federal funding sources.*

The North American Model of Wildlife Management, which is founded upon these federal acts, has been incredibly successful and it will continue to support our natural resource management initiatives and programs well into the future. But with declining participation in hunting and fishing occurring both nationally and in our state in recent years, it is more important than ever to find new ways to engage our citizenry in the outdoors. Our youth in particular are becoming increasingly disconnected from nature and from directly experiencing the wonderful sights, smells, and sounds of our outdoor world.

As today's youth represent our future conservationists and environmental stewards, we must ensure that we instill in them the same passion for and knowledge of the outdoor world that our parents, grandparents, guardians, and mentors instilled in us. I'm confident that you, as a reader of Connecticut Wildlife*, are all great admirers of, and advocates for, our natural world. I would ask that you take the time to deliberately instill in others your knowledge and deep rooted passion for the outdoors. The future of our outdoor heritage depends on it. Be a great environmental steward but be an even better mentor! Take a kid fishing, hunting, canoeing, hiking, or outdoors to simply observe wildlife (the articles on vernal ponds and little blue herons in this issue provide some great inspiration for nature observation and exploration). In short, kindle the spark for whatever fuels your own "outdoor fire" by sharing your knowledge and passion with others. We owe it to future generations and to the natural world we so cherish. Please feel free to send me your ideas or suggestions to peter.aarrestad@ct.gov or call me at 860-424-FISH.*

Peter Aarrestad, DEEP Inland Fisheries Division Director

Cover:

Many consider the arrival of red-winged blackbirds to Connecticut marshes and other wetlands and the sound of their song as harbingers of spring.

Photo courtesy of 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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Freshwater Angling in CT and the Role of the Federal Sport Fish Restoration Program

Written by Tim Barry, DEEP Inland Fisheries Division; photography provided by DEEP Inland Fisheries Division

Opening Day of Trout Fishing on Saturday, April 21, 2012 is right around the corner and this is the time of year when many anglers start to "gear-up" in anticipation of the coming fishing season. Each year, the DEEP Inland Fisheries Division stocks approximately 730,000 trout in over 300 locations statewide. Trout are Connecticut's most popular, sought-after species with approximately 2.1 million "angler trips" of activity each year. But, did you know that the Inland Fisheries Division also spends considerable time and effort stocking and/or managing several other important freshwater fish species for recreational anglers, such as northern pike, walleye, catfish, and largemouth and smallmouth bass?

Community Fishing Lakes bring recreational fishing opportunities closer to those less able to travel.

Smallmouth bass are revered for their fighting ability and especially their acrobatic leaps when caught by hook and line.

Fishing is better than ever in Connecticut, and a major financial contributor to that success has been the sportsmen-supported Federal Sport Fish Restoration Program (SFRP). The $3 million that Connecticut receives annually from the Sport Fish Restoration Fund is primarily used to support research and management of recreational fisheries. However, these funds also support other important fisheries programs.

The Sport Fish Restoration Program, which began in 1950, receives its funding from the Federal Aid in Sport Fish Restoration Act (commonly referred to as the Dingell-Johnson Act) and the subsequent Wallop-Breaux amendment to the Act enacted in 1984. Federal excise taxes on fishing equipment and motorboat fuels are collected and deposited into the Sport Fish Restoration Trust Fund. This money is then apportioned back to the states through a formula based on land and water area and number of license holders. The program, modeled after the successful Wildlife Restoration Program (Pittman-Robertson Act of 1937), supports sport fish restoration and management programs at the state level. Throughout its tenure, this "user pay-user benefit" pro-

gram has been immensely successful in providing funding and support to improve freshwater angling throughout Connecticut and the other 49 states.

Following is a brief synopsis of several on-going Inland Fisheries Division research and management programs and projects that are currently funded with Federal Sport Fish Restoration dollars and providing diverse and successful recreational angling opportunities for Connecticut anglers.

Northern Pike Management Project

Angler surveys consistently show that northern pike are a favorite target species for ice fishermen due to aggressive feeding behavior, even under the ice, and their ability to grow to a large size. Northern pike were first introduced in Bantam Lake in 1971 from yearling pike imported from Minnesota. These fish were originally introduced to control an overabundant white perch population. Beginning in the early 1980s, the Inland Fisheries Division began to supplement pike populations in the lower Connecticut River and Bantam Lake by raising pike fingerlings in managed spawning marshes. This aspect of the project has increased over the years and pike fingerlings are currently raised in seven managed spawning marshes totaling 55 acres. Managed spawning marshes currently produce an annual average of approximately 18,000 pike fingerlings that support the stocking of six locations statewide.

Walleye Management Project

Beginning in 1993 with three lakes and expanding to a total of 11 lakes by 2001, walleye fingerlings obtained from out-of-state commercial suppliers have improved angling opportunities throughout Connecticut. Many anglers consider walleye to be the best fish for eating due to their white, flaky fillets and mild taste. Surveys show that anglers are in favor of the walleye introductions.

Catfish Management Project

Channel catfish are one of the most popular warm water gamefish in the United States and have the potential to provide attractive and productive fisheries in Connecticut lakes and ponds. Eleven lakes/ponds were stocked annually during 2007-2010 with commercially raised catfish. Initial assessments indicate that some portion of the stocked fish survived and have begun to generate angler interest and participation. Continued stocking and monitoring is planned to assess the status of this developing fishery.

Community Fishing Lakes Project

Beginning in 2005, the Inland Fisheries Division, in cooperation with municipal agencies and civic groups, began a program to enhance fishing opportunities in several of Connecticut's major population centers. Six ponds, located in town or state parks, were selected and are currently managed as Community Fishing Lakes. Adult size trout (10-12 inches) are obtained from state trout hatcheries and stocked several times each spring. Additionally, to enhance fishing into summer, adult channel catfish (14-18 inches) are obtained from a commercial supplier and stocked each June. This program has proven to be highly successful in attracting a formerly underserved clientele to participate in and enjoy the angling experience.

Bass Management Project

Information collected during a Statewide Lake and Pond Electrofishing Survey (1988-95) indicated that angler harvest and/or stockpiling (too many small fish) of bass had reduced bass fishing quality in many Connecticut lakes under the standard statewide 12-inch minimum length regulation. Initial experiments with alternative length limits (15-inch minimum and 12-15 inch slot) were successful in improving bass size structure and catch rates in two Connecticut lakes. Based upon this favorable finding, two categories of alternative regulations were implemented in 29 "Bass Management Lakes" (BMLs) in 2002. This project assesses these special regulations by monitoring warmwater fish populations, obtaining catch data from bass tournaments, and performing angler surveys. Most recently, the project has begun, in a collaborative research effort with fisheries scientists at the University of Connecticut, to assess genetic differences among populations of bass that may have the potential to improve bass fishing in the future.

Channel catfish, which can grow to a large size like this 19-pounder, do not require sophisticated tackle to pursue.

Stream Monitoring Project

Water quality and physical habitat of many Connecticut streams have been improved through efforts to upgrade sewage treatment plants, initiatives to reduce harmful industrial discharges, and requirements for adequate stream flow. Information is needed to assess the potential for these upgraded streams to support fish and recreational fisheries. Conversely, other streams have experienced degradations in water quality and physical habitat, as well as increasing water temperatures and alterations to flow regimes. The effects from these alterations need to be monitored so that impacts can be quantified and understood. In addition, water temperatures can greatly influence wild trout populations. Sources of thermal loading need to be monitored and understood. The purpose of this project is to identify new fishing opportunities in waters where water quality or aquatic habitat have been improved, and to provide the Inland Fisheries Division with information necessary to conserve and manage stream fish populations.

Special Management Areas in Rivers and Streams

Thirteen Natural Wild Trout Management Areas (WTMAs) are monitored and managed with catch-and-release regulations

to preserve strong populations of naturally reproducing trout in high quality streams. Twenty-three Enhanced WTMAs are managed by stocking fry in high quality streams that lack sufficient spawning habitat for significant natural reproduction to occur. Trout in Enhanced WTMAs are protected by a nine or 12-inch size limit. WTMAs were developed because wild trout are an important, renewable resource that add quality and diversity to Connecticut's trout streams. They also have high intrinsic value because anglers recognize that wild trout are natural products of healthy stream ecosystems.

Six Trophy Trout Areas (TTAs) were developed to improve the opportunity for anglers to pursue and harvest large trout in Connecticut's rivers and streams by stocking a high percentage of large fish; however, protective regulations allow anglers to harvest only two trout per day. TTAs accommodate a segment of the angling public that has shown an interest in catching and harvesting a few large trout rather than keeping up to five smaller trout, as would be allowed in a standard put-and-take stream.

Large brown trout provide exciting fishing opportunities in several of Connecticut's best coldwater lakes.

Connecticut currently has 15 Trout Management Areas (TMAs). Catch-and-release regulations have been applied to improve the quality of trout fishing in each of these areas. TMAs are managed in one of two ways – as either Year-round TMAs, with catch and release regulations in effect all year, or as Seasonal TMAs, which have catch-and-release fishing from September until the start of the trout fishing season (third Saturday in April) and a reduced two-fish per day creel limit during the remainder of the year. All of Connecticut's TMAs are located on streams with good trout habitat. Year-round TMAs are located on streams where trout are expected to survive through the summer; whereas, summer water conditions are generally marginal for trout survival in Seasonal TMAs. Seasonal TMAs expand the recreational fishing opportunities available to anglers in early spring and during the fall. This management method allows harvest of fish that would otherwise have died due to warm summer water temperatures. TMAs are extremely cost-effective, in which the percent return-to-the-angler (number of trout caught divided by the number stocked) averages over 200% among all areas and exceeds 600% in the larger areas (by comparison, returns average 80% in put-and-take streams).

