July/August 2015

Connecticut Wildlife

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

Eye on the Wild

One of Connecticut's amazing wildlife conservation success stories is featured in this issue of Connecticut Wildlife. *The wild turkey, an iconic bird championed by Benjamin Franklin for our national symbol, had completely disappeared from the state by the early 1800s. Habitat loss due to agricultural expansion in the rapidly developing colonies, combined with severe winter weather, drove a rapid decline in wild turkey populations. The restoration of wild turkeys to Connecticut woodlands is a lesson in persistence and the kind of Yankee ingenuity that would have made Ben Franklin proud.*

You will learn about the dedication of five wildlife biologists who worked tirelessly over a span of four decades to turn a fledgling effort of releasing eight turkeys in northwest Connecticut into a conservation success that now boasts the return of this magnificent species to all corners of the state. What is most notable about this effort are the partnerships that made it successful. Other state wildlife agencies, private landowners, conservation organizations, academic institutions, and volunteers all worked together with our wildlife biologists to insure the success of this effort.

The story of the wild turkey is also one of stewardship and traditions. As you read this issue, you will see those ideas reflected in many other stories that touch on the bonds created with family and friends over shared wildlife experiences. As we celebrate the 40th anniversary of the wild turkey program in Connecticut, it is important to reflect on the lessons learned along the way and to apply those to wildlife conservation efforts in the future. Many wildlife conservation challenges still lie ahead. Working together we can continue this conservation tradition making sure that Connecticut's amazing diversity of wildlife is here for future generations to enjoy.

Jenny Dickson, Supervising Wildlife Biologist

Want to Help? Consider volunteering for Connecticut's Wild Turkey Brood Survey next year. For more information, visit the DEEP website at www.ct.gov/deep/wildlife and click on "Volunteer Opportunities" in the right navigation box.

Cover:

Connecticut's successful turkey reintroduction program began 40 years ago. Learn about the five Wildlife Division biologists who were instrumental in the success of this program by reading the article on page 4.

Photo courtesy of Paul J. Fusco

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Commissioner
Robert Klee

Deputy Commissioner
Susan Whalen

Chief, Bureau of Natural Resources
William Hyatt

Director, Wildlife Division
Rick Jacobson

Magazine Staff

Managing Editor Kathy Herz
Production Editor Paul Fusco
Contributing Editors: Mike Beauchene (Inland Fisheries)
Penny Howell (Marine Fisheries)
Christopher Martin (Forestry)
Circulation Trish Cernik

Wildlife Division

79 Elm Street, Hartford, CT 06106-5127 (860-424-3011)
Office of the Director, Recreation Management, Technical Assistance, Natural History Survey

Sessions Woods Wildlife Management Area
P.O. Box 1550, Burlington, CT 06013 (860-424-3011)
Wildlife Diversity, Birds, Furbearers, Outreach and Education, Habitat Management, Conservation Education/Firearms Safety, *Connecticut Wildlife* magazine

Franklin Wildlife Management Area
391 Route 32, N. Franklin, CT 06254 (860-424-3011)
Migratory Birds, Deer/Moose, Wild Turkey, Small Game, Wetlands Habitat and Mosquito Management, Conservation Education/Firearms Safety

Eastern District Area Headquarters
209 Hebron Road, Marlborough, CT 06447 (860-295-9523)
State Land and Private Land Habitat Management

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E-mail: deep.ctwildlife@ct.gov Phone: 860-424-3011

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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Connecticut's Reef Fish Gets Special Attention

Written by Penny Howell, DEEP Marine Fisheries Division

Reef fish are not all in the tropics; our own tautog (a.k.a. blackfish) is in the family of wrasses and, like its tropical cousins, finds home among rock piles and reefs. Tautog are well adapted for life among the rocks. Peg-like teeth allow them to enjoy dining on a variety of crabs, clams, blue mussels, barnacles, and small fish. Their tough black and mottled white skin is coated in a thin mucus, which helps them navigate comfortably into tight crevices where they drop into torpor and "sleep" each night and most of the winter. This species can reach a large size; the record from New Jersey waters is 37 inches (95 cm) and 25 pounds (11.3 kg), and a record age of 34 years old. Connecticut's trophy record for Long Island Sound is 33 inches (84 cm) and 23.6 pounds (10.7 kg).

DEEP MARINE FISHERIES DIVISION

This large tautog was released back into Long Island Sound after being measured and weighed as part of the CT DEEP Long Island Sound Trawl Survey.

General descriptions of their behavior usually state that tautog are "year round residents" undertaking only limited seasonal movements. For this reason, they can form discrete localized groups that spawn in spring in the same areas over many years. The degree of longevity and isolation of these spawning groups is unknown. Therefore, a new study aims to clarify the nature of tautog spawning groups in Long Island Sound. By tagging tautog on Connecticut reefs after the spring spawning season, recapture of the tagged fish later in the year will show if these fish live in localized family groups or if they roam into New York waters or offshore, visiting many reef locations throughout the year. Fishery scientists at UConn will analyze the recapture data in conjunction with an assessment of the population status, with the goal of improving cooperative management of tautog by Connecticut and New York.

K. WESTERFIELD

A potential new world record tautog (a 28.5-lb. female) was caught off Ocean City, Maryland, last January by Kenneth Westerfield (www.onthewater.com).

A group of 19 volunteers was recruited through the Recreational Fisheries Alliance, spearheaded by Jack Conway, to place yellow tags on 800 tautog in the spring and early summer of 2015. CT DEEP purchased the tags from the American Littoral Society, which has managed fish tagging programs coastwide since 1965. Check out the Society's website (www.littoralsociety.org) to read about the history of their volunteer programs, as well as the resulting movement information they have gathered for several popular game fish.

If You Catch a Tagged Tautog:

Remove the tag and print out a return form that can be found on the Littoral Society website (www.littoralsociety.org). Record the location and date when you caught the fish. The total length of the fish is helpful information, too. Questions? Contact David Molnar at CT DEEP Marine Fisheries (860-447-4334, david.molnar@ct.gov).

A new study to clarify the nature of tautog spawning groups in Long Island Sound involves tagging tautog after the spring spawning season.

Forty Years of Connecticut Wild Turkey Biologists

Written by Michael Gregonis, DEEP Wildlife Division

DEEP - WILDLIFE

Connecticut's successful Wild Turkey Restoration Program began in 1975 with the release of 22 wild-trapped birds from the state of New York. One of the first turkeys to be reintroduced in the state is released in Canaan by former Turkey Program Biologist Steve Jackson. Steve is considered to be the "father" of Connecticut's Wild Turkey Program.

On January 28, 1975, Connecticut's Wild Turkey Program began in earnest when eight hens were captured at Allegany State Park in Coldspring, New York, and released at Great Mountain Forest in Canaan, Connecticut. Over the winter of 1975, an additional 14 wild turkeys were captured in New York and released in Connecticut, creating our core wild turkey population. From 1975 to 1992, a total of 356 turkeys were trapped in New York and Connecticut, and relocated to suitable habitat throughout the state. Throughout the 1990s, our state's wild turkey population grew exponentially, with birds being documented in all 169 Connecticut towns. Since the mid-2000s, Connecticut's turkey population has shown annual fluctuations.

Over the past 40 years, five different biologists have been tasked with the responsibility of managing Connecticut's "wild turkey populations at levels compatible with available habitat and various land uses and to allow for a sustained yield of turkeys for use by the people of Connecticut." On the 40th Anniversary of the Wild Turkey Program (1975 - 2015), this is the story outlining the accomplishments and challenges faced by the biologists.

Steve Jackson (1973 – 1983): Steve is considered to be the "father" of Connecticut's Wild Turkey Program. He had an acute interest in turkey restoration efforts being undertaken in many of our surrounding states in the early 1970s. These efforts showed that wild-trapped turkeys could produce a viable population. Steve's interest led him to make contacts and develop the necessary agreements to get this native species back into Connecticut. During 1975, as a result of Steve's efforts, 22 turkeys were trapped in New York and relocated to Connecticut.

By the winter of 1977-78, Connecticut's population had grown to a point that Steve started an in-state trap and relocation effort. For Steve and his crew, the trapping process resulted in many long and cold hours in remote blinds waiting for turkeys to start feeding on the bait. Once the turkeys were on bait, a rocket net was discharged to capture birds for the next release site. From 1978 to 1982, Steve oversaw the release of 150 birds at nine established wild turkey restoration sites in Connecticut from Union to Guilford.

Shortly after the first releases, Steve developed and instituted the "Wild Turkey Sighting Card Program," which helped evaluate annual productivity and range expansion, as well as estimated hatch dates and fall population growth.

Although the initial goal of the turkey restoration program was to increase biodiversity in Connecticut's woodlands, the turkeys did so well that by 1981 a limited spring hunting season was initiated. Steve developed and implemented all of the regulations to institute the first modern day turkey hunting season in Connecticut. That first year, hunting was restricted to the northwest corner of the state; a total of 428 permits were issued with a harvest of 21 birds. As the wild turkey population expanded throughout Connecticut, Steve continued to open new areas to hunting and developed liberalized regulations which included establishing a fall archery season.

Steve's efforts formulated the Wild Turkey Program's foundation, which provided a solid platform for future biologists to wisely manage this valuable renewable resource.

