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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

I'll be the first to say it – I am the luckiest guy in the world, at least professionally. That is easy to say coming from someone who has a passion for wildlife and all things in nature, and is blessed with a highly-skilled and motivated staff. Every single person in the Connecticut Wildlife Division is driven by shared beliefs and values – we borrow our natural resources from future generations, we have a responsibility to return those resources in a better form than when they were received, and our highest service is to you, the public.

The way we fulfill our responsibility to future generations, including service to today's, is through applying scientific methods, listening to what the public believes, and implementing conservation measures that balance the competing interests and needs of an ever-varying public.

The process of listening, study, and action has produced tremendous successes, some of which have been so successful that new challenges abound. One of the most remarkable involves the burgeoning moose population. While moose on our landscape certainly enrich our lives, they present a new set of challenges.

So, it is easy to imagine why some might ask why wildlife biologists, who profess to care so much about animals, do the things they do. Take the recent experience with the moose that was euthanized alongside Route 72 in New Britain while rush hour traffic sped by. It seemed to some that DEEP staff didn't care at all. In keeping with our core beliefs, we take our responsibility as stewards of Connecticut's natural resources very seriously and our role in protecting the many animal species found in our state. When faced with a circumstance where a wild animal is posing a threat to public safety, we always try to resolve the situation in a way that does not cause harm to the animal. This means that, whenever possible, we try to assist a wild animal in moving away from populated areas and into areas with more suitable habitat.

The safety of Connecticut residents must come first, however, and DEEP Environmental Conservation Police Officers – who have great expertise and experience in dealing with wildlife situations – believed the moose in New Britain posed an imminent threat to the public's well being. This moose was very close to a major highway during rush hour traffic and had already been observed crossing that highway a few times. When DEEP officers arrived, the moose began moving down a very steep incline toward the highway. At that point, tranquilization and relocation were not an option. Tranquilizing drugs do not take effect immediately and, when shot with a dart, animals very often take off and run – meaning the moose would have likely run into heavy traffic. There was a very high probability of the moose being struck by a vehicle, resulting in injuries or death to the vehicle's occupants, as well as the moose. It should also be noted that tranquilizing a moose is often not successful as it is with other species. Given the size and physiological makeup of moose, tranquilization stresses these animals, often causing them to overheat and suffer a slow death. Under the circumstances, DEEP officers made the difficult but necessary decision to euthanize the moose.

In the end, each of us comes to this place from a different path (you've already heard much about mine). All of us, from conservation officer to supervisor and from clerical to senior administrator, share in these beliefs, and we play an important part in putting those beliefs into action. Whether changing the hydraulic fluid in an amphibious excavator, answering a telephone call from an exasperated homeowner, placing a leg band on an osprey chick, or euthanizing an amazing animal, each and every person plays a vital role.

Rick Jacobson, DEEP Wildlife Division Director

Cover:

DEEP was recently awarded a grant through the North American Wetlands Conservation Act to protect and restore coastal habitats. These efforts will benefit green-winged teal and other waterfowl (see page 6).

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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Purple Martin Research Continues

Written by Geoff Krukar, DEEP Wildlife Division

Purple martin chicks from throughout Connecticut were fitted with colored leg-bands this past summer as part of an ongoing research project investigating dispersal patterns of second year birds. Adult martins are believed to return to the same breeding locations year after year, but young martins returning from their first winter in South America are more likely to find new locations for nesting. By banding chicks with a unique color for each colony, future sightings will yield insight into how they are spreading out across the state. This information should help with strategic placement of additional martin housing to create new colonies and also increase the population of this state-threatened species.

The project, now in its third year, has steadily increased in size and effort. In 2011, 541 birds were banded at six colony locations. Those numbers jumped to 16 colonies and 904 chicks in 2012 and up to 18 colonies and 990 chicks in 2013. Not all of the same colonies were banded every year. Several of the smaller sites could not consistently attract martin pairs or produce chicks. Additionally, one of the larger, privately-owned colonies was not banded this year because of access restrictions. In total, 22 colonies have been involved with banding efforts for at least one of the three years. Only five of the colonies (23%) have been involved all three years. Eight sites were included two of the three years, and nine sites (41%) have only been involved once.