Special Management Areas in Lakes and Ponds

Trout Management Lakes (TMLs) were established to manage trophy brown trout fisheries in the state's best trout lakes. The presence of holdover brown trout in selected lakes can create exciting trophy fishing opportunities. This project seeks to improve fishing opportunities for holdover brown trout in lakes with suitable habitat and forage. TMLs receive special stockings of brown trout, are managed by specific regulations, and are assessed by annual fish sampling and occasional angler surveys. Additionally, the project evaluates the effectiveness of the regulations and stocking practices to produce measurable increases in large, holdover brown trout.

Trout Parks (TPs) were established and evaluated in 11 easily accessible and safe park locations as areas where novice anglers, or those with reduced mobility, have a higher probability of catching trout. Studies have shown that many families are seeking healthy, outdoor recreational activities, such as fishing. Amenities such as restrooms, safe parking, and easy access to shoreline fishing are often cited as desirable attributes for families with young children and also for many elderly angling participants. Low fishing success, especially among novice anglers, is problematic. Initial success is an important part of the process that motivates novices to become lifelong anglers.

Kokanee salmon are a land-locked form of the Pacific sockeye salmon that have historically provided unique and very popular fisheries in several Connecticut lakes. Sometime in the late 1990s, the kokanee fisheries of East Twin Lake (Salisbury) and Wononskopomuc Lake (Salisbury) collapsed due to the illegal introduction of landlocked alewives. The alewives outcompeted the kokanee for the zooplankton on which they both feed. The kokanee salmon fishery has been maintained in West Hill Pond (New Hartford, Barkhamsted) and mature kokanee are collected as broodstock each fall. Eggs are taken from mature broodstock and incubated at the Burlington State Fish Hatchery. Fry are stocked by boat the next spring into West Hill Pond and, depending upon hatchery availability, also into East Twin and Wononskopomuc Lakes. Due to these stockings and other changes that have occurred in East Twin Lake, the kokanee salmon population has experienced a resurgence.

A Cost-reimbursement Program

The Sport Fish Restoration Program is a cost-reimbursement program, where the State covers the full amount of an approved project and then applies for reimbursement through Federal Aid for up to 75% of the project expenses. The State must provide at least 25% of the project costs from a non-federal source. There are many more projects than the ones detailed here that are supported by Connecticut sportsmen's dollars. Marine fisheries recreational surveys, diadromous fish restoration, aquatic resource education, and habitat conservation and enhancement are other important activities that receive financial support from Sport Fish Restoration Program dollars. For additional information on these or other federally funded activities, go to the DEEP Inland Fisheries Division web site at www.ct.gov/deep/fishing.

State Wildlife Management Areas a Benefit of Federal Aid

Written by Paul Rothbart, DEEP Wildlife Division

The mission of the DEEP Wildlife Division is to maintain stable, healthy, and diverse wildlife populations on all suitable habitats across Connecticut in numbers compatible with habitat carrying capacity and existing land use practices. Acquiring and managing wildlife management areas (WMAs) are mechanisms for accomplishing this goal. WMAs are areas of land and water having unique or outstanding wildlife qualities that are managed primarily for the conservation and enhancement of fish and wildlife and to provide opportunities for fish and wildlife-based recreation.

The Wildlife Division is responsible for managing 105 WMAs, totaling over 32,000 acres. These areas range in size from one acre to 2,017 acres and include a variety of habitats, such as grasslands, old fields, forests, coastal salt marshes, freshwater marshes, and riparian zones. WMAs provide habitat for 439 vertebrate species and thousands of invertebrate species, while providing public recreation for hiking, wildlife viewing, photography, fishing, hunting, and trapping. Motorized vehicles are prohibited; however, handicapped hunters may obtain a special permit from the DEEP to use an ATV while hunting. Handicapped accessible hunting trails are available at Roraback, Sessions Woods, Kollar, Babcock Pond, and Bear Hill WMAs. Camping is also prohibited, except at the group camping area at Sessions Woods WMA in Burlington. Groups that use the Sessions Woods camping area must obtain a special permit and be using the site for approved educational purposes. Sessions Woods also is the only WMA with a Conservation Education Center and Exhibit Area.

The statewide system of wildlife management areas is largely the result of the Federal Aid in Wildlife Restoration Act of 1937, commonly referred to as the Pittman-Robertson (P-R) Act for its sponsors – Nevada Senator Key Pittman and Virginia Congressman A. Willis Robertson. Prior to this historic act, many wildlife species were driven to or near extinction by unregulated market shooting and habitat degradation. Due to forward-minded conservation leadership, the P-R Act resulted in the remarkable recovery of America's wildlife and allowed state agencies to purchase and secure wildlife lands for future generations. Federal aid funds have been instrumental in the purchase of approximately one-third of the 105 wildlife management areas that are managed by the DEEP Wildlife Division.

The Connecticut Board of Fisheries and Game was established in 1895 to

P. J. FUSCO

The Wildlife Division is responsible for managing 105 WMAs, totaling over 32,000 acres. These areas range in size from one acre to 2,017 acres and include a variety of habitats, such as grasslands, old fields, forests, coastal salt marshes, freshwater marshes (above), and riparian zones.

oversee land acquisition and management of fish and wildlife resources. The first state-funded acquisition was the purchase of land for the Windsor Locks Hatchery in 1899. The first parcel acquired specifically for wildlife was Shade Swamp in 1926, a valuable wetland area in Farmington which now covers 738 acres. Shade Swamp Sanctuary serves as a waterfowl refuge/sanctuary where ducks, geese, and other wetland dependent species can nest, feed, and rest.

Early wildlife management area acquisitions funded through the federal P-R Program included Barn Island (Stonington, 1945) Assekonk Swamp (North Stonington, 1945), and Charter Marsh (Tolland, 1948). The Wildlife Division was created in 1971 as part of the Department of Environmental Protection, and biologists continued to review and support acquisitions over the decades.

The Wildlife Division's Habitat Management Program is responsible for developing management plans that identify the natural resource values of WMAs and maintaining or enhancing those values and associated compatible outdoor recreational activities. The Connecticut landscape is currently dominated by mature hardwood forests, with a diminishing component of early successional stage habitats (old fields, grasslands, agricultural habitats) which are rapidly declining due to forest succession, loss of farmland, intensified farming practices, residential and commercial development, and the absence of fire in the landscape. Associated with the disappearance of these habitats is a decline in once common wildlife, such as bobolinks, meadowlarks, blue-winged warblers, eastern towhees, chestnut-side warblers, New England cottontails, and American woodcock.

Several techniques are used to restore or enhance early successional habitats on WMAs, including tractor/brush mowing, use of large mowing/mulching equipment, logging operations, prescribed burns, herbicides, grassland plantings, and administration of agricultural license agreements. Wetland habitats also are enhanced on WMAs through the maintenance of water control structures, invasive plant control, pothole creation in marshes, and the installation of wood duck nest boxes. Routine maintenance responsibilities on WMAs include boundary and sign posting and the repair and maintenance of parking lots, gates, interior road systems, and wildlife viewing areas. All of these management activities are made possible because of the funding received through the Federal Aid in Wildlife Restoration Program.

P. J. FUSCO (2)

Wood duck nest boxes are installed, monitored, and maintained at WMAs with freshwater marshes. The wood duck is one of many wildlife species that has benefitted greatly from Federal Aid in Wildlife Restoration Program funds.

Connecticut's WMAs

The DEEP maintains 105 wildlife management areas throughout the state. Detailed information about most of the areas, maps, and directions can be found on the DEEP Web site at www.ct.gov/deep/wildlife (select "Maps & Access Information" on the left navigation menu).

Some of the more popular wildlife management areas include:

Babcock Pond WMA, Colchester

Barn Island WMA, Stonington

Bear Hill WMA, Bozrah

Charles E. Wheeler WMA, Milford

Goshen WMA, Goshen

Quinebaug River WMA, Plainfield, Canterbury

Robbins Swamp WMA, Canaan

Roger Tory Peterson Wildlife Area, Old Lyme

Roraback WMA, Harwinton

Sessions Woods WMA, Burlington

Spignesi WMA, Scotland

Habitat management projects at state wildlife management areas that focus on creating or maintaining early successional stage habitats benefit a variety of bird species, including the American redstart.

An Ecological Spring Awakening in Our Vernal Ponds

Written by Jonathan Richardson – Yale School of Forestry & Environmental Studies and Hank Gruner – Connecticut Science Center ; photos by Jonathan Richardson

"How suddenly they awake! Yesterday, as it were, asleep and dormant, today as lively as ever they are. The awakening of the leafy woodland pools."

This observation from the March 15, 1860 journal entry of Henry David Thoreau, the revered New England author and naturalist, highlights the activity and excitement surrounding vernal ponds as they usher in the spring season. Vernal ponds (also called vernal pools or temporary woodland ponds) are unique habitats on the landscape, and serve as excellent sinks of resources when they are holding water. Decaying leaves and other organic material serve as the foundation of a surprisingly complex food web, which ranges from bacteria to large aquatic insects. Several land-dwelling species also take advantage of the vernal bounty – snakes and raccoons are often seen loitering around vernal ponds late in the season, looking to nab a tasty tadpole or newly metamorphosed frog.