Brian Miller (1984 – 1988): Brian came to Connecticut by way of Purdue University, where in the early 1980s he had recently completed a Master's Thesis which documented his wild turkey research in Indiana. As a recent graduate, Brian provided renewed enthusiasm and innovative approaches to monitoring wild turkey productivity, range expansion, and factors that limit survival. He initiated several pilot studies designed to address these objectives, including parasite inventories, snow tracking, brood calling, gobble routes, and brood baiting.

Brian also focused on establishing birds in all suitable habitat in Connecticut. He identified three areas with suitable habitat that lacked reproducing hens. To address this issue, turkeys (85 total) were released in Ellington (30), Hebron (27), and North Stonington (28) during the winters of 1986 and 1987. As the turkey population grew, so did Brian's ability to provide more turkey hunting opportunities, including nearly doubling the total square mileage open to spring turkey hunting, increasing the spring season's private land bag limit from one bird to two, and extending the fall archery season to run concurrently with the first part of the archery deer season.

In 1985, Brian drafted the first comprehensive program booklet entitled *The Connecticut Wild Turkey Program*, which explored such topics as prehistory, extirpation, restoration, life history, management, and hunting. This was an important document because it provided a reference for the public to become aware of and learn about this newly-restored species.

In a recent conversation, Brian shared the reason he felt Connecticut's wild turkey restoration effort has been so successful. By his assessment, it was the cooperation between the Wildlife Division and private landowners. If not for landowners allowing access to trap and release turkeys on their properties, the restoration would not have been possible. Brian's ability to work with landowners, institute new research techniques, and expand turkey hunting opportunities continues to pay dividends to Connecticut residents.

Dale May (1988 – 1994): Although becoming a wild turkey biologist was not part of Dale's career objectives, as a supervising biologist, he inherited the Program as a result of Brian Miller's departure. Being the wildlife professional that Dale is, he quickly learned as much as he could about wild turkey biology and management.

Like his predecessors, Dale was tasked with continuing restoration efforts, assessing annual productivity, conducting public outreach, and managing hunting programs.

Although wild turkeys had been released in good habitat in northeastern Connecticut during the winter of 1978-1979, this population did not perform as well as many of the other restoration efforts. Therefore, a decision was made to conduct supplemental releases in this region. During the winters of 1990 to 1992, Dale and his crew captured 99 turkeys in northwestern Connecticut using a rocket net and transplanted these birds to the towns of Eastford (22), Hampton (51), and Pomfret (26).

These supplemental releases proved to be beneficial, resulting in rapid increases in the turkey population

continued on next page

Although Brian Miller left Connecticut's Wild Turkey Program over 25 years ago, he continues to manage wild turkeys on his southern Indiana farm through habitat manipulation and hunting.

P. J. FUSCO

P. J. FUSCO

Wild turkeys are trapped during the winter because they readily come to bait. Former Connecticut Turkey Program Biologist and Wildlife Division Director Dale May is pictured preparing a rocket net at a bait site in northwest Connecticut during the late 1980s.

When turkeys start feeding at the bait site, biologists (who are watching from a nearby blind) trigger three rockets which shoot a net over the unsuspecting turkeys to capture them.

Forty Years

Continued from previous page

in this area. By the late 1990s, Woodstock was routinely one of the top five towns in the state with the highest spring harvest.

As restoration efforts were completed, Dale began to work on several public outreach projects. The National Wild Turkey Federation (NWTF) was a growing organization that had worked closely with the Wildlife Division. To formally recognize this relationship, Dale served as a liaison to develop a memorandum of understanding. This agreement has proven to be beneficial for a wide variety of cooperative projects between the Wild Turkey Program and NWTF. An example of one of these projects was the booklet *Wild Turkey Hunting in Connecticut 1981 – 1991*. Dale prepared this manuscript to provide a reference of the first 10 years of wild turkey hunting in Connecticut. The booklet was an outstanding success and many individuals have used it to become better turkey hunters.

Through the early 1990s, turkey numbers continued to increase, allowing the entire state to be open for spring turkey hunting. Later, a fall firearms season was established, the fall archery season opened statewide, and the archery turkey season was standardized to coincide with the entire archery deer season. Each of these liberalizations provided more opportunities for hunters to enjoy Connecticut's wild turkey resource.

Howard Kilpatrick (1994 – 1995): Howard came to be the Wild Turkey Program Leader when Dale became the Director of the Wildlife Division. Upon Dale's departure and Howard's arrival, the Program was beginning to move in a new direction. For all the previous program leaders, a significant part of their job was to restore wild turkeys into unoccupied habitat. With this goal completed, time was available to move forward with other objectives. Before moving on to his new position as Director, Dale had initiated a research project to examine the nesting ecology of wild turkeys in Connecticut. Although the ground work had been done, Howard moved the research forward. This entailed coordination of the research objectives with a University of Maine graduate student, and obtaining several grants from NWTF and another conservation organization called Wildlife Forever. Along with the research project, Howard also was responsible for maintaining hunting programs, hunter surveys, and public outreach. Currently, Howard continues to play a significant role in guiding the Wild Turkey Program because of his supervising biologist's duties, which include overseeing the activities of the present program leader.

Michael Gregonis (1995 – Present): I began my affiliation with the Wild Turkey Program in 1988 while employed as a Seasonal Resource Assistant. While working with Dale, I learned about the inner workings of the program, which proved to be an invaluable resource when I later became a Deer and Wild Turkey Program Biologist for the Wildlife Division.

During the past 20 plus years, I have had the good fortune to assist with wild turkey restoration, observe exponential population growth, enact regulation changes to liberalize hunting seasons and bag limits, and deal with challenges which have resulted from an abundant turkey population. Currently, in Connecticut, turkey hunters can pursue birds during three seasons – spring, fall archery, and fall firearms – which total 160 hunting days and a collective bag limit of 10 birds.

Significant changes also have occurred in harvest reporting. Wild turkey check stations and kill report cards served the program well. However, with advances in technology, online and telecheck reporting have been adopted for hunter convenience and cost savings.

Even though the presence of turkeys is not problematic for most people, some people often voice some degree of concern. On a routine basis, I receive complaints from the public regarding "nuisance" turkeys acting aggressively towards people. In the majority of these cases, the issue stems from a supplemental feeding situation,

where turkeys have become habituated to and lost their fear of people. Fortunately, most of these complaints can be solved with technical assistance, starting with the removal of all supplemental food sources. A second perceived problem that I often encounter is from farmers claiming crop damage due to turkeys. One vocal group – vineyard owners – spurred a research project to evaluate which wildlife species was feeding on grape crops. Through the use of trail cameras, we determined that turkeys were not causing any grape damage. The real culprits were deer. Additional investigations found that, in general, wild turkeys rarely cause crop damage. These types of human-wild turkey conflicts have added new issues that early turkey biologists rarely, if ever, had to deal with.

Once a wildlife population becomes established, biologists must gather information about annual productivity to better manage that population. Steve Jackson and Brian Miller had used the Wild Turkey Sighting Card Program to assess annual productivity. Under this program, the public was asked to fill out sighting report cards when they saw turkeys and then submit the cards to the Wildlife Division. However, with abundant turkey numbers, it was no longer a novelty to see a turkey, resulting in a dramatic decline in submission of report cards. Therefore, another method had to be developed to assess productivity. In 2006, the Wild Turkey Brood Survey was developed and implemented, using methodologies from other states, to help determine annual productivity. This survey has proven to be a valuable tool for monitoring the turkey population.

W. STOBER

Current Wild Turkey Program Leader Michael Gregonis holds a hen turkey that was part of a nesting ecology research project that occurred in the mid-1990s. Note the radio telemetry backpack between the wings of the bird.

Three generations of wild turkey hunters: Howard Kilpatrick (far left) continues the hunting traditions with his son and Dad.

Habitat management projects designed specifically for wild turkeys also have been implemented. Although about 60% of the land area in Connecticut remains forested, many areas of the state lack good brood habitat in the form of forest openings. As a result, several habitat projects have been completed and maintained at Nipmuck State Forest in Union and Enders State Forest in Granby and Barkhamsted. The forest openings at each of these sites provide an abundance of insects necessary for turkey chick (poult) growth and survival. The NWTF was a partner in all of these projects, providing funding and, at times, volunteers to do manual labor. Additional funding from NWTF allowed the Wildlife Division to acquire a seeder, which has been used on over 40 habitat projects on both public and private lands throughout the state. Cooperation between the public and nonprofit organizations has been invaluable for gathering information and funding.

Public outreach and education have become major components of the Wild Turkey Program Leader's job. Responsibilities range from drafting manuscripts for and presenting at National Wild Turkey Symposia on such topics as Connecticut's Turkey Management Program and assessment of wild turkey-human conflicts throughout the United States and Canada, to co-authoring a peer-reviewed research paper dealing with the assessment of crop depredation by wild turkeys in the North America. In conjunction with Connecticut's Conservation Education/Firearms Safety Program, I annually teach new turkey hunters about wild turkey biology and ways to safely harvest turkeys. I routinely provide a presentation entitled "Connecticut's Wild Turkey Restoration and Management" to various conservation-minded groups and attend events to educate the public about the remarkable wildlife management success story attributed to Connecticut's wild turkeys. This story could not have been told without the hard work and dedication of my predecessors, whom I am indebted to for their efforts. Former turkey biologist Dale May summarized Connecticut's Wild Turkey Program the best when he stated that the "turkeys did most of the work." I believe that both past and present Connecticut wild turkey biologists would agree.