Colony size has been highly variable across the state. This year, a new colony in northwestern Connecticut only produced three chicks, while another well-established site along the coast had over 200 juveniles. The average number of chicks banded per colony in 2013 (55) was similar to last year (57). This slight drop is likely due to some chicks being either too old or too young to band when the colonies were visited. A wide span in nesting times, combined with a condensed banding season, made it impossible to band every chick.

As this project continues to gain momentum, the goal is to have all actively managed colonies in Connecticut involved. When the project began in 2011, it was limited to four coastal and two inland colonies in western and central Connecticut. Now, 13 coastal colonies from Greenwich to Stonington and nine inland colonies, including sites on both sides of the state, are participating in this study. With more color-banded birds on the landscape, it is more likely that they will be observed. So far, approximately 50 birds have been spotted and reported to the Wildlife Division. The early results reveal an interesting pattern. The vast majority of birds that were reported either returned to their natal colonies or were found at another established colony less than 11 miles from their natal site. The general trend seems to be that second year birds stay close to home. However, there are always exceptions. Some birds relocated to colonies farther away, either in Connecticut or other states. Two birds banded along the Connecticut coast in 2012 joined a colony in Cold Springs, New York, successfully raising young this year. Another banded at Connecticut Audubon's Milford Coastal Center relocated to Mashpee, Massachusetts.

P. J. FUSCO

Purple martins nest in special man-made houses at various colonies located throughout Connecticut.

The success of this project is highly dependent on public participation in reporting sightings of color banded birds. Purple martins typically arrive in Connecticut in early April and stay until late August. Sightings can be reported to Geoffrey.Krukar@ct.gov or 860-675-8130. Key information to report is the date, location, and color or colors of bands. For more information about this project and to receive updates, please visit the Wildlife Division's Facebook page at www.Facebook.com/CTFishandWildlife.

LEFT: T. SHAW; RIGHT: L. DOSS / DEEP- WILDLIFE

The color bands on these two young martins denote the location of their natal colonies in Guilford (left) and Kent (right).

Chimney Swift Roost Monitoring Begins to Reveal Patterns

Written by Shannon Kearney-McGee, DEEP Wildlife Division

Chimney swifts, as their name implies, are birds that prefer to use our chimneys to seek shelter overnight and also raise their young. They historically nested in large dead hollow trees, but have been nesting in chimneys since the mid-eighteenth century. These birds migrate at least 3,000 miles each year from the Amazon basin to spend their summers in eastern North America, including Connecticut.

Chimney swift (*Chaetura pelagic*) populations have been declining significantly at rates that rival many other birds of high conservation concern. Globally, the chimney swift is listed as "near threatened," based on a population decline of over 50% observed since 1966. The United States' breeding population has declined by 53% since 1966, with the decline accelerating between 1980-2008. The species' decline has been very pronounced in the northern ranges, with a 90% decline of the Canadian population of chimney swifts between 1966 and 2008.

Despite these large declines, chimney swifts can still be seen almost everywhere across Connecticut, which is why our state provides the perfect opportunity to study and monitor these birds. For the past three years, the Wildlife Division has coordinated with the UConn Ornithology Lab and citizen scientists to track the numbers of swifts roosting overnight in larger chimneys around the state. These roosting colonies are not nesting colonies, but instead are groups of birds gathering to rest during migration and keep warm during cool summer evenings. Nesting chimneys can be distinguished from roosting chimneys because typically only one pair will be seen entering and leaving a nesting chimney, compared to numerous birds going into and out of a roost. Nesting chimneys are usually smaller than roosting chimneys, and are the typical "fireplace chimney." Roosting chimneys in Connecticut are usually 2.5 to three feet in diameter, and would usually be at a town hall, church, or school building.

By monitoring chimney swift roosts, the Wildlife Division can better track population numbers, as well as determine if our local swifts are successfully raising young. Division staff and citizen scientist volunteers have been regularly counting birds at roosts. At the same time, "swiftlords" (homeowners with nesting chimneys) are

T. DELANEY / DEEP-WILDLIFE

Master Wildlife Conservationists Judy Grund (2nd from left) and Michael Delaney (far right) joined by Stephen Grund and Achey Jacob at Farmington High School to count and enjoy the chimney swifts returning to roost.