A spotted salamander adult arrives at a pond in southern Connecticut to breed in March.

However, a vernal pond is a temporary habitat with ephemeral resources. True "vernal" pools fill with water in the spring from snowmelt and rainfall. In this region, we have what are technically "autumnal" pools – filling up in the autumn. Filling occurs once leaves have fallen from deciduous trees and the roots are no longer drawing water from the pond basin for the leaves (a process called transpiration). So these pools often fill in late fall, remain frozen during winter, and usher in the spring breeding season as soon as they thaw. If encountered regularly, you may notice that vernal ponds will not lose much water until around mid-May, coinciding with the formation of leaves on trees, which essentially act as straws sucking water out of the pond.

Two images from the same vernal pond in central Connecticut. The first photo was taken in early April when the pond was teeming with activity below the water's surface. The second photo shows the same pond basin in late July of the same year.

Life Abounds

At its peak, a vernal pond is teeming with submerged activity. Fairy shrimp amble rhythmically through the water. Caddisfly larvae rummage around for materials to build their protective cases. Dragonfly larvae sit and wait for an unsuspecting victim and then – in one quick strike – they capture and consume. Several turtle species travel through the pond to munch on amphibian eggs. Microscopic zooplankton stutter through the water in quick bursts. Mosquito larvae wriggle to evade capture by salamander larvae. Snails and fingernail clams saunter slowly along the bottom. Leeches look nothing like their blood-sucking form as they glide by with ribbon-like grace. Diving beetle larvae and giant water bugs lurk beneath the surface, capturing prey many times their size, injecting digestive enzymes, and then siphoning the liquefied remains. Many species of algae also inhabit vernal ponds, including *Oophila amblystomatis*, a symbiotic species that colonizes amphibian eggs and uses the carbon dioxide generated by developing embryos to produce oxygen for the eggs via photosynthesis.

Mating adult wood frogs depositing eggs near the water surface. The smaller male (on top) clasps the female and fertilizes the eggs as they exit her body. The egg mass is deposited at a communal egg mass site – often the warmest area of the pond.

Amphibians are recognized as the quintessential vernal pond inhabitants, serving as endearing ambassadors to the public. Blue-spotted and Jefferson salamanders are the first to arrive at the ponds, often before the ice melts entirely (early to mid-March in southern New England). Moving during the first warm rain after a mild stretch of weather, wood frogs only trail them by a week or so. Male wood frogs form loud choruses – a cacophony of "quacking" intended to attract the females trickling into the pond. This little frog will lay an egg mass smaller than a golf ball yet containing, on average, 800 eggs. Within hours, the mass (attached to vegetation near the surface) will absorb water and swell to the size of a softball. Most female wood frogs will deposit their egg masses communally in the same location, which provides warmer temperatures for the eggs than if they were laid separately.

Male spotted salamanders enter the pond around the same time as wood frogs, depositing packets of sperm on the pond bottom. Once the eggs are fertilized, female spotted salamanders will lay their egg masses on submerged vegetation. In some ponds, the developing eggs of spring breeding amphibians are not always the first to arrive. If winter has not been too harsh (and the water did not freeze to the bottom), larval marbled salamanders have been biding their time since being laid as eggs in the dry pond the previous autumn. When the eggs of the spring-breeding species begin to hatch, marbled salamander larvae could be lurking and gorging on the hatchlings.

Survival of the Fittest

Once deciduous leaves emerge and the water level of the pond begins to drop, the race is on. All of the amphibian species present in the pond as larvae share one critical goal – to get out of the pond before it dries. This depends on the pond holding water long enough for the amphibians to develop from egg to larvae and through metamorphosis – the amazing transformation of the body from a swimming aquatic form to one better suited for a terrestrial life on the forest floor. This includes the loss of gills and development of four limbs. Except in wet years, most vernal ponds will dry entirely by late summer. While this is a challenging environment, regular drying of the pond prevents many predatory species, especially fish, from living there.

Even in years with average precipitation there is evidence that the typical vernal pond in this region does not hold water long enough to allow metamorphosis. This leads to boom-bust cycles in reproductive output – more years of very low survival interspersed by years with huge numbers of larvae making it to the terrestrial adult stage. Too many consecutive bust years and the local population within that pond will go extinct. Fortunately, one productive boom year can produce enough adults that many will leave that pond in search of an area with less competition for resources – thereby recolonizing ponds left unoccupied by earlier local extinctions.

Conservation of Vernal Ponds – Connections Matter

These extinction/recolonization events are mismatched among ponds and across years, and this asynchrony means that some populations will do very well while others will decline. For this reason, thinking about vernal ponds as single, isolated entities is of limited utility. The only way to ensure the long-term persistence of vernal pond communities is to think of them as networks of ponds interconnected by animals dispersing between them. Ideally, this means taking a comprehensive look at landscape management to ensure that both vernal ponds and upland forest habitats are protected as a unit, rather than regulating individual wetlands in isolation. This landscape approach need not preclude development either. In neighboring states, land development companies and landscape architects are collaborating to test whether residential developments can be successfully integrated into areas with vernal ponds so that amphibian populations persist within the new landscape.

An amazing diversity of life arrives to take advantage of the temporary flood of nutrients contained within these habitats. Generally, vernal pond species are doing well within intact, forested landscapes across southern New England. So, as the warming weather of spring entices you out of hibernation and into the woods, keep an ear open for the "quacking" of wood frogs. Detour off the trail and follow the chorus to one of Connecticut's most fascinating habitats – and plan to revisit several times during the year to fully appreciate their evanescent charm.

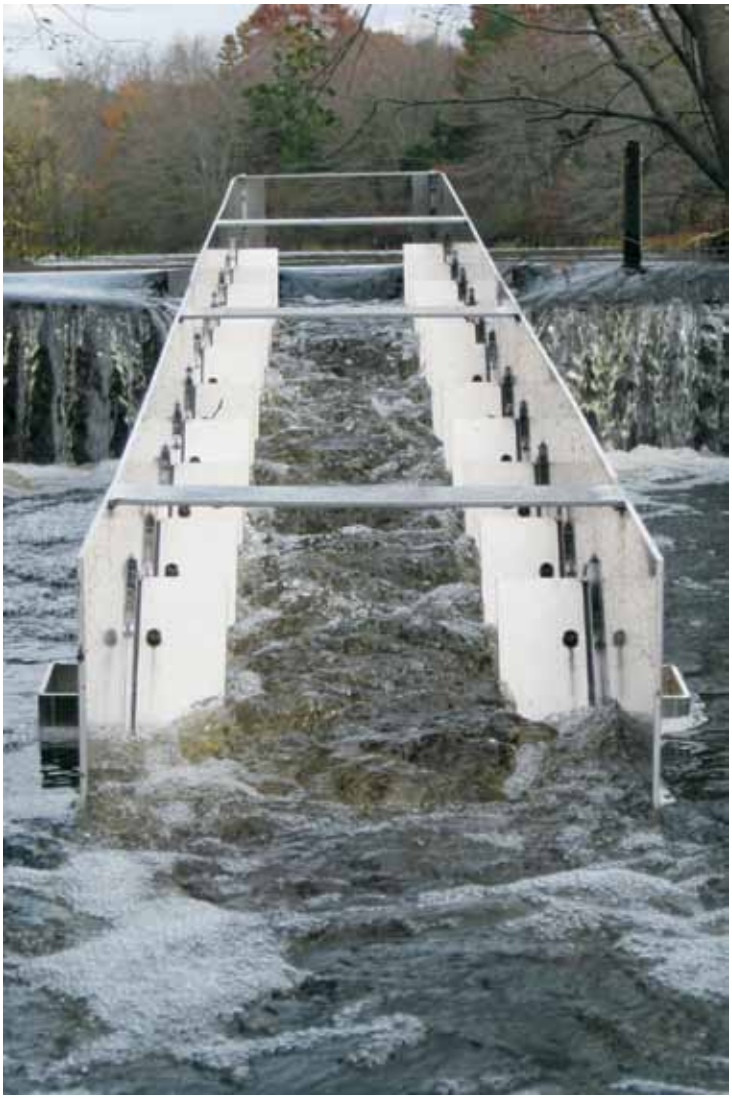
Fishways: Providing Fish Access to Critical Habitat

Article and photography by Steve Gephard, DEEP Inland Fisheries Division

The migratory fish runs in Connecticut rivers and streams that flow to Long Island Sound observed by the first Europeans are legendary. The historic record is clear: the runs of salmon, shad, river herring, sturgeon, striped bass, lamprey, smelt, and eels were abundant. Today, these runs are diminished and many are gone. While the causes are numerous, the main culprit has been dams. From the early gristmills of the 1600s, to the textile mills of the 1700s and 1800s, and the water supply reservoirs and hydroelectric dams of the 1900s, practically every one of our streams has been blocked by dams. Dams block the migration of fish, preventing them from reaching crucial spawning habitat upstream. In some cases, spawning habitat downstream of the first dam exist and the run could persist, even if at smaller numbers. The shad run on the Connecticut River is a good example of this scenario. In other cases, such as the Atlantic salmon run on the Farmington River, dams blocked migratory species from reaching any spawning habitat and those runs died out completely

Restoring Runs of Migratory Fishes

The DEEP's Inland Fisheries Division seeks to restore runs of migratory fishes and that means reconnecting these species to their spawning habitat and solving the problem of barrier dams. The best solution is to remove dams. That is often not possible so the next best option is to build fishways. Fishways are structures specifically designed to allow fish to get around dams, either in an upstream or downstream manner. Fishways come in a variety of sizes and styles. A fishway must be custom designed to take into account the biology and swimming ability of the targeted species; the height, configuration, and purpose of the dam; and how water flows around it. The planning and design of fishways involve a collaboration of hydraulic and civil engineers and fish biologists knowledgeable in the behavior of fish. In Connecticut, this means the involvement of the Inland Fisheries Division Diadromous Fisheries Program staff, engineers with the U.S. Fish and Wildlife Service (Region 5), and trained engineers with private consulting firms that are hired to complete the design. Much of the planning for these fishways is supported through the monies received from the federal Sport Fish Restoration Program.