Keeping Watch Over Nesting Eagles and Peregrine Falcons

Written by Brian Hess, DEEP Wildlife Division

This year, two iconic raptor species continued their recovery in Connecticut. DEEP staff, along with an army of dedicated and diligent volunteers, tracked 42 bald eagle and 17 peregrine falcon territories throughout late winter, spring, and early summer.

P. J. FUSCO

Bald Eagles

Bald eagles successfully nested in every county, producing 49 young from 32 successful nests. Successful nests averaged 1.5 young per nest, a drop from last year's rate of 1.8 young per nest (57 young from 32 nests). The reason for this change is unknown, but cold weather, heavy snow, and thick ice may have played a role in lowering productivity. Four new nesting territories were discovered in 2015. Of those, one nest was successful, one failed, and the outcome of two was unknown due to inaccessible locations and dense leaf cover around the nests. In late May and early June, six bald eagle chicks were banded at five nests.

Peregrine Falcons

Peregrine falcons produced 16 young from nine successful nests. Falcons attempted 17 nests on buildings (3), bridges (5), power plants (3), transmission poles (1), and rock cliffs (5). In addition to known sites, two new territories were reported this year. Of those, one pair was successful in raising two chicks, and one pair showed territorial behavior without reproducing. Seven falcon chicks were banded at three nests.

Eagle and falcon nesting data are provided by volunteer nest monitors, including the Bald Eagle Study Group. With so many far-flung nests, these projects would be impossible without the assistance of such dedicated individuals.

2015 Bald Eagle Nesting Season Results

County	Active Territories	Territorial Only	Failed Nests	Successful Nests	Unknown Status	Number of Chicks
Fairfield	2		1	1		2
Hartford	10		2	7	1	10
Litchfield	7			6	1	10
Middlesex	5	1	1	3		5
New Haven	7	1		6		8
New London	7			5	2	9
Tolland	2			2		3
Windham	2			2		2
Total	**42**	**2**	**4**	**32**	**4**	**49**

Eagle Hatched in CT Now Nesting in Hamden

On an overcast May afternoon in 2008, Wildlife Division biologists banded two bald eagle chicks in North Branford. Each eaglet received a federally-issued silver band on the right leg and a black band with large white letters on the left leg. The first eaglet's black band had a "C" over an "O." C/O and his brother D/O were returned to their nest, and the team of biologists departed.

Five years later, C/O was spotted in Hamden. He and an unbanded female were building a nest in a spindly cottonwood along the Quinnipiac River. That spring, while the female did most of the incubating of the egg and brooding of the young, C/O brought a steady supply of food to the nest. The pair raised one eaglet that year. They returned to the same site the next year, raising two chicks in 2014 and one in 2015.

This spring, C/O turns seven. He has fathered three broods and raised four chicks. He could live another 25 years, and thanks to the aluminum band on his left leg, we will be able to follow him in the years to come.

Good Year for Cliff-nesting Peregrines

2015 has been a good year for cliff-nesting peregrine falcons. Peregrines had successful nests on rock faces in New Haven, Woodbridge, Hamden, and Newington. The four pairs raised a total of six chicks this year.

Peregrine falcons have nested on rock cliff faces for millennia, but have recently adapted to nesting in urban environments. Buildings and bridges are suitable approximations of cliffs, and cities are home to an abundant food supply of pigeons and starlings. These city raptors are the subject of webcams and often become local celebrities. While watching chicks grow on a webcam is fascinating, knowing falcons are growing in wilder places is a reminder of the origins and adaptability of peregrine falcons.

P. J. FUSCO

P. J. FUSCO

D. ALLEN

2015 Peregrine Falcon Nesting Season Results

County	Active Territories	Territorial Only	Failed Nests	Successful Nests	Unknown Status	Number of Chicks
Fairfield	2			1	1	1
Hartford	5	2		3		4
Middlesex	1			1		3
New Haven	5	1		4		8
New London	4	2	1		1	n/a
Total	**17**	**5**	**1**	**9**	**2**	**16**

Peregrines can migrate massive distances and are found on every continent except Antarctica.

Pollinators Are in Trouble ... *but You Can Help!*

Written by Patrick Pennarola, DEEP Wildlife Division; photos by Paul Fusco, DEEP Wildlife Division

The vast majority of flowering plants make use of pollinators: animals that carry pollen from one flower to another. Plants and pollinators have a mutualistic relationship – both benefit from the association. Pollinators may consume pollen and nectar provided by the plants as a reward to encourage hungry visitors. In the process, additional pollen will inadvertently get caught on the hairs on the animal's body. When the pollinator visits another flower, this pollen will be transferred, thereby fertilizing the second flower. More pollen is transferred to the pollinator, and the process continues. By offering rewards to these visitors, plants have shaped and continue to shape the evolution of their pollinators.

You may be familiar with the pollinating habits of bees and butterflies, but many other organisms are also pollinators. Certain flies visit flowers, as do some beetles, moths, and wasps. Hummingbirds are known to pollinate and, in some parts of the world, lizards, bats, and lemurs are also spreading pollen between flowers.

Bumble bees are important pollinators of wild flowering plants and crops. Some plants, including tomatoes, peppers, and cranberries, benefit specifically from bumble bee pollination.

Bees

Bees are one of the most important groups of pollinators on the planet, and are responsible for most insect-driven pollination. Bees are covered in fine hairs that can collect pollen, making them very effective at fertilizing the flowers they visit.

Connecticut is home to over 300 different species of bees! While some bees are social beings, like honey bees and bumble bees, most of the 300 Connecticut bee species are solitary, meaning that they do not form colonies. Female solitary bees lay eggs in cavities in the ground or in wood, and line those cavities with leaves and mud.

The snowberry clearwing moth (*Hemaris diffinis*) mimics the coloration of bumble bees and is common to see around backyard flower beds and meadows.

Butterflies and Moths

Although butterflies and moths do not provide the same amount of pollination service as bees, they are certainly conspicuous creatures, garnering admiration and attention from scientists and citizens alike. Lepidopterans (the scientific name for butterflies and moths) do not consume pollen, but they will drink nectar using their long, tubular mouthpart (proboscis). Some plants have evolved specifically to be pollinated by these insects, hiding nectar deep in the flower such that it may only be reached with an extended proboscis.

Flies

Flies are important and often overlooked pollinators. While many plants offer bright colors and nectar to attract bee visitors, other plants may mimic carrion or dung with dark-colored flowers and odors of a pungent nature to draw in flies, such as fungus gnats and carrion flies. Pollinating flies are generally not covered in as much hair as bees, though they will still transfer pollen between plants from what sticks to their bodies as they forage.

Beetles

Pollination by beetles accounts for a small percentage of overall flower pollination. Nevertheless, beetles, ranging from scarab and long-horned beetles to checkered beetles and tumbling flower beetles, may transfer pollen between flowers.

Declining Pollinators

Over the past decade, scientists have increasingly talked about pollinator declines – the noted decrease in these beneficial insects across the globe. Commercial honey bee hives have been experiencing significant losses in recent years, prompting investigation into its causes. Scientists and the public also have noticed that the once common rusty-patched bumblebee (*Bombus affinis*) has gone missing from the majority of its range in North America. Once commonly found across most of the eastern United States, it was only documented from Iowa, Illinois, Indiana, Wisconsin, and Maryland between 2001 and 2008. As for other pollinators, efforts are currently

underway to search through existing specimens in museum and private collections to determine changing trends in pollinator abundance and diversity over time. Understanding population trends of the often overlooked wild bees is important given the pollination services they provide. The USDA states that 75 percent of the fruits and vegetables we consume require bee pollination.

In commercially raised bumble bees, several parasites have been identified as sources of mortality. These parasites have unfortunately escaped into wild populations. Pesticide application and pesticide drift (the travel of chemicals from the intended area to non-target plants) also is believed to be killing bumble bees and other insect pollinators, including butterflies and moths. Habitat loss and fragmentation are hurting pollinator populations as more and more foraging areas and nesting habitats are destroyed. These vital members of our ecosystems are being threatened from all sides, and for most species, we don't yet know the extent of the damage.

A metallic green bee is covered with yellow pollen. While foraging, some of this pollen will be transferred onto the next flower, successfully pollinating the flowers.

What You Can Do

Local nectar and pollen sources are key to supporting local pollinators. To maximize the use of your yard, consider planting flowers that bloom from early spring through late autumn, thus providing a place where early-season up through late-season pollinators can "fuel up." Remove invasive plants, such as burning bush, autumn olive, Japanese barberry, and others in favor of native plant species. With the right mix of plants, you can turn your property into a haven for the entire year.

Pollinators need places to nest, feed, and protect their offspring. By managing your property to be pollinator-friendly, you may be able to greatly improve pollinator habitat. Maintaining natural areas (unmanicured areas of your property) is key for long-term pollinator protection. If you have a forest, meadow, or wetland on your property, bees will use those areas extensively for both feeding and nesting. You can also give wild bees a helping hand by providing nesting sites. These sites could be patches of untilled, bare, well-drained soil, which is perfect for many ground-nesting bees. Sites for wood-nesting bees include old logs with beetle burrows (for mason bees and leafcutter bees) or brush piles (for safe places to hibernate). To encourage butterflies, you should plant the caterpillar host plants. For example, monarchs need milkweeds to feed on as caterpillars. New Jersey tea is eaten by many Connecticut insects, making it a great addition to a pollinator garden. Planting native food plants in your yard or garden is a great way to encourage pollinators to flourish.

Skippers, a type of butterfly, are known to quickly flit from flower to flower. While they are not as proficient as bees or other insects in pollination, they can carry residual pollen on their proboscis or face to the next flower of the same species.