P. J. FUSCO / MOUNT VERNON SONGBIRD SANCTUARY

Chimney Swift Roost Counts, 2013

Roost Location	Max 2013 (as of 9/30)	Max Count (Year)	Classification
Broad Brook	286	408 (2012)	Fall Migration
Falls Village	441	1,800 (2011)	Fall Migration
Farmington	476	476 (2013)	Breeding Season
Hartford	12	800 (2012)	Fall Migration
Meriden	537	755 (2012)	Breeding Season
New Hartford	112	183 (2012)	Breeding Season
Oxford	79	226 (2011)	Breeding Season
Simsbury	402	313 (2011)	Both
Willimantic	926	1,000 (2011)	Breeding Season
Woodbury	293	293 (2013)	Breeding Season
Woodbury #2	795	795 (2013)	Fall Migration (new in 2013)

Chimney Swifts – Unique Little Birds that Are Often "Underlooked!"

Roosting chimney swift colonies are among the most entertaining bird sighting events you can experience in Connecticut. About 20 minutes before sunset, chimney swifts from around the area will begin to congregate in swirling, "chittering" groups above the roost chimney. Groups of birds can be in the tens or hundreds. Swifts will continue to circle, dive, and chase each other; disappear into thin air; return as quickly as they disappeared; fly in formation; and so on and so forth – like little fighter jets – until about 10 minutes after sunset when they will pile and literally flip over into the chimney, like kids racing for the door at the end of school. This will happen on a nightly basis from mid-May until August at many buildings around Connecticut. What is more amazing is that it may be happening in your neighborhood right above your head, and you never even realized it! Chimney swifts are small, dusky birds that resemble flying cigars. They rarely fly below roof or tree canopy height and can easily be missed if you don't look up! When you are out and around your town, listen for the "chittering" of the swifts high up and look toward the sky to catch the best air show in town!

tracking nesting progress and reporting their observations to the Wildlife Division.

After this third year of intensive roost monitoring, with concurrent information from local swiftlords, patterns of local roost use are becoming apparent. Observing roosts consistently from May until September allows us to categorize them into different maximum use patterns. Some roosts have their highest counts during fall migration; others have their highest counts during spring and the breeding season but empty out as fall migration roosts are building; and some have high counts during all seasons. It has been particularly striking that we have seen roost patterns from year to year correspond to each other within two to three days. For example, birds completely emptied out of roosts on the same day or within the same week in Farmington, Willimantic, Woodbury, and Meriden. Likewise, bird numbers that remained small all summer grew during the same week at some of the "fall migration roosts" like Broad Brook and Falls Village.

Concurrent monitoring of nests and roosts is also beginning to reveal how roost counts may indicate nesting success. This past season, higher numbers of swifts were observed in roosting chimneys later in spring. At the same time, most swiftlords were reporting later nesting by their resident swifts. These observations demonstrated that birds were still in roosts and not in their nesting chimneys later in the season. Additionally, higher roost counts were detected in mid-June in both 2012 and 2013. These higher counts each followed a week of heavy rain and cool temperatures, and corresponded to reported nest failures from swiftlords. These correlations with roost numbers and nest activity may allow us to use change in expected patterns of roost counts as an index for swift nesting success.

Additionally, it has become apparent that chimneys should not be ruled out as possible swift roosting sites simply because they have not yet been used by swifts before. Chimneys that are primarily used as fall migration roosts can vary, and each year another large fall migration roost that has never been observed before is often discovered. For example, citizen scientist Russ Naylor discovered a second site in Woodbury that was used for the first time this year and hosted close to 800 swifts. It is important to identify these potential roost sites as part of our conservation effort for these birds because we are not yet able to predict which roost they may choose to use in a particular year.

JUDY GRUND, MASTER WILDLIFE CONSERVATIONIST

Celebrating Swifts!