The Vargas Pond Fishway on Stony Brook in Stonington is a town-owned Denil fishway that allows alewives to spawn in an old ice pond.

The Mianus Pond Fishway on the Mianus River in Greenwich is a steeppass fishway with two resting pools. It has annually passed 90,000 herring in recent years.

Currently, there are about 55 fishways in Connecticut, which range in size and can facilitate fish movement over dams from 18 inches to 58 feet high. Most are located on coastal streams and major river systems like the Naugatuck, Farmington, and Shetucket, and these are operated to support the spawning runs of anadromous fishes, such as salmon, shad, and river herring. There are a few fishways in tributary streams, like Furnace Brook (Cornwall) and Bissell Brook (Granby), that enable trout and other resident species to move around former obstacles.

There are a variety of designs, such as pool-and-weir fishways, in which water spills six inches between a series of stair-step pools; steeppass fishways, which are prefabricated aluminum troughs with internal vanes that slow down the rush of

water; Denil fishways, which are generally larger concrete fishways with wooden angled baffles; and 'hybrid fishways' that have one section of one style and sections of other styles. Other fishways are built to appear more natural-looking. Some resemble natural streams that gradually wind around a dam. One is a rocky ramp fishway, where rocks are piled in a steep stretch of stream to create a natural-looking ramp. In the case of American eels, which are not strong swimmers, there are even specialized devices called eel passes to help them get over dams. Additionally, at some of the larger dams, there are fishlifts, which crowd fish into a tub or hopper that is then lifted in elevator-like fashion above the dam and dumped into an exit flume.

More Fishways on the Way!

In fall 2011, construction began on the Wallace Dam Fishway on the Quinnipiac River in Wallingford. The fishway should be operational by April 2012 when the fish runs begin. A stone pool-and-weir fishway should be completed at the Wequetequock Dam on Anguilla Brook in Stonington during 2012, along with a new steeppass fishway at the Hallville Dam on Poquetanuck Brook in Preston. Work will begin in 2012 on a long-awaited (staff has been working on this project for over 20 years!) Denil fishway at the StanChem Dam on the Mattabesset River in East Berlin.

Some of these fishways are owned by the DEEP or a town and can be visited by the public. Others are privately-owned and are not open to the public. However, even privately-owned fishways benefit the public by allowing fish to proceed upstream to spawn.

The Wallace Dam Fishway on the Quinnipiac River in Wallingford is currently under construction. The dam is to the left of the photo.

Several fishways are equipped with electronic fish counters or windows with cameras that allow the Inland Fisheries Division to count the number of fish that ascend. Data collected from these facilities are used to evaluate the fishway and monitor the progress of the restoration program on that stream.

How Do Fishways Get Built?

Sometimes the DEEP can request that a fishway be a condition of a federal hydroelectric license or mandate a fishway as a condition to a State dam repair permit. More often, however, the project is voluntary, in which the Inland Fisheries Division cooperates with a town or conservation group to plan, raise funds through grants, apply for permits, and build the fishway. Often, these projects take five years to complete. If you own a dam that you suspect is blocking fish runs, you are encouraged to contact the Inland Fisheries Division (steve.gephard@ct.gov) to discuss the possibility of acquiring grants and other potential funds to either remove the dam or build a fishway.

Visit the State's Largest Fishway at Rainbow Dam on June 2

The DEEP owns and operates the largest fishway in Connecticut — in fact, one of the largest on the East Coast! The Rainbow Dam is a hydroelectric project owned by the Farmington River Power Company. It is located eight miles up the Farmington River from where it enters the Connecticut River. The dam is the first barrier to anadromous fish migrating up the Connecticut and Farmington Rivers to spawn. The 58-foot tall vertical slot fishway was built in 1976 by the DEEP and is operated annually to pass American shad, alewife, blueback herring, sea-run trout, sea lamprey, American eel, and many other species. It also is a primary trapping facility for returning adult Atlantic salmon.

The DEEP Inland Fisheries Division is hosting the annual Open House at Rainbow Dam Fishway on June 2, 2012, from 10:00 AM until 3:30 PM. The inner gates will be opened and the public will be allowed to enter areas normally off-limits. Visitors can go downstairs and watch fish swim past the observation window, visit the sampling tank for the downstream passage facility, tour the hydroelectric powerhouse, and watch biologists raise the trap and even trap salmon, if any happen to ascend the fishway that day.

To get to the fishway, take I-91 to exit 40 (Rt. 20) and proceed as if going to Bradley Airport. Take the Rt. 20 exit labeled Hamilton Road South, turn left at the end of the ramp, and then turn right at the first stop sign at Rainbow Road. Drive about ¼ mile and look for signs on the left side of the road.

The Rainbow Fishway on the Farmington River is the only vertical slot fishway in the state.

A Splash of Blue - the Little Blue Heron in Connecticut

Article and photography by Paul Fusco, DEEP Wildlife Division

Of the many species of herons and egrets found in Connecticut, the little blue heron stands out as a low profile species in both appearance and behavior. The heron's inconspicuous look, coupled with its uncommon occurrence in the state, make the bird hard to find and easy to miss.

Little blues are about half the size of the familiar great blue heron. Adults have all dark slaty-blue plumage that blends into a dark maroon on the neck and head. Their legs are greenish, and the bill is pale blue and tipped in black. First year immature herons are quite different in that their plumage is all white, with the exception of small dark spots on the wing tips. Young little blue herons can be distinguished from the similar-looking snowy egret by their pale greenish legs and pale blue bill with black tip. Second year birds are distinctively sprinkled with patches of blue as their plumage is in the intermediate stage of transition from the white of immatures to the dark blue of adults. It takes two years for a little blue to attain its full adult plumage.

A medium sized heron, the little blue can be found at some coastal marshes in Connecticut.

Habitat

In Connecticut, little blues are primarily coastal wetland birds. Seldom found far from the shoreline, they can be seen foraging in salt marshes, river estuaries, small ponds, and other waterbodies where they catch small fish, amphibians, and aquatic invertebrates, including crayfish. In other parts of their range, little blue herons are primarily freshwater birds, more likely to be found in shallow pond and lakeshore marshland habitats.

The stronghold of this heron's range in the United States encompasses the southeastern states from Florida to Texas, and up to Missouri. On the Atlantic coast, they range from Florida north to Virginia, with lesser concentrations extending to southern New England. Post breeding wanderers may travel further north and west. Connecticut is within the northernmost extension of the breeding range. Little blues are also found south into Mexico, Central America, and the northern half of South America.

Behavior

Most of the time, the little blue heron is a less active hunter than the other medium-sized herons and egrets with which it frequently associates (tricolored heron and snowy egret). It is usually seen cautiously stalking prey in a stiff-necked posture, with bill pointing down, ready to strike. There are times when the little blue will abandon its slow, methodical hunting routine in favor of a fast-moving running and stabbing technique, which can be entertaining for an observer.

Conservation

Little blue herons do not grow long breeding plumes, and thus did not experience the serious population declines that befell most of the other herons and egrets during the time of plume hunting for the millinery trade. At that time, large numbers of herons and egrets were slaughtered indiscriminately for their showy breeding feathers, which were used to adorn women's hats and fashion accessories.

Because of its limited breeding distribution within the state, the little blue heron is listed as a Species of Special Concern under Connecticut's Endangered Species Act. Like many wetland birds, little blue herons are negatively impacted by wetland loss and degradation associated with urbanization and development.

Connecticut has a number of wooded offshore islands that provide nesting habitat for little blue herons, as well for other herons and egrets. Little blues build a frail platform stick nest, typically in small trees or shrubs. They nest within a rookery that may also include snowy egrets, great egrets, glossy ibis, and black-crowned night herons. Their clutch is typically four or five pale blue-green eggs. Young in the nest are vulnerable to predators, including raccoons, herring gulls, and black-backed gulls. The young fledge after approximately 30 days.

Two factors that are potential threats to island rookeries are human disturbance and predation. The DEEP and U.S. Fish and Wildlife Service encour-

Little blue herons often use a slow, methodical stalking technique in which their neck is held out stiffly and the bill is pointed downward, ready to strike.

The plumage of juvenile birds is a stark difference from the dark blue plumage of the adults. Note the small dark blue spots on the wing tips.

age people to help reduce these threats by staying away from fenced off nesting areas and not leaving behind any litter or garbage scraps. Litter and food scraps attract predators, such as raccoons and crows, which can have devastating impacts on heron rookeries. If nest depredation becomes severe, the birds will abandon their rookery and may not return in succeeding years. Raccoons have caused herons and egrets to abandon their rookeries at some of Connecticut's islands.