No matter the life stage, these insects are best protected by avoiding disturbances to their chosen wintering sites. It is important to support these organisms across their entire life cycle, including over winter. Plant management or soil disturbance is best conducted during the late summer or fall to minimize negative effects to pollinators over wintering periods. If possible, management should occur in such a way that much of the habitat is left undisturbed in any given year, helping to protect species from the direct impacts of disturbance.

Above all, any space created for pollinators should be pesticide free. Insecticides are especially harmful to pollinators if applied at the wrong time or application rate. While it may not always be possible to completely eliminate pesticides from your garden or yard, you can certainly reduce the impacts on pollinators with a few simple steps. Chemicals should not be applied when pollinators are active – most pollinators will be resting during the night. Similarly, if possible, pesticides should be applied to the parts of the plant without flowers so that pollinators are not being exposed to chemicals while visiting the flowers.

The Wildlife Division is currently developing a pollinator webpage. Be sure to visit our website to learn more about pollinators and to find other ways to help these beneficial animals: www.ct.gov/deep/pollinators.

State Wildlife Grants

Countryside Singer – The Brown Thrasher

Article and photography by Paul Fusco, DEEP Wildlife Division

This bird of the Connecticut countryside is a talented singer. In fact, brown thrashers are among our most brilliant songsters. Rich in tonal quality and strong in volume, their songs are described in literature as being sparkling and spectacular. The thrasher's song is made up of a complex series of loud melodious phrases that are strikingly musical and given in rapid succession. Their song phrases are normally given two or three times in a row. Although thrashers will sometimes imitate other birds' songs, they do so less often than their closest relatives, the catbird and mockingbird.

Frequently heard without being seen, brown thrashers often forage on the ground in thickets. They will noisily toss leaf litter around with their long bill as they look for hidden invertebrates.

Brown thrashers are mimic thrushes, which are closely related to the true thrushes, such as the robin and wood thrush. Mimic thrushes include mockingbirds, catbirds, and thrashers. They are all medium-sized, slender songbirds, with a long tail, strong legs and feet, and a slender and slightly decurved bill. There are 31 species of mimic thrushes, all in the western Hemisphere. Three of those species can be found in Connecticut, including the brown thrasher.

Brown thrashers are found statewide in Connecticut, although they are uncommon and local.

Description

At close to a foot long, brown thrashers are fairly large for a songbird. They are more slender than a robin and have a distinctively long tail, which is sometimes held upright like a wren. The plumage is rich, rusty brown on the topside and whitish with heavy dark streaks on the underside. The birds have two white wing bars, a long and dark downcurved bill, and bright yellow eyes.

Brown thrashers are birds of early successional shrubland habitat. Typical places to find them include dense shrubland, thickets, woodland edges, briar patches, and fence row tangles. The birds show more of a willingness to live close to human habitation in the southern part of their range than they do in the Northeast, where they seem to be more of a rural species and are known to be reclusive.

Behavior

In Connecticut, brown thrashers are most often found in heavy thickets and vine tangles where they feed and nest. They do most of their foraging on the ground, frequently under the cover of shrubs and vines. These shy birds can be harder to see than to hear as they noisily throw aside fallen leaves and detritus with their feet and bills while searching for worms and other invertebrates. Berries, when available, also are a main part of their diet. At certain times of the year, brown thrashers

also are known to eat acorns.

Nesting usually takes place on or very close to the ground, deep within thickets. A typical nest is bulky, but well-concealed. It is made of twigs, dead leaves, bark, and grass. The female will lay from three to six pale blue to white eggs with fine brownish speckles. Typical incubation is 12 to 14 days and young fledge after about 12 days. The birds may have two broods per season, and they are known to be vigorous and fearless defenders of their nest.

The thrasher flight pattern is slow, low to the ground, and usually persists for short distances. Their short wings and long tail are adapted for maneuvering through thick vegetation, but not for fast or prolonged flight.

Although males often sing from a conspicuous perch in spring, brown thrashers are considered to be shy and secretive birds. Note the large and powerful legs and feet.

Conservation

Brown thrashers are widespread breeders across most of eastern North America from the Gulf Coast to southern Canada. In Connecticut, their distribution is statewide, but they are uncommon and local. They are more common in southern and western parts of the state than in other areas. Thrashers are short-distance migrants in the northern part of their range, which includes southern New England. Most birds move to the southeastern United States in winter; however, a few hardy individuals may try to stick out the cold weather in milder parts of Connecticut, especially along the shoreline.

In Connecticut, brown thrashers are not commonly found in urban or suburban habitats. The population has decreased with the extensive loss of rural and agricultural habitat that has occurred in Connecticut over the past century. Breeding Bird Surveys indicate a drop of over 95% since the early 1970s (according to data from the National Audubon Society and the U.S. Geological Survey). The range-wide population trend is decreasing, but the decline is not as severe as it has been in Connecticut or the Northeast region.

Because of concern for the declining population and the lack of required young forest habitat, the brown thrasher is currently listed as a species of special concern in Connecticut. The DEEP Wildlife Division has been working on young forest habitat management projects for a number of years. Many of these projects are aimed at restoring and rejuvenating old fields, meadows, and other types of early successional habitats that will benefit a variety of declining species. The brown thrasher is one of the species that will benefit into the future from these restoration efforts.

The Brown Thrasher is a State Species of Special Concern – What Does that Mean?

The Connecticut Endangered Species Act defines a species of special concern "as any native plant or native nongame wildlife species documented by scientific research and inventory to have a naturally restricted range or habitat in the state, to be at a low population level, to be in such high demand by man that its unregulated taking would be detrimental to the conservation of its population, or has been extirpated from the state."

With a parent nearby, a fledgling brown thrasher ventures out from the safety of a dense thicket to forage on its own.

Dry Spring Weather Caused Gypsy Moth Outbreak in CT

This past summer, certain areas of Connecticut experienced widespread gypsy moth (*Lymantria dispar*) activity and some tree defoliation. Reports of activity were most notable in New Haven, Middlesex, and parts of Hartford and New London counties. In 2014, aerial surveys in late summer and early fall by the Connecticut Agricultural Experiment Station (CAES) found relatively little gypsy moth defoliation; 1,337 acres, mostly in New Haven County. Unfortunately, because of a dry spring in 2015, there was no early control of the gypsy moth by the gypsy moth fungus (*Entomophaga maimaigi*). Moisture is required for the fungus to infect the gypsy moth larvae (caterpillars), and little or no precipitation was available for the fungus to provide control of young caterpillars.

P. J. FUSCO

Non-native gypsy moth caterpillars are usually observed in Connecticut from May through July. They are about two inches long and have five pairs of raised blue spots followed by six pairs of raised red spots along their backs.

Rainy weather finally arrived by early summer, causing some caterpillar mortality from the fungus. It is anticipated that the pathogen will knock back the gypsy moth population and help prevent a possible large outbreak in 2016. The impact of the fungus on any gypsy moths in 2016 will be dependent on weather conditions in May and early June of next year.

Native Tent Caterpillar or Non-native Gypsy Moth Caterpillar?

Gypsy moth caterpillars are usually observed from May through July in Connecticut. Out around the same time are eastern tent caterpillars. Both the gypsy moth caterpillar and eastern tent caterpillar are covered in coarse hairs and superficially look similar, but the two species are quite different. Eastern tent caterpillars are a moth species native to the eastern United States and a normal part of our forest ecosystems. Gypsy moths, however, are invasive insects from Europe and Asia, that feed on the leaves of many species of trees and shrubs. They are known for causing mass defoliations (losses of leaves) during outbreaks in our forests.

With an eye for the right details, gypsy moth caterpillars and tent caterpillars can be easily identifiable. The following helpful hints aid in identifying the harmful non-native species from the native species:

- **Tent caterpillars are dark, showing a white line down the back with light blue and black spots on the sides. They have black heads and are fully grown at about 2 to 2 ½ inches long.**
- **Gypsy moth caterpillars, have five pairs of raised blue spots followed by six pairs of raised red spots along their backs. They will reach about 2 inches in length.**
- **Tent caterpillars congregate in familiar silken tents in branch forks of sapling trees. They feed on opening buds and new foliage. The tent serves as a place to rest and be protected from predators and extreme temperatures. Larvae leave the tent to feed. Fully grown larvae leave the host tree to find a protected place to pupate.**
- **Gypsy moth caterpillars do not form tents, though many may live on the same tree, eating the leaves until the tree is stripped. Caterpillars hatch from the buff-colored egg masses often seen on the bark of trees. Gypsy moth caterpillars will feed day and night and their frass (droppings) may be heard falling to the ground, often sounding like rain.**

Interesting Facts

Female gypsy moths are white with brown markings and do not fly. Males are brown and can fly.

Gypsy moth caterpillars have been documented feeding on up to 500 different species of trees and shrubs.

Black and yellow-billed cuckoos will seek out gypsy moth outbreaks for increased feeding opportunities.

Questions??

Those with questions about gypsy moths can contact the Connecticut Agricultural Experiment Station, either Dr. Victoria Smith at 203-974-8474 or Dr. Gale Ridge at 203-974-8600.