This past summer, the Wildlife Division launched a new Chimney Swift webpage on the DEEP website that combines all of the chimney swift resources into one location: www.ct.gov/deep/chimneyswift. You can find updated information about our monitoring, research, partnerships, events, and educational resources.

The webpage is highlighted by an illustration created by Master Wildlife Conservationist Judy Grund, which depicts the chimney swifts as they descend into the chimney at the Willimantic Town Hall. This image has been incorporated into a poster that can be displayed around the state at chimney swift roosts. The webpage also contains details on the "Swift Conservation through Schools" program, which targets first grade students at schools with chimneys that serve as important roosting sites for swifts. Contact Shannon Kearney-McGee (shannon.kearney@ct.gov) if you would like a poster for your chimney swift roost site, or if you are interested in becoming involved with Swift Conservation through Schools.

The Wildlife Division is asking residents to report any chimney swift roosts they find to Shannon Kearney-McGee of the DEEP Wildlife Division (shannon.kearney@ct.gov; 860-675-8130); include the location and number of swifts seen entering the chimney.

The DEEP Wildlife Division's Chimney Swift Project is funded by State Wildlife Grants and the Connecticut Endangered Species/Wildlife Income Tax Check-off Program

DEEP Receives Federal Grant to Restore Coastal Habitats

Written by Min Huang, DEEP Wildlife Division

P. J. FUSCO

American black ducks will benefit from the wetland restoration activities that the North American Wetlands Conservation Act grant will fund.

Connecticut DEEP was recently awarded a $985,000 grant from the U.S. Fish and Wildlife Service (USFWS) through the North American Wetlands Conservation Act (NAWCA) to protect, through acquisition, three different parcels totaling 82 acres of critical coastal habitat and to restore 60 acres of saltmarsh. The North American Wetlands Conservation Act of 1989 provides matching grants to organizations and individuals who have developed partnerships to carry out wetlands conservation projects in the United States, Canada, and Mexico for the benefit of wetlands-associated migratory birds and other wildlife. The Act was passed, in part, to support activities under the North American Waterfowl Management Plan, an international agreement that provides a strategy for the long-term protection of wetlands and associated upland habitats needed by waterfowl and other migratory birds in North America. NAWCA is a competitive grants program that requires grant requests to be matched by partner contributions at no less than a 1-to-1 ratio.

The DEEP project competed with 34 other meaningful and important wetland projects across North America, and was chosen as one of 21 funded projects in the current grant cycle. The tipping point for this project being selected was that even though it involves low acreage compared to many of the other projects considered for funding, it brings together seven different partners and leverages over $4.6 million. The project is a perfect example of how conservation, particularly in tight financial times, must embrace multiple partnerships and interests. Partners involved in this project are Ducks Unlimited, Trust for Public Land, The Nature Conservancy, Dennison Pequotsepos Nature Center, Town of Tolland, Town of Branford, and Branford Land Trust.

The project area and immediate offshore environment regularly harbor up to 20% of Connecticut's wintering waterfowl population. Connecticut is one of the most densely populated states in the nation, with some of the highest coastal property values, making conservation of remaining coastal wetlands very challenging. Over 90% of the coastline in our state is already developed. In spite of this high rate of development, the state has globally significant breeding and wintering populations of many highest-priority species of wetland-dependent birds, such as the saltmarsh sparrow (a species of special concern), the endangered roseate tern, and American black duck. The importance of the project area to those species and over 60 other Greatest Conservation Need (GCN) migratory bird species makes it a critically important conservation project. The project will protect several currently unprotected parcels remaining in important wetland complexes and restore degraded parts of the most important wetlands.

Restoration work to be conducted under a project planned for Silver Sands State Park in Milford will increase interior tidal flow in the marsh habitat, control invasive phragmites, restore native vegetation, and provide source reduction for mosquito control, with a concomitant reduction or elimination in chemical pesticide applications. All of these efforts combined will result in the restoration and enhancement of resting, feeding, and breeding areas for fish and wildlife species. DEEP's Wetland Restoration and Mosquito Management (WHAMM) Program is slated to begin this project in April 2014. This restoration also is part of an ongoing large research project to assess the effects of saltmarsh restoration on wintering black duck energetics.