Human disturbance at Connecticut nesting sites has led to rookery abandonment in the past. Examples of disturbance include illegal camp-outs, free-running dogs, bonfires, and fireworks. All of these activities will cause birds to leave their nests, subjecting eggs and young to death. Young birds that are agitated may fall out of the nest and will not be fed by the adults, resulting in death from exposure, starvation, or predation. It is vital for people to take it upon themselves to be responsible when visiting shoreline areas and avoid disturbing nesting birds.

It is important to protect potential island rookery habitat, as well as those habitats in use. If one island becomes unsuitable for nesting, there should be an alternate site where the birds can move to ensure that herons and egrets remain a part of Connecticut's avian diversity. Offshore islands that are suitable breeding areas for egrets and herons are few in Connecticut and must be protected on a continuing basis to maintain healthy populations of these birds. Wetland protection and habitat restoration projects are helping to provide herons and egrets with the productive foraging areas they need to raise their young.

2011 Deer Season: Fourth Highest Harvest Ever Reported

Written by Howard Kilpatrick, DEEP Wildlife Division

P. J. FUSCO

Hunters harvested almost 13,000 deer during Connecticut's 2011 deer hunting season. This represents the fourth highest deer harvest ever reported in the state. The archery deer season experienced the greatest increase in harvest (11.6%) compared to 2010. Forty percent of the total deer harvest (5,211 deer) was attributed to bowhunters. Bowhunters are important in the management of deer, especially in the more developed parts of the state where firearms hunting is limited due to the density of houses.

The highest deer harvest ever recorded in Connecticut occurred in 1995 – a year when acorn production was poor (deer travel more to feed) and snow cover was present (deer are more visible) during much of the shotgun and muzzleloader hunting seasons, creating good conditions for hunting. Poor acorn crops experienced in 2004 and 2011 also resulted in an increase in the deer harvest.

Hunter success (0.24 deer harvested per permit issued) reached a record high in 2011, far exceeding any other year. Although permit issuance has dropped somewhat, hunters are still having a significant impact on Connecticut's deer population.

Connecticut's Deer Management Program focuses on stabilizing or reducing deer population growth for the best long-term interest of the deer resource, native plant and animal communities, and the public. Regulated deer hunting has proven to be an ecologically sound, socially beneficial, and fiscally responsible method of managing deer populations. Deer Program efforts have focused on increasing harvest of antlerless deer, coordinating controlled hunts for overabundant deer herds, assisting communities and large landowners with deer management issues, and research and management of urban deer populations.

Deer Harvested, Permits Issued, and Hunter Success, 1991-2011

Year	Harvest	Permits	Deer Killed per Permit
2011	12,897	54,427	0.24
2010	12,183	54,244	0.22
2009	11,774	60,387	0.19
2008	12,682	64,060	0.20
2007	11,062	60,395	0.18
2006	11,591	61,410	0.19
2005	12,663	60,433	0.21
2004	13,541	61,415	0.22
2003	12,670	60,203	0.21
2002	12,635	62,975	0.20
2001	11,950	62,870	0.19
2000	13,307	61,903	0.21
1999	11,032	60,576	0.18
1998	10,144	62,856	0.16
1997	11,893	62,614	0.19
1996	12,050	64,032	0.19
1995	13,740	60,939	0.23
1994	10,482	60,316	0.17
1993	10,360	59,714	0.17
1992	12,481	61,333	0.20
1991	11,311	56,984	0.20

Number of Deer Harvested and Reported as Roadkills in 2010 and 2011.

Deer Season	2010	2011	% Change
Archery	4,670	5,211	11.6%
Shotgun-rifle	5,260	5,367	2.0%
Muzzleloader	1,031	1,123	8.9%
Landowner	1,222	1,196	-2.1%
Total Harvest	**12,183**	**12,897**	**5.9%**
Crop kill	715	804	12.4%
Road kill	1,456	1,683	15.6%

Mild Weather Affected Results of Midwinter Waterfowl Survey

Written by Min T. Huang, DEEP Wildlife Division

Staff from the Wildlife Division conducted the annual Midwinter Waterfowl Survey in the first week of January 2012. The survey is conducted throughout the Atlantic Flyway, and is used as an index of long-term wintering waterfowl trends. The Atlantic Flyway is one of four migratory pathways in North America. The waterfowl that use each individual flyway differ in breeding origin, species composition, and abundance. The Atlantic Flyway generally follows the Atlantic Coast of North America and the Appalachian Mountains. In Connecticut, the survey is conducted from a helicopter and a census is obtained from the coast, the three major river systems, and selected inland lakes and reservoirs.

P. J. FUSCO

Canvasbacks are occasionally observed during the Midwinter Waterfowl Survey; however, none were seen during the 2012 survey. This winter migrant can be found in brackish waters and marshes at the mouths of tidal rivers in Connecticut, or in large freshwater reservoirs and sheltered inlets on the coast.

Conditions for the 2012 survey were relatively poor. The weeks preceding the survey were unusually mild, and most inland waterbodies were not frozen. The Midwinter Survey is designed to obtain an index of wintering waterfowl that have been pushed to the coast when inland waters freeze. When inland waters are unfrozen and open, waterfowl are distributed in many areas that are not part of the survey. In addition, helicopter flying conditions on the day of the survey were less than optimal with heavy, gusty winds and strong sun, making observation difficult.

The total number of ducks observed during the survey – 15,893 – was well lower than the 22,926 counted in 2011. This is in agreement with the general paucity of waterfowl on the coast that many hunters reported during the hunting season. The puddle duck (mallard, American black duck, American wigeon, and gadwall) count of 4,567 was in concert with the recent five-year average of 4,734, but well below the record 6,661 counted in 2011. Puddle ducks are typically found in fresh shallow marshes and rivers.

Following a recent trend, many puddle ducks were observed in urban sanctuaries, often associated with supplemental feeding. The DEEP discourages citizens from feeding waterfowl for a number of reasons, including increased risk of disease transmission and potential for poor nutrition. A "Do Not Feed Waterfowl" brochure, which describes the potential hazards of feeding waterfowl, is available at www.ct.gov/deep/wildlife/pdf_files/game/NoFeedWF.pdf.

The scaup count was one of the lowest in 15 years. Scaup wintering numbers in Connecticut continue to be lower than historical counts. The decline in the continental scaup population continues to be of concern for biologists nationwide. Habitat changes on the scaup's breeding grounds in boreal regions of North America may be a factor in the long-term population decline. Mergansers were less abundant than what was observed in 2011 and under the five-year average. Atlantic brant numbers were higher than in 2011 and above the recent average. Canada goose counts were once again high for this survey.

Connecticut Midwinter Waterfowl Survey
*Results for Major Species**

Species	2012	2011	Five-year Avg.
Atlantic Brant	1,700	1,600	1,300
Black Duck	2,100	3,500	2,700
Bufflehead	1,200	1,200	900
Canada Goose	4,100	3,800	3,500
Canvasback	0	100	100
Mallard	2,000	2,600	1,800
Merganser	900	1,100	1,400
Mute Swan	700	700	800
Long-tailed Duck	300	600	300
Common Goldeneye	800	1,000	700
Scaup	1,000	5,400	3,000

** Rounded to nearest hundred*

A Silver Lining at Westwoods

Written by Emery Gluck, DEEP Forestry Division

The Westwoods Block of Cockaponset State Forest in Guilford is a gem of a public forest near Long Island Sound. The large extent of mixed hardwoods and conifers and the myriad of trails that run through it and the adjoining Guilford Land Trust property are treasured by the hiking public.

A severe six-acre fire in April 2008 on the edge of Lost Lake and the hemlock mortality from the hemlock woolly adelgid dramatically affected Westwoods' ecology. But the loss of many majestic hemlock (some have survived, at least for now) and oak trees has opened up a new ecological chapter. The standing dead trees provide great habitat structure for woodpeckers and other cavity-nesting birds. When the snags fall, the downed logs provide excellent cover for salamanders and insect hunting sites for numerous small mammals and snakes.

Dead wood is the basic building block of the forest-based food chain. Large quantities of standing dead and downed wood provide an important habitat structure. The hemlock mortality at Westwoods created structure that would not have occurred for another century or two, or until the next category 3 or higher hurricane. Additional structure created by the hemlock mortality includes canopy gaps (relatively small holes in the forest overstory).

E. GLUCK - DEEP FORESTRY DIVISION

A severe wildfire in Westwoods in April 2008 resulted in a significant ecological event. It created an opportunity for a brushy patch of sun-loving oak and aspen seedlings to develop naturally into an uncommon young forest habitat after most of the older oaks were killed. The numerous dead trees provide important habitat structure for wildlife which is more common in old growth forests.

The fire killed more big oak trees than a normal spring fire would because the large amount of dead hemlock increased the fire's intensity. A large patch (another old growth attribute) was created in the forest with the demise of the concentration of big oaks, paving the way for a new generation of sun-loving oaks and aspens to take seed. These new trees would not have been able to survive and grow in the shade of an intact forest. Large, new patches often host a unique suite of birds and mammals, such as blue winged warblers and New England cottontails. These animals require dense young seedling and sapling forests. These species are declining because of a deficiency in the events that create their habitat.