Written by Patrick Pennarola, DEEP Wildlife Division

Background on the Gypsy Moth

The gypsy moth was first detected in Connecticut in Stonington in 1905. The high level gypsy moth activity noted this year should not mark a return to multiple years of widespread gypsy moth defoliation and the tree mortality experienced in the early 1980s. In 1981, 1.5 million acres were defoliated in Connecticut. In general, partial or even complete defoliation of a tree in any one year does not mean the death of the tree. Healthy trees can tolerate some defoliation. During a large outbreak in 1989, scientists at CAES discovered that

the fungus *Entomophaga maimagia* was killing gypsy moth caterpillars. This fungus has been the major agent suppressing gypsy moth activity since then. However, the fungus is not expected to prevent all outbreaks and occasional high activity and outbreaks can continue to occur, particularly in years with little rainfall during spring and early summer. The last outbreak of gypsy moth activity in Connecticut was in 2005 and 2006. In 2005, gypsy moth caterpillars caused 64,273 acres of defoliation, mainly in Middlesex County. A more widespread outbreak in 2006 caused 251,946 acres of defoliation, largely in Middlesex, New Haven, and New London counties. It was eventually brought under control by the fungus and the arrival of early summer rains; a pattern similar to this year. There was substantially less gypsy moth activity in 2007 with defoliation of only 3,203 acres.

There is only one generation of the gypsy moths each year. Caterpillars hatch from the buff-colored egg masses in late April or early May. An egg mass may contain 100 to more than 1,000 eggs laid in several layers. A few days after hatching, the ¼-inch long caterpillars will ascend the tree and begin to feed on new leaves. These young caterpillars deposit silk trails as they crawl and, as they drop from branches on these threads, may be distributed on the wind. Larger caterpillars generally crawl up and down tree trunks and feed mainly at night. They seek cool, shaded protective sites during the day. However, under outbreak conditions with dense populations of caterpillars, they may feed continuously day and night and crawl at any time. The caterpillars generally complete their feeding sometime around the end of June and the first of July and seek a protected place to pupate and transform into an adult moth in about 10 to 14 days. Male moths are brown and can fly. Female moths are white and cannot fly. The female moth will lay a single egg mass and die. These eggs will pass through the winter and larvae will hatch the following late April or early May.

Gypsy Moth Control

During fall, one control measure would be to remove and destroy egg masses if any are found on tree trunks, decks, vehicles, outdoor furniture, and other locations around the property before the larvae hatch next spring. The difficulty is that many egg masses may be located in inaccessible areas (i.e., high in the trees). While there are a number of insecticides labeled for the control of gypsy moths on ornamental trees and shrubs, they need to be applied early in the season, and thorough coverage of the treated trees by a licensed arborist is necessary for good control.

Upcoming Programs at the Sessions Woods Conservation Education Center

Programs are a cooperative venture between the Wildlife Division and the Friends of Sessions Woods. Please pre-register by emailing laura.rogers-castro@ct.gov or calling 860-424-3011 (Mon.-Fri., 8:30 AM-4:30 PM). Programs are free unless noted. An adult must accompany children under 12 years old. No pets allowed! Sessions Woods is located at 341 Milford St. (Route 69) in Burlington.

September 1, 2015 (Tuesday), 5:30 p.m. Late Summer Evening Walk: Join Wildlife Division Natural Resource Educator Laura Rogers-Castro on an evening walk to the Beaver Marsh at Sessions Woods. Learn about beavers and other marsh critters as we explore this beautiful and peaceful location in the wildlife management area. Dress appropriately and bring water for the 2-mile roundtrip excursion.

September 17, 2015 (Thursday), 4:00 p.m. Trail Hike: Come to Sessions Woods for a guided trail hike led by Wildlife Division Outreach Program Assistant Kelly Cannon. This trek includes educational mini-lessons on different aspects of Connecticut's forests, research studies, management practices, ecology, as well as a children's scavenger hunt! The hike to the beaver marsh and back will be approximately 2-miles roundtrip.

September 26, (Saturday), 10:00 a.m.-4:00 p.m. CT Hunting & Fishing Day: The Department of Energy and Environmental Protection will be hosting the 5th Connecticut Hunting & Fishing Day at Sessions Woods. This year, there will be a live birds of prey program and a raptor meet-and-greet by Master Class Falconer Lorrie Schumacher from Talons. The day features additional activities for all ages, including target shooting; hunting dog demonstrations; archery; children's crafts and activities; hunting and trapping tips; fishing demonstrations; and more! Equipment vendors, sporting clubs, fish & wildlife exhibits, and conservation organizations will also be present. And, it's all FREE! Visit www.ct.gov/deep/HuntFishDay for more details. Parking will be available at Lewis Mills High School, in Burlington. Pre-registration is not required for this special day.

October 7, 2015 (Wednesday), 4:00 p.m. Water, Water, Everywhere! Join Wildlife Division Outreach Program Assistant Kelly Cannon for a lesson on water! This event entails an educational look at the water cycle, watersheds, river conservation, and things you can do to protect our waterways. Following the brief lesson, there will be a walk to the waterfall at Sessions Woods and an investigation of stream beds along the way. Be sure to wear good walking shoes and bring water shoes if you would like to help search the stream for critters.

October 24, 2015 (Saturday), 1:30 p.m. Fall Foliage Hike: The colors are changing all around us and it is time to learn why! For this event, participants will discover the different types of trees in a Connecticut forest; take a look at what they provide to the animals who live here; and a lesson on why certain trees change color each fall. Following the lesson, there will be a walk along the Tree I.D. Trail to see the colors and identify tree types. The hike will be approximately 2 miles roundtrip.

November 14, (Saturday), 1:30 pm, Wintering Over: Every year, our part of the world freezes over and becomes barren and frigid. Come learn about how the forest and the animals that live there prepare for the chilly months ahead! This event entails an indoor lesson, as well as the opportunity to explore the Sessions Woods trails afterwards. Be sure to bring warm clothing for this mile-long walk.

Pumpkinseed Sunfish: Functional and Beautiful

Article by Mike Beauchene, DEEP Inland Fisheries Division

Bob, bob, bob. I focus on my bobber as my heart pounds to the same beat. Bob, bob, bob. "Wait for it to go under," my grandfather calmly instructs. Bounce, bounce, bounce and then it is gone.

"Now!" he says with authority. I begin to turn the handle on my brand new fishing pole, earned by weeding the garden, clearing the table, and stacking wood. I am surprised by how heavy the line feels. I continue to reel, watching my bobber float through the air as if it is controlled by some invisible force. As I reel in the line, I wonder what type of fish will be my first.

"A few more cranks," grandpa says, just as the calmness of the water's surface is replaced with wild splashing. I see him reach for my line, grab it gently, and lift my first fish from the pond. I can hardly contain my excitement.

"Nice one," grandpa says with pride. "Nice one, what?" I ask.

"A pumpkinseed," was his reply. Pumpkinseed? Really? What a silly name for a fish, especially one that is the antithesis of dull monotone tan. This fish is a kaleidoscope of color – vibrant turquoise bands along the face; orange and yellow speckles; every shade of green; and a brilliant red spot where I imagine the ear would be . . . if fish had ears.

"Congratulations on your first fish!" he said after gently flipping it back into the pond. "How 'bout you catch a few more?" After another hour of nonstop catching, it was time to go.

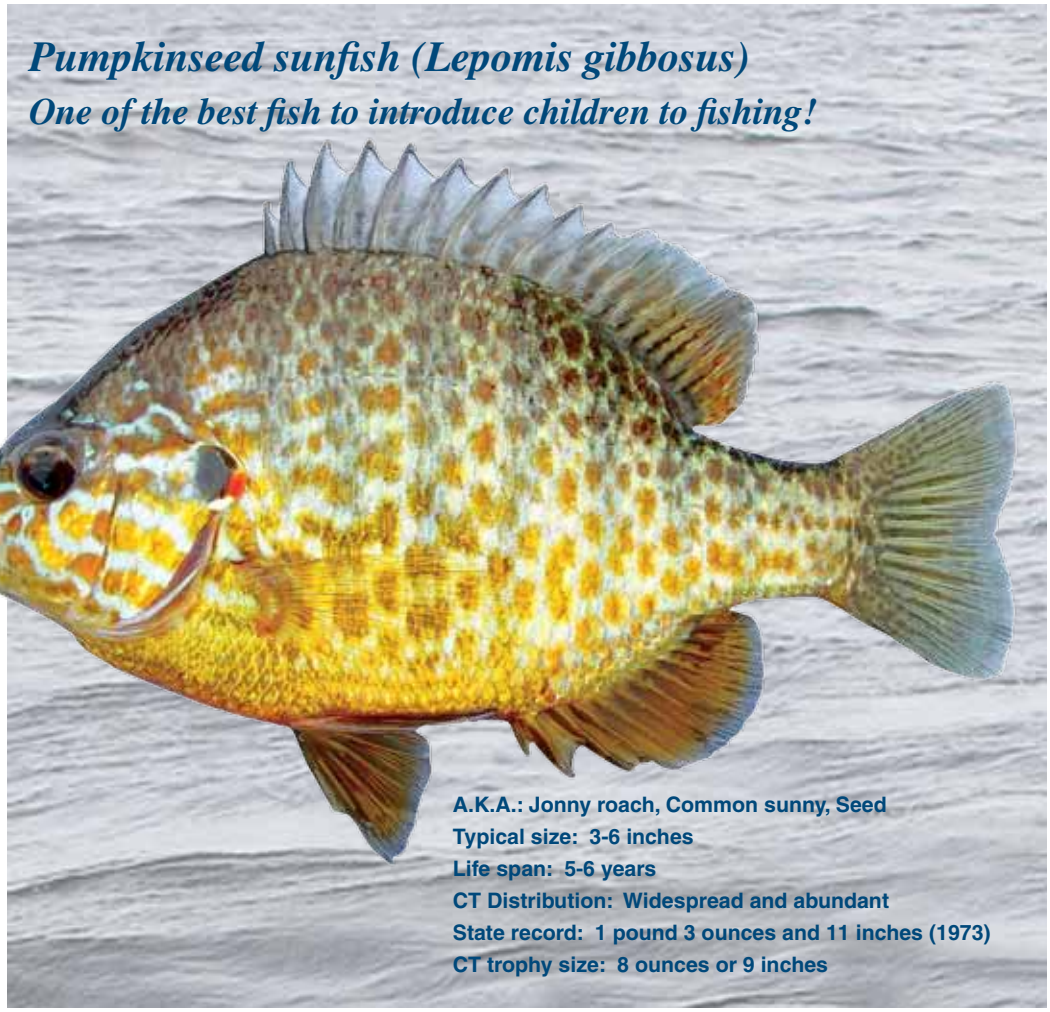
Pumpkinseed sunfish (*Lepomis gibbosus*) belong to a group of fishes within the family Centrarchidae. Connecticut waters contain 11 species from this family, including largemouth bass and smallmouth bass (yes they are actually a sunfish), calico bass (crappie), rock bass, bluegill, and redbreast sunfish, to name a few. Over time, almost all of the sunfish species have been introduced to Connecticut's waters, except for the pumpkinseed, red breast sunfish, and banded sunfish (all native). Centrarchids are highly sought after for recreation, competitive sport, and food as they have firm white muscle, making them tasty table fare.