Insect epidemics, hurricanes, and frequent fires are among the historic disturbances that have helped sustain the biological diversity of our forest ecosystems for thousands of years. Pre-settlement fires probably burned at least 100 times as many acres annually as fires do today. Because fire and its ecological role have almost been completely extinguished from the landscape, a system of forest preserves alone will not sustain biological diversity.

Forest management in Cockaponset State Forest often involves ecosystem restoration that emphasizes helping ecosystems that are not sustaining themselves (mainly due to the precipitous drop in the occurrence of forest fires). This is usually accomplished by designing and implementing harvests of small and large trees to mimic the effects of historic disturbances. Though a significant amount of restoration forestry is appropriate for much of Cockaponset State Forest, no harvests will be proposed at Westwoods during the forthcoming Forest Management Plan. The ecological clock was reset by the fire and fast forwarded by the death of the hemlock without help from forest management.

P. J. FUSCO

The standing dead trees (snags) in the Westwoods Block of Cockaponset State Forest that were created by a forest fire and a die-off of hemlocks provide habitat for a variety of woodpecker species, including the pileated woodpecker.

Common Five-lined Skink

Plestiodon fasciatus


P. J. FUSCO

Background and Range

The state-threatened common five-lined skink is the only lizard native to Connecticut. Skink populations are found in four widely separated areas in western Connecticut. Five-lined skinks have been documented on bluffs bordering the Housatonic River in southwestern Litchfield County; on ledges bordering the Housatonic River in northwestern New Haven County and the Naugatuck River; and along ledges in southwestern Hartford County. The five-lined skink is rare and localized in southwestern New England. The small size and fragmented nature of skink populations leaves them vulnerable to ecological catastrophes.

The range of the five-lined skink corresponds closely with the eastern deciduous forest. The species is found in southwestern New England (currently Vermont and Connecticut and historically Massachusetts), south to northern Florida, west to Wisconsin, and in eastern parts of Kansas, Oklahoma, and Texas. Disjunct populations exist in northeastern Iowa, western Wisconsin, and Minnesota. This species is at its northeastern range limit in southwestern New England; however, several populations are found in Ontario, Canada.

Description

Five-lined skinks are smooth, shiny lizards with rows of tiny scales around the center of the body. They measure in length from 5 to 8.5 inches long, including the tail. The coloration is variable, depending on the age and sex of the skink. Young skinks have 5 white or yellowish stripes on a blackish body and a bright blue tail. As a skink grows older and larger, the pattern becomes less conspicuous; the stripes darken, the body lightens, and the tail turns gray. Females usually retain some of the striped pattern; the broad dark band along the side of the body remains prominent. Adult males usually show traces of stripes, but tend to become nearly uniform brown or olive in coloration. Males are territorial during the breeding season, and develop orange-red coloration on the head and jaws as a display of aggression.

Habitat and Diet

The preferred habitat of the five-lined skink includes steep, rocky areas with open ledge, patchy tree and shrub cover, and an abundance of rotten logs and loose rock slabs. These habitats are usually adjacent to moist deciduous forests.

Skinks are active foragers that feed on insects (crickets, flies, grasshoppers, grubs, beetles, ants) and spiders.

Life History

In Connecticut, courtship and mating take place during April or May. About 6 weeks later, in June or July, the female digs a small nest cavity in leaf litter, a rotting log, or loose soil and deposits between 4 to 20 eggs (typically 9 to 12). There is no covering on the nest, but the female guards the eggs during the month-long incubation period. The eggs hatch during August and September. One to 2 days after the eggs hatch, the female leaves the young on their own and does not return.

Interesting Facts

Although five-lined skinks spend much of their time under rocks and other shelter, they will bask in sunny spots on logs or rocks. Rock climbers at several sites in Connecticut sometimes see skinks running along cliffs. The lizards are primarily terrestrial, but will climb dead trees to find insects.

Skinks hibernate singly or in small groups from October through mid-March in decaying logs, under large rocks, or underground, below the frost line.

The five-lined skink is the only lizard found in New England, even though there are about 5,000 different species of lizards worldwide. Lizards are reptiles, and although at first glance they might look similar to salamanders, which are amphibians, they are different. Lizards generally have scales that cover their bodies, claws on their feet, and external ear openings. Salamanders have smooth and moist skin, no claws, and no external ear openings.

When grasped by a predator, both adult and juvenile skinks will readily lose most of their tails. There are cleavage points along the tail vertebrae that facilitate the breakage, much like perforations on a piece of paper that make tearing the paper easier. The detached tail thrashes on the ground to distract the predator, generally allowing the lizard to escape. The five-lined skink will grow a new tail that is somewhat shorter than the original and somewhat gray in coloration.

What You Can Do

If you ever find a skink in the wild, observe it from a distance and leave it alone. Report possible sightings to the Wildlife Division (860-675-8130). Wild skinks should NOT be kept as pets. Those sold in pet stores should NOT be released to the wild as they can introduce diseases to wild and genetically distinct populations.

Encounters in Red and Blue: the Five-lined Skink

Written by Hank Gruner, Vice President of Programs at the Connecticut Science Center

It was early May and each morning I had observed him sitting along the edge of a crevice formed by an overhanging rock that was lying atop a ledge outcropping. The bright reddish-orange color on the head and jaws indicated that it was a male, and I knew that this was likely his territory and he would remain in the area. Despite this, for two days in a row now he had easily escaped me, no amount of stealth or patience on my part allowed me to sneak up on, or surprise him.

So, there I sat on the ledge coloring the surface of my left index finger with a red "Sharpie" marker that I usually used to label specimen bags. With this task completed, I positioned myself above and slightly to the side of the crevice. I reached over with my left arm and extended my index finger to within a foot of the crevice opening. I then began to wiggle my finger. Several minutes went by and sure enough he slowly emerged, flicking his tongue in-and-out and twitching his head – a sure sign that he was aggravated by the presence of what he believed to be another male skink intruding on his turf.

I wish I could say that my next move was a smoothly executed grab that readily secured him, but he easily avoided my attempt at capture. To be honest, I conducted my "red finger" experiment more to satisfy my own curiosity than to perfect a new method for capturing skinks. Although I had previously captured and marked a good number of skinks at this site, all of these captures had been made by carefully flipping over loose slabs of rock and quickly securing the animals before they were able to dart away.

So, What Is a Skink?

Skinks are a type of lizard – in fact they are among the most successful family of lizards in the World – occupying a wide range of habitats from tropical forests to deserts. Most Connecticut residents are probably more familiar with the large blue-tongued skink, a native of Australia that is popular in the reptile pet trade, than they are with the five-lined skink, the only lizard native to New England. This is not surprising given the rarity of skink populations found here among the cooler latitudes of New England. Connecticut is home to several populations located among steep, rocky ridges in western parts of the state. Vermont is home to a single population, and a couple of historic records from Massachusetts exist, although these are questionable. If you travel to the southeastern United States, five-lined skinks are more common and occupy a wider range of habitats than here in New England. I have even observed them inside the park at Disney World in Florida.

Salamander or Lizard?

Because of their similarity in appearance, many people mistake salamanders for lizards. In Connecticut, there are 12 species of salamanders. Salamanders, however, are "amphibians" and lizards are "reptiles," altogether entirely different beasts. Careful observation of their bodies reveals several external characteristics that help distinguish salamanders and lizards. Lizards are covered with dry scales like snakes (to whom they are distantly related) and, in the case of skinks, the scales are small, smooth, and shiny. Salamanders, on the other hand, have no scales, and they are covered with a moist, rubbery skin much like frogs. Lizards have external ear openings located on the sides of their head. Salamanders do not. Finally, lizards possess hard claws, while salamanders do not.

Looking for a Flash of Blue

In late August, I returned to the study site where I had encountered the "red-headed" male skink defending his territory. Only on this trip, I was searching under rocks and logs hoping for a glimpse of not red, but a different color entirely. And there it was, after an hour of flipping rocks under the hot sun of the open ledges, the flash of electric blue. The sun's rays had warmed the young lizard's body well and he was primed for flight. But, I had only been at it for an hour and wasn't too tired. As always, I anticipated a lizard under every rock, so he was quickly secured in my hand.

I had timed my visit to coincide with the emergence of young skinks. After mating in spring, female skinks select a suitable nest site, usually beneath a rotting log or slab of rock exposed to the sun. There the females excavate a shallow depression in which they deposit as few as four to as many as 15 eggs. Unlike most reptiles, female skinks are attentive mothers. After depositing her eggs, the female skink curls her body around the clutch. She will even occasionally reposition the eggs. This brooding behavior continues until the eggs hatch, at which time she will leave the nest site.

Although the juvenile skinks are now on their own, they are not without defenses. As I re-positioned the young skink in my hand to get a secure grip, its brilliant blue tail came into view. I took great care to avoid putting any pressure on the tail as I did not want to end up with a wriggling tail and no skink. A fascinating defensive adaptation that five-lined skinks and many other lizards possess lies in the unique structure of their tails. Sections of the vertebrae that make up the tail have weak points that enable a length of tail to easily break off if grasped by a predator, much like a piece of paper easily tearing out of a notebook or pad along a perforation line. The bright blue coloration of the juvenile five-lined skink's tail serves to attract a predator's visual attention, especially as the young skink rapidly darts away, making it more likely that this is the part of the skink's body that is grasped. Once the tail breaks-off, it violently wriggles, further engaging the predator and allowing the skink to escape. The wound heals rapidly and, in fact, the skink will grow a new tail, although not completely or as brightly colored.

Interestingly, as skinks grow larger and age to adulthood, they completely lose the bright blue coloration. Tail loss for a young skink, although certainly traumatic, is not fatal and, for a rapidly growing juvenile, the tail quickly regenerates. However, tail loss for an adult is a different story. The tail is where fat is deposited, providing important energy reserves. Loss of the tail, which regenerates more slowly and less completely in adults, is a less beneficial trade-off. Thus adult skinks, although capable of tail loss, don't advertise this option as strongly as

juveniles do.

With their bright blue tails, ebony bodies, and five yellowish-white stripes that almost appear to glow, newly hatched skinks are among the most brilliantly-colored animals in nature. After focusing on taking specific measurements, I always find it hard not to take a moment to admire their beauty before releasing them. From red to blue, the five-lined skink is a living jewel among Connecticut's rich diversity of animal species and a fascinating study in unique adaptations in the animal world.

Hank Gruner is the Vice President of Programs at the Connecticut Science Center, located in Hartford, and a herpetologist who has conducted surveys and ecological studies of the five-lined skink in Connecticut. He has a permit from DEEP allowing him to conduct these important studies. Thanks are extended to Hank for reviewing the skink fact sheet and providing input and information.

May Is Swiftly Approaching,

Time for Spring Chimney? . . . Cleaning!

Written by Shannon Kearney-McGee, DEEP Wildlife Division

Chimney swifts have been on the decline since the 1960s and are quickly disappearing from their northern range in Canada. Although chimney swift numbers are also declining in Connecticut, they are still fairly common here. So, it is imperative to conduct research and monitoring of these birds now while there may still be time to stop their decline.

Chimney swifts often go unnoticed because they spend so much time high in the air. But, what we should notice is that they eat one-third of their body mass in insects every day! What is more likely to be noticed is that chimney swifts nest in people's homes. The birds can nest in any vertical cavity that has an internal area of at least 8 x 8 inches. Most often, they choose to nest in chimneys, hence their common name. Unlike squirrels, raccoons, or other wildlife that may frequent your chimney, swifts do no harm. Their nests are made of small sticks that fall after the birds leave. The worse offense they may cause is the noisy calling of chicks during the month of July, but at least swifts sleep at night. If chimney swifts nest in your home and you use your fireplace chimney during winter, the best time to have it swept and cleaned is mid-March before the birds return to nest. You should also remember to keep the fireplace damper closed during summer to prevent birds from flying into the house and becoming trapped or injured.

How Many Birds Went in that Chimney?

May is the time when many bird-watchers head to the forest to catch a glimpse of rare migrants. As you return from your morning birding, I challenge you to head to the urban centers and school buildings for an evening swift watch! May is also when chimney swifts return from their wintering grounds in the Amazon Basin. Although swifts nest one pair per chimney, they collect in fantastic numbers to roost overnight in larger chimneys at local school and old factory buildings.

If you find birds descending into a large chimney, I challenge you now to count how many! DEEP monitoring of 12 roosting chimneys last year revealed that the numbers of birds entering a chimney in one night can be quite large – over 1,000 birds – and can change depending on location.

The Wildlife Division is using citizen scientist monitoring to understand what these patterns might mean. Last year, with the help of volunteer monitors, birds were observed entering chimneys much later than expected during the mid-summer months. Birds also were observed using different patterns when entering chimneys. Sometimes they entered all at once (40-80 at a time), and sometimes they trickled in, in smaller groups (2-3 at a time). In addition, the number of birds at one roost did not always follow the same pattern as birds at another roost. These varying characteristics may indicate breeding activity and nesting failure. Division researchers do not yet understand what these count differences and timing characteristics may mean, and that is why citizen scientists are needed to help collect more data. Locations of the primary roosts being monitored are: East Windsor, Falls Village, Meriden, New Hartford, Oxford, Somers, Southington, Thomaston, West Simsbury, Willimantic, and Woodbury. Other roosts can be monitored if volunteers are willing to do so.

As part of chimney swift monitoring and research, the Wildlife Division is seeking the locations of additional swift nesting and roosting sites, as well as recruiting volunteers to help with monitoring. If you know of a chimney swift roosting or nesting location, or if you would like to assist with monitoring, please contact Shannon Kearney, of the Wildlife Division, with the details at shannon.kearney@ct.gov. Roost monitors are asked to commit to counting chimney swifts at roosts once a week between the months of May through September. If you have planned vacation weeks, multiple observers will be assigned to a roost or Division staff can fill in during that time.

FROM THE FIELD

Help Locate Banded Purple Martins

This young purple martin was fitted with an orange leg band, which identifies it as a member of one of six martin colonies that are the subject of a current research project. Report banded purple martins to the DEEP Wildlife Division. PHOTO BY P. J. FUSCO

The DEEP Wildlife Division initiated a statewide color banding study in summer 2011 to assess the dispersal patterns of sub-adult purple martins in Connecticut (see article in the Sept./Oct. 2011 issue of *Connecticut Wildlife*). Over 500 juvenile purple martins were banded from six colonies across the state. Each colony was assigned a different band color to determine the natal colony of birds viewed in the future. Understanding how these birds move about the state and colonize new sites will aid in the recovery of this state threatened species. However, for this study to be successful, these banded birds need to be seen again. The success (or failure) of the study will be heavily dependent upon the number of sighting reports received.

You can help by keeping an eye out for banded birds starting this spring. Purple martins typically begin to return to Connecticut from their wintering grounds during the first few weeks of April, continuing to arrive into May. If you see a color-banded purple martin, please report the sighting to the DEEP Wildlife Division by email (Geoffrey.Krukar@ct.gov) or phone (860-675-8130). Be sure to provide the following information: location of the bird, date, color of the band (red, blue, green, purple, orange, or yellow), and the alphanumeric code (if visible).

Geoffrey Krukar, DEEP Wildlife Division

The Great Park Pursuit Spring Sprint

This April, the DEEP will officially be bringing back the Great Park Pursuit in an abridged version that is being called the "Spring Sprint." Follow us on a four-week adventure as we hike, paddle, canoe, birdwatch, and "energize" our way through Connecticut's State Parks and Forests.

The Spring Sprint will kick off on Saturday, April 28, at Goodwin State Forest, in Hampton, as we celebrate Junior Forest Ranger Day, in conjunction with the Boating Division's Paddle Smart Event. The Spring Sprint will wrap up on Saturday, May 16, at a secret location that will be revealed in future clues.

If you can meet the "challenges" at each of the four game locations, you will be eligible to win some great prizes.

Registration will open in March, so check the No Child Left Inside® Web site (www.ct.gov/ncli) for additional details.

The Great American Backyard Campout: Instead of ending the Spring Sprint with a Family Campout, the DEEP will be hosting the annual campout on June 23–24 in conjunction with the national Great American Backyard Campout. More details to follow.

Winter Duck Banding Continues

An understanding of seasonal survival rates of waterfowl is critical for waterfowl managers. Identification of limiting factors during the life cycle informs managers how best to develop and implement conservation actions to benefit waterfowl populations. The Wildlife Division's Migratory Game Bird Program is finishing up its third winter of puddle duck banding. This effort, which is being conducted in cooperation with other states and Canadian provinces in the Atlantic and Mississippi Flyways, will provide the data needed to estimate winter and spring survival rates of black ducks and mallards, two of the most important ducks in the eastern United States.

Ducks were caught using rocket propelled nets over bait. Winter (post-season) banding creates many challenges that are not present during the traditional duck banding period of August through September (pre-season). Extreme conditions make work difficult. Temperatures in the teens with gusty winds and ice make for dangerous conditions, a far cry from being able to wear shorts and sandals while doing our pre-season banding! However, as the weather worsens, ducks become more concentrated and are a bit easier, at times, to catch. The challenges of winter banding are compounded by the difficulty in estimating the age of ducks in January and February. Accurate aging is critical for estimating survival rates.

Min Huang, DEEP Wildlife Division

Sarah Woodward (left), a contractor for the DEEP Wildlife Division, and Wildlife Technician Kelly Kubik banding winter-trapped ducks. PHOTO BY M. HUANG

P. J. FUSCO

2012 Deer Lottery

A lottery is conducted to award a limited number of permits for deer hunting on certain state lands and controlled hunt areas. To hunt these areas, you must apply for a deer lottery permit. Other state areas are open to hunting with a no-lottery permit.

To reduce spending, the DEEP will no longer mail deer lottery applications to the town halls. Everyone is encouraged to apply for the deer lottery using the on-line application process at www.ct.gov/deep/hunting. If you have no way to apply on-line, the DEEP is offering the following two options:

1. *Pick up a paper application form from one of the following DEEP Offices:*
   DEEP License and Revenue Office, Hartford, 860-424-3105
   Franklin Wildlife, North Franklin, 860-642-7239
   Sessions Woods, Burlington, 860-675-8130
   Marine Headquarters, Old Lyme, 860-434-8638
   Eastern District Headquarters, Marlborough, 860-295-9523
   Western District Headquarters, Harwinton, 860-485-0226
2. *Send a stamped, self-addressed envelope to*
   Franklin Wildlife, 391 Route 32, North Franklin, CT 06254.
   You will be mailed an application form that you can then fill out and mail back.