Sunfish are different from all other fishes in that they are usually deep bodied (as wide as they are long), have stout spines in the dorsal fin (spiny rays in the front fin and soft rays in the connected second fin), and the anal fin (three or more). The mouth is forward facing and varies in shape and size depending on the species. All have scales (which fisheries biologists use to age the fish). Sunfish lack whiskers, do not have an adipose fin (fleshy lobe between the tail and dorsal fins), and do not have large teeth.

Native to Connecticut and northeastern North America, the pumpkinseed sunfish is commonly found across Connecticut, preferring small ponds with a good amount of aquatic plants. Pumpkinseeds have a small rounded mouth and will eat insects, crayfish, amphipods, worms, and leeches. They are easily caught using basic fishing gear – small hook, bobber, and worm – making pumpkinseeds favorites among children (and parents). They also will take a variety of small plastic grubs, small lures, and poppers (when fished with a fly rod).

Males build a nest in spring to early summer by fanning away leaves and debris with their tail. A male hopes his brilliant spawning colors and meticulous nest construction will attract a female. After eggs are deposited in the nest, the male guards them from any perceived threat by aggressive chasing. He cares for the eggs by occasionally fanning the nest with his tail to keep the eggs oxygenated and free of any fine material.

The closest cousin, the bluegill sunfish (*Lepomis macrochirus*), also common and abundant in Connecticut, usually occurs along with the pumpkinseed. Bluegill sunfish have an overall similar body shape but lack the speckled colors and turquoise



R. JACOBS, INLAND FISHERIES DIVISION

lines which make the pumpkinseed so colorful. In ponds where spawning habitat is at a premium and there are two or more species within the genus *Lepomis*, hybrid offspring are common. These hybrids share a random combination of the outward characteristics of both species (making for some interesting looking fish).

Bob, bob, bob. "Wait for it to go under." This time I am providing the instruction. "Now!" I say with authority. My daughter begins to turn the handle on her brand new fishing pole, earned by weeding the garden, clearing the table, and stacking wood.

"Dad!" She giggles with anticipation. "It's pulling really hard!"

"Keep the line tight," I continue to instruct while beaming with pride. I reach for her line, lifting the fish from the water. "Nice one!" I say.

"What kind is it?" she asks.

"A pumpkinseed," I say as I see the puzzled look on her face and know exactly what she is thinking. I flashback 30 years when I caught my first fish. I visualize the kaleidoscope of colors and say, "Beautiful colors don't you think?" She affirms and we toss the fish back. "How 'bout a few more casts?"

Native to Connecticut and northeastern North America, the pumpkinseed sunfish is commonly found across Connecticut, preferring small ponds with a good amount of aquatic plants.

M. BEAUCHENE, INLAND FISHERIES DIVISION

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T. BROOKS

Pumpkinseed sunfish are ideal for the beginner angler as they are found in almost every small pond, feed close to shore in shallow water, tend to group together, require only basic fishing gear, and will strike a variety of baits, both natural or artificial.

Fish can "Tweet?" Get the latest recreational fishing news and updates on Twitter @ctfishinginfo or follow us on Facebook at www.Facebook.com/CTFishandWildlife.

The Science Behind Setting Waterfowl Hunting Regulations

Article by Min Huang, DEEP Wildlife Division

The main goal of annually setting duck hunting seasons is to provide an opportunity to harvest waterfowl by establishing seasons that are compatible with the long-term sustainability of waterfowl populations. In the United States, annual duck seasons are determined through a process called Adaptive Harvest Management (AHM). The U.S. Fish and Wildlife Service adopted AHM in 1995 as a solution to an often acrimonious and increasingly chaotic annual regulations process. Today, AHM remains one of the few large-scale, successful examples of adaptive resource management in the world. In the nearly 20 years of AHM, much has been learned about the harvest potential of waterfowl populations, the ability of managers to regulate harvest, and the monitoring and assessment programs needed to support an adaptive process of informed decision-making.

G. CHASKO

Waterfowl hunting is a time cherished tradition that offers an opportunity to spend time outdoors with friends and provides healthy food for the table.

The need for an adaptive approach for setting waterfowl seasons arises because the consequences of hunting regulations on waterfowl populations cannot be predicted with certainty. Many factors, such as variable environmental conditions, constantly changing habitat conditions, and hunter activity, play a role in the annual dynamics of duck populations. Due to the nature of waterfowl, it is not possible to fully observe the population (estimates of population size and vital rates, such as survival and reproduction, are needed). In addition, there is little control over the many environmental factors that affect ducks, and the biological processes that influence duck populations are not fully understood. All of these factors result in a cloud of uncertainty that surrounds the annual decision-making process.

AHM incorporates and recognizes sources of uncertainty about the effects of harvest on the population, and uses data-based criteria for selecting appropriate harvest regulations depending on the status of the duck population. AHM provides a scientifically sound platform for setting regulations and maintains a careful balance between hunting opportunity and long-term conservation of the waterfowl resource.

AHM, like any other adaptive approach to resource management, consists of a number of elements: 1) management objectives; 2) management alternatives/actions; 3) models describing hypotheses about how the system operates; 4) credibility measures for each model's performance; and 5) a strong monitoring program. For example, the current Eastern Mallard AHM consists of an objective to maximize sustained harvest of waterfowl over time; a suite of four models that depicts various hypotheses of how the system (Eastern mallard populations) operates in response to that harvest; a set of regulatory alternatives (duck season packages) that influence harvest; annually updated model weights that measure the performance of each model (hypothesis); and a rigorous monitoring program that insures sustainability of the system and allows for active learning (adaptation). The AHM process develops an annual optimal harvest strategy that best allows managers to realize a stated objective, such as to maximize sustained harvest over time.

This optimal policy, in the form of an annual hunting season package for the upcoming season, is chosen based on the size of the breeding population each spring. Once the regulatory alternative is chosen, each individual state then sets its duck hunting seasons within the general guidelines, or framework, of that particular regulatory alternative. For instance, the current "liberal" duck season package in the Atlantic Flyway is a 60-day season, with a six-bird daily bag limit. Breeding surveys allow waterfowl managers to estimate annual population status. Waterfowl banding programs provide critical information about harvest rates and survival of waterfowl populations. Annual harvest is estimated through the Harvest Information Program (HIP). The decision on which hunting regulation to employ is made based on these data, as are the model updates (credibility estimates). The collection of these data also allows for learning (adaptation) that is so integral to any adaptive resource management application.

Current Eastern Mallard AHM population models incorporate data on population size, reproductive output, and survival estimates to predict the spring breeding population after the hunting season. Each model output (predicted population size) is compared with the observed population the following spring. Models that do a better job of predicting the population are given greater emphasis than those that were not as accurate. Thus, biologists are able to annually assess the performance of each population model and update their "reliability." Biologists gain new knowledge each year about how the population responds to various factors. Currently, there are AHM protocols for all of the mallard stocks in North America, along with pintails, black ducks, and scaup. Implementation of AHM for these ducks has greatly enhanced the annual regulatory process and insured a sustainable harvest level and hunting opportunity in the face of increasing uncertainty about changing environmental conditions and hunter activity.

2015 Spring Wild Turkey Harvest

Written by Michael Gregonis, DEEP Wildlife Division

The morning started like so many other outings during the spring turkey hunting season, up at 3:00 AM and out the door to a hopeful destination with a gobbling bird. This morning, however, was very special for me because I was hunting with my 81-year-young Dad. In the past several years, he has experienced some difficulty getting around, which has led to limited hunting outings.

We arrived at the cornfield for the morning hunt. While listening to the sounds of wildlife waking up around us, we set up a tent blind and put out a hen decoy. Much to my pleasure, several birds started gobbling on the edge of the field about 200 yards away. It was not long before I saw two birds fly off the roost and into the field. One of these birds was a hen that started yelping to let the others know where she would be travelling to find food. This was my cue to start calling. She and several gobblers answered the yelps from my slate call. The first bird to investigate our location was a single hen. After she had passed our blind, a line of seven juvenile male turkeys, or jakes, also came walking toward the decoy. Dad had been watching the birds and was ready for the shot. The lead bird was within 20 yards when Dad took the shot, resulting in the harvest of a 17-pound jake. I'm not sure who was more proud and happy.

Dad's jake was one of 1,232 birds that were harvested during the 2015 spring wild turkey season. The season was open statewide from April 29 through May 30. A total of 9,062 permits were issued, with hunters posting a 9.8% success rate on private land and 9.3% on state lands. A spring turkey hunter that purchases both private and state land permits may legally harvest three bearded birds on private land and two bearded birds on state land. In total for the 2015 season, 534 hunters harvested one bird, 191 hunters harvested two birds, 67 hunters harvested three birds, 10 hunters harvested four birds, and 15 hunters took five birds. The harvest consisted of 814 adult males, 414 juvenile males, and four bearded hens. Permit issuance increased by two percent and harvest increased by 10% over the 2014 spring season.

In general, the highest harvest occurs on opening day and Saturdays. The 2015 spring season was no exception; 17% (208 birds) of the total harvest was taken on the first day of the season and 24% (296 birds) was taken during five Saturdays. The first four days of the season were the top four harvest days, which accounted for 39% (478 birds) of the total season harvest. Although harvest is highest at the beginning of the season, hunters also can be successful at the end of the season. The last four days of the season accounted for nine percent (111 birds) of the season total. Woodstock (42 birds) and Lebanon (31 birds) reported the highest harvest of all towns. On a regional basis, the highest harvest was reported in wild turkey management zone 5 (203 birds), zone 4 (130 birds), and zone 2 (128 birds). The two state land areas that reported the highest harvest were Pachaug State Forest in Voluntown (25 birds) and Cockaponset State Forest in Chester/Haddam (15 birds). These areas are also the largest state areas in Connecticut.

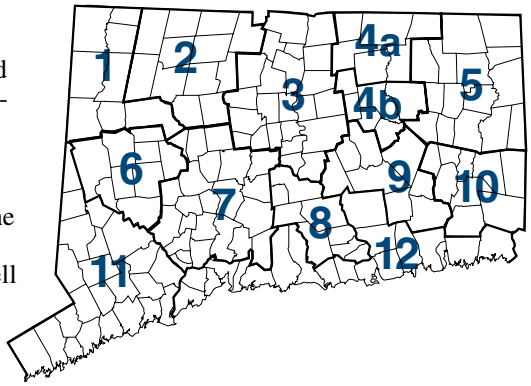
In an effort to provide a quality wild turkey hunting experience for Connecticut's junior hunters (ages 12 through 15), seven junior turkey hunter training days took place on April 18 through April 25 (excluding Sunday). During the training days, youths harvested 49 turkeys. These training days have been well received, with participants and mentors making many positive comments.

The spring wild turkey season is a great time to be in the outdoors with family and friends. Spring offers mild temperatures and new awakenings of both plants and wildlife. These conditions are compatible with introducing youths to hunting traditions and also renewing interest in older hunters. The wild turkey hunt that Dad and I shared this past spring will be a memory that will last the rest of our lives.

2015 Spring Wild Turkey Harvest by Zone

Zone	Harvest
1	87
2	128
3	77
4a	73
4b	57
5	203
6	93
7	91
8	84
9	78
10	86
11	52
12	123
Total	1,232

Wild Turkey Management Zone Map



Sunday Hunting Update: *Effective October 1, 2015, archery deer hunters can hunt on Sundays on private land only in Deer Management Zones 1, 4b, 5, 6, 7, 8, 9, 10, 11, and 12 (see zone map above). Deer Management Zones 2, 3, and 4a are* ***NOT*** *open to Sunday archery deer hunting. Visit www.ct.gov/deep/hunting for more information.*

Final Review of CT's Wildlife Action Plan

The final draft of Connecticut's 2015 Wildlife Action Plan was made available for public review in late July on the DEEP website (www.ct.gov/deep/WildlifeActionPlan), and comments were accepted through August 21, 2015.

Release of the draft Wildlife Action Plan allowed the public a final opportunity to provide comments. DEEP appreciates the interest from members of the public and partner organizations who, over the past year, attended workshops and presentations about the Wildlife Action Plan and contributed to this revision.

The final plan is currently pending approval by the U.S. Fish and Wildlife Service (USFWS). The USFWS's determination is anticipated in late December or early January. Stay tuned!

American oystercatcher

Pelt-tagged and Vehicle-killed Furbearer Totals 2010-2014

DEEP Wildlife Division biologists determine the yearly harvests of seven furbearer species through mandatory pelt tagging by trappers and hunters. When pelts are tagged, additional information is collected, such as the town of harvest, month of harvest, and method of harvest (trapping, hunting, or salvage of vehicle-kill). An interesting aspect of these reports is the differing propensities of these species to be killed by vehicles and salvaged during winter. Vehicle-kill is an important component of the overall harvests for foxes and fishers. In contrast, aquatic species, such as muskrat, beaver, and river otter, are less prone to vehicle mortality.

Harvest Totals of Pelt-tagged Species by Season 2010-2014

	Winter Trapping Season			
	2013-14	2012-13	2011-12	2010-11
Beaver	821	1165	1601	889
River Otter	162	199	240	170
Mink	223	296	281	184
Coyote	199	156	151	139
Red Fox	90	77	114	71
Gray Fox	45	33	28	55
Fisher	137	109	171	151

Estimated Percentage(%) of Harvest Originated as Vehicle kills 2010-2014

	Winter Trapping Season			
	2013-14	2012-13	2011-12	2010-11
Beaver	2	0	1	2
Otter	7	0	2	5
Mink	20	21	7	24
Coyote	13	6	6	27
Red Fox	22	16	18	25
Gray Fox	61	30	27	33
Fisher	8	22	19	32

Fawn Study – Spring 2015

Staff with the Wildlife Division's Deer Program recently completed the fourth and final season of fawn capture in northwestern Connecticut. It was the most successful spring yet, when 26 fawns from 18 does (1.4 fawns per doe) were captured, along with an additional two randomly caught fawns (a total of 15 females and 13 males). Nine does gave birth to twins, and eight to single fawns. This is the first year during the study that the sex ratio was skewed toward female fawns. The first doe gave birth on May 22, a week later than during the previous three years, and the last to give birth was on July 1.

The first mortality from a predator (bobcat) occurred on May 26. As of mid-August, only four of the original 28 fawns remained. Eighteen fawns were victims of predation; seven by bear, six by bobcat, four by coyote, and one unknown. Of the six remaining mortalities: one died of natural causes before researchers arrived at the birth site; another was a twin (of whom the second fawn is still living) that, according to the UConn Pathology Lab, failed to nurse; two fawns died of unknown causes; and another two fawns were presumed to have been killed by hay cutting, as has been witnessed in previous years, because their collars ceased working the day after the fields where the fawns were routinely found in were mowed.

Staff will continue to monitor the does and remaining fawns daily through mid-September, then three times weekly until spring 2016, just as in previous years. Staff is currently working on a complete summary of the four years of data for a future *Connecticut Wildlife* article and other scientific publications.

Bill Embacher, DEEP Wildlife Division

What to Do If You Harvest a Deer with a Neck Collar

Over the past four winters, DEEP Wildlife Division researchers have captured and placed neck collars on over 150 white-tailed deer in northwestern Connecticut, specifically in the towns of Canaan, Cornwall, North Canaan, Salisbury, and Sharon. Some of the collared deer have moved from the initial towns of capture into Colebrook, Goshen, and Norfolk.

The marked deer may have a leather or nylon brown-colored collar; ear tags may or may not be present. Hunters should know that it is both completely legal and safe to harvest and consume these animals. The Wildlife Division asks that if hunters come across a collared deer during the upcoming hunting season, that they should hunt as they normally do – intentionally targeting collared deer or passing on them biases the mortality data. We also ask that if you do harvest a collared deer, please contact us using the phone number on the collar, or at 860-418-5921. We would like to collect the collar and jawbone from the animal if possible.

Andy LaBonte, DEEP Wildlife Division

Efforts Underway to Help the Puritan Tiger Beetle

P. J. FUSCO

The Puritan tiger beetle (*Cicindela puritana*) is a federally threatened and state endangered species that lives along the Connecticut River in New England and on the banks of the Chesapeake Bay in Maryland. In the Northeast, it historically occurred from New Hampshire south to Connecticut. Due to damming of the Connecticut River north of Connecticut and degradation of shoreline habitat, nine of the 11 identified populations have been lost. The two remaining populations, one in southern Massachusetts and the other in central Connecticut face many challenges. The long-term outlook for the Massachusetts population does not look promising, thus making Connecticut's population absolutely critical to the conservation of this globally imperiled species.

The U.S. Fish and Wildlife Service (USFWS) Recovery Plan for the Puritan tiger beetle calls for a minimum of three metapopulations (subsets of a larger population) along the Connecticut River in New England that are permanently protected. It is unlikely that natural dispersal can accomplish the establishment of these metapopulations in a timely manner. Fortunately, funding was awarded to the Silvio O. Conte National Fish and Wildlife Refuge, USFWS Southern New England-New York Coastal Program, Connecticut DEEP, USFWS New England Field Office, Stewart B. McKinney National Wildlife Refuge, Massachusetts Natural Heritage, and multiple tiger beetle experts to initiate habitat restoration and translocation efforts to establish another metapopulation in Connecticut. Habitat restoration efforts are underway to prepare two selected sites for reintroducing beetle larvae during the next three years. If successful, these efforts will be giant steps toward ensuring that this amazing animal does not become extinct during our lifetime.