Application Deadline: You can apply on-line until June 15. If you use a paper form, it must be postmarked (metered mail, stamps not a substitute) by June 1, 2012.

Hand-carved DEEP Logo Plaque Donated to Sessions Woods Conservation Education Center

Guy Gagnon, long-time volunteer Conservation Education/Firearms Safety (CE/FS) instructor, recently donated a four-foot diameter, hand-carved DEEP logo for display at the Sessions Woods Conservation Education Center in Burlington. Guy has hand-carved two other large wooden plaques that he donated to the Wildlife Division -- one depicting the CE/FS logo and the other the former DEP logo. The beautiful rendition of the new DEEP logo now hangs in the large meeting room at Sessions Woods. Guy has also used his wood carving skills to design signs for local sportsmen's clubs.

The Wildlife Division would like to thank Guy for his latest donation to Sessions Woods and his ongoing volunteer efforts with the CE/FS Program. Guy has been a volunteer hunter safety instructor since 1968, even before Connecticut's CE/FS Program was officially established.

Jim Warner, DEEP Wildlife Division

CT Audubon Society's Wacky Nest Quest Photo Contest

Have you ever seen a bird build a nest in the most bizarre spot that defies all reason? Do you ever wonder why that bird chose YOUR drain pipe to raise its young? Can you identify bits of your "trash" that are now key architectural elements in the nest in your yard? If you answered "YES!" to any of these questions, then YOU will want to enter Connecticut Audubon Society's (CAS) First Annual Wacky Nest Quest Photo Contest! All you have to do is take a photo of your exquisite nest and submit it to the CAS by June 1, 2012. Winners will be selected in two main categories, children (up to age 12) and adults. Winning entries will receive special prizes at a reception this summer and be featured on the CAS website.

Please email your entry to cnoyes@ctaudubon.org and type WNQ in the subject line, or mail it to WNQ c/o Connecticut Audubon Society, 2325 Burr Street, Fairfield, CT 06824. All submitted photos must include your name, telephone number, address, the city and state location of the nest, and the date the photo was taken. Only one entry per person, please. A $5 entry fee is required; payable by cash, check, or credit card. Please submit payment with mailed entries. CAS staff will call emailed entries to obtain payment.

Visit Connecticut Audubon Society's website at www.ctaudubon.org for a complete listing of their spring programs, summer camps, and special events.

Is your Yard Eco–Friendly?

The Northeast Organic Farming Association (NOFA) Organic Land Care Program has created a booklet especially for homeowners new to organic landscaping. ***Introduction to Organic Lawns and Yards — Plus a Checklist for an Eco-Friendly Property*** is a quick-start guide to implementing organic practices, such as promoting soil fertility, conserving water, and controlling invasives and pests without pesticides. The booklet also includes beautiful photographs, inspiring quotes, and resource lists. You can download this 54-page publication or purchase it at www.organiclandcare.net.

Save the Date! The 3rd Connecticut Hunting & Fishing Appreciation Day will be held on Saturday, September 22, 2012*, from 10:00 AM-4:00 PM at the Sessions Woods Wildlife Management Area in Burlington. Stay tuned to* Connecticut Wildlife *and the DEEP Web site (www.ct.gov/deep/huntfishday) for updates.*

Outdoor Safety

Turkey Hunting Safety Tips

The 2012 spring turkey hunting season runs from April 25 to May 26. Hunters can take two bearded birds on state land and three bearded birds on private land. Two Junior Hunter Training Days are scheduled for Saturday, April 14 and Saturday, April 21. Hunting hours are one-half hour before sunrise to 12:00 noon. Hunters are encouraged to keep the following safety tips in mind while in the field:

- Positively identify your target before pulling the trigger.
- Make your position known to other hunters.
- Never stalk a turkey or turkey sound.
- Assume every noise and movement is another hunter.
- While calling, select a natural barrier, like a tree trunk, to protect your back.
- Shout "stop" to alert approaching hunters.
- Eliminate red, white, blue, and black from your clothing.
- Be 100% certain of your target and what lies beyond before pulling the trigger.

Hunting can be a safe and enjoyable activity. Thinking before you react will keep it that way. Remember, once the trigger is pulled, there is no calling back the shot.

Maintaining a safe spring turkey hunting season for all hunters to enjoy is a priority for the DEEP. All hunters should be aware of, and are encouraged to follow, the basic safety tips for spring turkey hunting.

Conservation Calendar

Late March..... Remove bird feeders from your yard to avoid attracting hungry bears that are emerging from their winter dens. Whenever a bear visits a bird feeder, take the feeder down immediately. To learn more about what to do if you encounter a black bear, visit the DEEP's Web site at www.ct.gov/deep/wildlife.

Late April-August .... Respect fenced and posted shorebird and waterbird nesting areas when visiting the Connecticut coastline. Also keep dogs and cats off shoreline beaches to avoid disturbing nesting birds.

April 22 ..... **Earth Day** — Visit the DEEP Web site for more information and a listing of Earth Day events (www.ct.gov/deep/earthday).

April 28 ..... **Great Park Pursuit Spring Sprint Kick-off**, at Goodwin State Forest in Hampton. Celebrate Junior Forest Ranger Day in conjunction with the DEEP Boating Division's Paddle Smart Event. Visit the No Child Left Inside® Web site (www.ct.gov/ncli) for directions and more specific information.

May 12..... **International Migratory Bird Day** — 2012 marks the 20th anniversary of International Migratory Bird Day. The theme for this year's celebration – "Connecting People to Bird Conservation" – focuses on 20 ways people can help preserve birds. To learn more about this special day, visit www.birdday.org.

May 18..... Endangered Species Day, which was initiated by the U.S. Congress in 2006, is a celebration of the nation's rarest plant and animal species. The U.S. Fish and Wildlife Service and numerous conservation organizations will observe Endangered Species Day to recognize conservation efforts underway across the nation aimed at helping America's imperiled species.

June 2..... **Rainbow Dam Fishway Open House** in Windsor, from 10:00 AM-3:30 PM (See page 11 for more information).

Programs at the Sessions Woods Conservation Education Center

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

March 25..... **The Lifestyles of Mushrooms and Fungi: An Introduction to Fungal Ecology with Special Guest Bill Bakaitis**, from 9:30-11:30 AM. Join the Connecticut Valley Mycological Society, during their annual meeting, for this unique presentation featuring the well-noted lecturer Bill Bakaitis – writer, research associate in mycological studies, teacher, and founder of the Mid-Hudson Mycological Association. Bill will introduce participants to the various lifestyles of common mushrooms and fungi, including decomposers and parasites. These mushrooms are often seen while walking in the forest. The Mycological Society's meeting includes refreshments at 9:30 AM with the presentation from 10:00 to 11:00 AM. Questions and answers follow the program.

April 22 ..... **The Friends of Sessions Woods Annual Meeting with a Unique Program on Porcupines by the Dynamic Gerri Griswold**, starting at 1:00 PM. The Friends of Sessions Woods Annual Meeting is open to all! Gerri Griswold, a DEEP-licensed wildlife rehabilitator, is the featured presenter. Gerri will introduce participants to a live porcupine and explore the natural history of one of Connecticut's most interesting mammals. Traditionally, the Annual Meeting also features a potluck dessert extravaganza preceding the presentation at 12:30 p.m. Please bring a dessert to share. Registration is appreciated but not required.

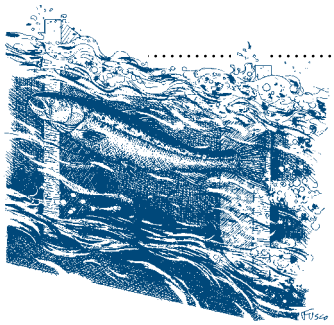
Hunting and Fishing Season Dates

April 14 & 21 ..... Spring Turkey Junior Hunter Training Days to provide junior hunters with an opportunity to learn safe and effective hunting practices from experiences hunters. Visit the DEEP Web site (www.ct.gov/dep/hunting) to learn more.

April 21 ..... Opening day of fishing season

April 25-May 26 ..... Spring Turkey Hunting Season

..... *Consult the 2012 Connecticut Hunting and Trapping Guide and the 2012 Angler's Guide for specific season dates and details. The guides are available on the DEEP Web site (www.ct.gov/dep/hunting or www.ct.gov/deep/fishing), and also at DEEP facilities, town halls, bait and tackle shops, and outdoor equipment stores. Go to www.ct.gov/dep/sportsmenlicensing to purchase Connecticut hunting, trapping, and fishing licenses, as well as required deer, turkey, and migratory bird permits and stamps. The system accepts payment by VISA or MasterCard.*



Connecticut Wildlife

Subscription Order

Please make checks payable to:
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Help fund projects that benefit songbirds, threatened and endangered species, reptiles, amphibians, bats, and other wildlife species.

Connecticut Wildlife

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Bureau of Natural Resources / Wildlife Division
Sessions Woods Wildlife Management Area
P.O. Box 1550
Burlington, CT 06013-1550

P. J. FUSCO

Beavers are best known for their unique dam-building ability, which enables them to modify the habitat to meet their needs. By cutting sticks and branches and shoving them into the stream bottom and then piling mud and other debris on top, beavers are able to dam a stream and create a pond, or beaver flowage. The flowage provides beavers access to food and protection from terrestrial predators.