Laura Saucier, DEEP Wildlife Division

Resident Canada Goose Banding

Each year, the Wildlife Division captures and bands resident Canada geese during their annual molt when they become temporarily flightless for approximately one month. In Connecticut, geese typically molt from mid-June to mid-July. Division staff and an eager group of volunteers took advantage of this flightless period to corral geese into a portable net at various waterbodies throughout the state. Once captured, the geese were aged, sexed, banded, and released. The information derived from banding is used by biologists for various purposes, including assessing distribution of harvest, productivity, population size, and survival rates.

A total of 1,896 geese were captured this past field season; 1,222 were unmarked birds and 674 were previously banded geese. Geese were banded at 40 different sites throughout Connecticut and capture size at each location ranged from four to 198 geese. Banding sites were distributed statewide, with a minimum of four sites per county.

Anyone who encounters a banded bird is urged to report it to the Bird Banding Laboratory at 1-800-327-BAND (2263) or on the internet at www.reportband.gov. Those interested in volunteering for next year's goose banding project should contact Kelly Kubik at kelly.kubik@ct.gov or at 860-418-5960.

Loggerhead Turtle Found Dead in East Haven

The Wildlife Division received a report in early July that a loggerhead sea turtle, a state and federally threatened species, was found dead along the beach in East Haven. As part of the effort to document sea turtle sightings and strandings and to collect information on these rare turtles, we contacted Mystic Aquarium, which serves as the Marine Mammal and Sea Turtle Stranding Coordinator in Connecticut. Mystic Aquarium collected basic biological data on the loggerhead – it was nearly four feet long and over 2.5 feet wide. As a federally listed species, the Wildlife Division also reported the loggerhead to the U.S. Fish and Wildlife Service. We then worked with staff from the Yale Peabody Museum of Natural History to have this rare turtle added to the museum collection. Local residents were helpful in making all of this happen. Without their willingness to provide photographs, specific details, and local logistical support, we might not have been able see any positive results from the unfortunate death of this amazing sea turtle.

P. EGAN, NEW HAVEN

Cooperative Effort to Create Wild Turkey Brood Habitat

Written by Michael Gregonis, DEEP Wildlife Division

Good wild turkey brood habitat is typically a forest opening with grasses and wildflowers that maintain high insect populations. During the first month of a wild turkey's life, it feeds almost exclusively on insects which provide the protein necessary for muscle and feather development. Because many public lands lack brood habitat, the creation of this habitat type has become an important objective for Connecticut's Wild Turkey Program. The successful completion of such projects often requires cooperation between both DEEP personnel and other groups or entities. A recent brood habitat project implemented at Aldo Leopold Wildlife Management Area in Southbury is an excellent example of what can be achieved through cooperation.

This project was designed to convert five acres of agricultural land into brood habitat. The first phase of the project involved planting native grasses (little bluestem, indiangrass), wildflowers (sunflower, milkweed, bergamot, aster), and clover with a Truax seeder. Although planting from seed is time-consuming, it provides an economical mechanism to develop plant diversity necessary for brood habitat. The second phase of the project was designed to "jump start" the planting by using established seedlings, also known as "plugs." Although using plugs is more expensive than using seed, increased survival and seed production within the first year maximizes success of the planting. The final phase, which adds a research component, entails monitoring the plugs to assess survival rates. This is necessary to evaluate whether plugs are worth the additional cost.

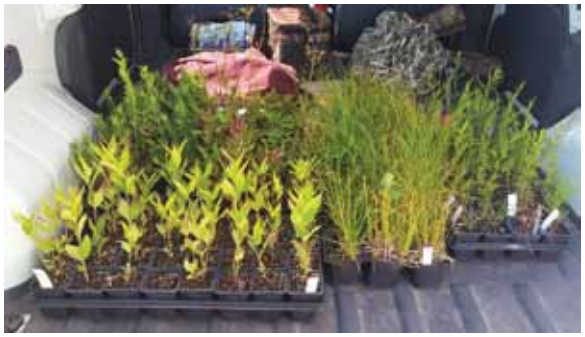
An important component of this project was plant species selection. Seventeen different plant species were incorporated into the project to ultimately achieve both plant and insect diversity. This will increase seed production and the amount and variety of insects available to feed hungry turkey poults. Increased plant diversity will not only assist with maintaining a healthy wild turkey population, but it also helps with creating microhabitats for pollinators, small mammals, and songbirds. Forest openings are an important component in a healthy and productive ecosystem.

This project was a cooperative effort between the Wildlife Division, National Wild Turkey Federation (NWTF), and the Connecticut Agricultural Experiment Station (CAES). The Wildlife Division's Wild Turkey Program biologist worked with other Division staff to select the various plant species and conduct the on-site plantings. CAES assisted with the plug planting and monitoring. The NWTF provided funding, which was generated by its members through annual fundraising events.

Through the spirit of cooperation, we can develop more and better brood habitat for the benefit of Connecticut's wild turkey resource and a host of other species that depend on forest openings.

P. J. FUSCO

Wild turkey poults are precocial – they can follow the hen and feed themselves within hours of hatching. Forest openings provide insects so that the poults have sufficient protein for development and growth.



D. HILL (2)

Planting native grasses and wildflowers with plugs increases survival of seedlings and seed production within the first year.

Conservation Calendar

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.

Sept. 26 .....**National Hunting and Fishing Day** – Go to www.nhfday.org for more information. Celebrate National Hunting and Fishing Day with the Connecticut DEEP at its **Connecticut Hunting & Fishing Day** celebration at Sessions Woods Wildlife Management Area in Burlington. Go to www.ct.gov/deep/HuntFishDay for more information or see article on page 15.

Hunting Season Dates

Sept. 15-Nov. 17 .....First portion of the deer and turkey bowhunting season on state land

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

Oct. 3 **&** Oct. 31 .....Youth Waterfowl Hunter Training Days (see below)

Oct. 10 .....Youth Pheasant Hunter Training Day (private land only; see below)

Oct. 17 .....Opening day for the small game hunting season

Nov. 7-14.....Youth Deer Hunter Training Days (see below)

Consult the 2015 Connecticut Hunting & Trapping Guide and the 2015-2016 Migratory Bird Hunting Guide for specific season dates and details. Printed guides can be found at DEEP facilities, town halls, bait and tackle shops, and outdoor equipment stores. Guides also are available on the DEEP website (www.ct.gov/deep/hunting). Go to www.ct.gov/deep/sportsmenlicensing to purchase Connecticut hunting, trapping, and fishing licenses, as well as required deer, turkey, and migratory bird permits and stamps. The system accepts payment by VISA or MasterCard.

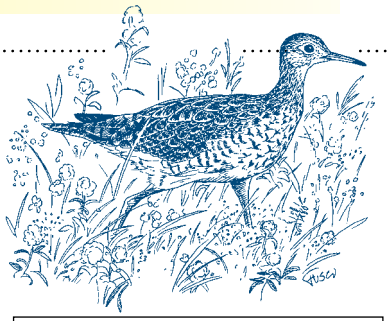
Fall 2015 Youth Hunter Training Days

Regulations designate certain days for youth hunting in Connecticut. On these days, licensed junior hunters (12 to 15 years of age) may hunt when accompanied by a licensed adult hunter 18 years of age or older. The adult mentor may not carry a firearm and at all times must remain within physical contact in a position to provide direct supervision and instruction. These training days provide junior hunters with an opportunity to learn safe and effective hunting practices from experienced hunters.

Waterfowl – Saturday, October 3 and Saturday, October 31: Participants must be 15 years of age or younger, possess a valid small game junior hunting license and a HIP permit and be accompanied by an adult at least 18 years of age. Adults must possess a valid hunting license; however, they are not allowed to carry a firearm. Ducks, geese, mergansers and coots may be hunted. Bag limits and shooting hours are the same as for the regular duck and goose hunting seasons.

Pheasant – Saturday, October 10 (Private Lands Only): Licensed junior hunters must have a valid pheasant stamp, except when hunting on lands of a registered private hunting club with a pheasant tagging exemption.

Deer – Saturday, November 7 through Saturday, November 14 (excluding Sunday): Private Land – Licensed junior hunter must have a valid private land shotgun/rifle deer permit and written consent from landowner. Adult mentor must have a valid private land deer permit and written consent from the landowner. Harvested deer must be tagged and reported. State Land – Licensed junior hunter must have a state land shotgun deer permit (Lottery or No-lottery). Adult mentor must have a valid deer permit of any type. Deer hunting on Youth Hunter Training Days is permitted on any lottery or no-lottery deer area, regardless of area designated on the permit, with the following exceptions: 1) Yale Forest, MDC Nepaug Reservoir Valentine Block, and MDC Nepaug Reservoir Pine Hill Block are not open during Youth Hunter Training Days; and 2) Centennial Watershed State Forest and Bristol Water Company are only open to junior hunters who have been awarded a permit for these areas.



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P.J. FUSCO

A recent cooperative project to provide turkey brood habitat by creating a forest opening in Aldo Leopold Wildlife Management Area in Southbury and encouraging the growth of grasses and wildflowers will also provide important habitat for pollinators, small mammals, and songbirds, like this female bobolink (see page 22).