The acquisition and subsequent protection of two coastal saltmarsh parcels, one in Branford and the other in Milford, will not only provide critical habitat for migratory birds, but the upland elevations in both parcels will allow for marsh migration as sea levels rise. Over the last century, the sea level has risen approximately two millimeters per year. However, most projections indicate that sea level rise in Long Island

Sound and the northeastern United States as a whole is expected to be of a greater magnitude and more accelerated relative to other systems on the Atlantic Coast.

The acquisition and protection of 34 acres of early successional (shrubland) habitat in Mystic, along with continued habitat management that favors this critical habitat, will benefit the state-listed brown thrasher, yellow breasted chat, and many other shrubland birds – 80% of which are declining in Connecticut. This parcel is the last undeveloped property along the Mystic River in southeastern Connecticut.

P. J. FUSCO

Saltmarsh sparrows, due to their narrow nesting habitat requirements, are in danger of extirpation in the next 30 years if sea levels continue to rise and new high marsh habitat is not created. This grant will protect two areas that will allow for marsh migration in the face of sea level rise.

The NAWCA Program has benefitted wetland habitats elsewhere in Connecticut. In addition to the current grant, the Wildlife Division has received three separate NAWCA small grants since 2004, totaling over $160,000 in grant money. This grant money was leveraged with over $150,000 in Connecticut Duck Stamp funds and $100,000 in other funds to conduct freshwater wetland restoration projects in Natchaug State Forest in Eastford and Charter Marsh in Tolland.

A Look Back at the 2012 Deer Hunting Season

Over the past 32 years, deer population size, human land use practices, and public attitudes toward wildlife have changed considerably. Today, hunters may legally take up to 14 deer per year if they participate in all hunting seasons, and additional deer may be taken in two of the 13 deer management zones. Historically, deer permit issuance increased consistently from 11,710 in 1975 to 61,333 in 1992. Since 1992, permit issuance has remained relatively stable, fluctuating between 60,316 and 64,032. In 2008, permit issuance increased to its highest point in history. The cause for this increase is unknown, but may be attributed to the poor economy, where harvesting one's own food may be a desirable means of obtaining quality protein. In 2009, permit issuance declined slightly, likely due to the increased cost of permits. From 2010 through 2012, permit issuance remained stable at levels similar to those 20 years ago. This may be due to increased costs and the ability to purchase permits at any time. Over the last 10 years, harvest in most deer management zones has remained relatively stable. However, with increased opportunities and incentives to harvest deer in urban deer management zones 11 and 12, the harvest has more than doubled, while roadkills have been exhibiting a steady downward trend. Increased harvest efforts appear to have stabilized deer populations in many areas of the state.

Deer harvested during CT's regulated hunting seasons, 2011-2012

Season	Harvest 2011	Harvest 2012	3-year Average Harvest (2009-2011)	% of Total 2012
Archery				
State Land	575	642	663	4.8%
Private Land	4,636	4,771	4,203	35.6%
Subtotal	**5,211**	**5,413**	**4,866**	**40.3%**
Muzzleloader				
State Land	164	115	162	0.9%
Private Land	959	843	859	6.3%
Subtotal	**1,123**	**958**	**1,021**	**7.1%**
Shotgun/Rifle				
State Land	639	778	629	5.8%
State Land	129	113	135	0.8%
Private Land	4,599	4,892	4,473	36.5%
Subtotal	**5,367**	**5,783**	**5,236**	**43.1%**
Landowner	1,196	1,267	1,161	9.4%
Total	**12,897**	**13,421**	**12,285**	**100.0%**

Help "Slow the Spread" of the Emerald Ash Borer

Connecticut is working to slow the spread of the invasive, exotic emerald ash borer (EAB). If it takes longer for the insect to arrive in new locations, cities and towns will have more time to prepare. "Slowing the spread" increases the opportunity for effective controls to emerge, such as naturally-arising or introduced biological agents (insects or diseases) that attack EAB, or new management techniques to limit the growth and spread of the insect. Everyone can help with this important effort.

Homeowners

Homeowners who have ash trees on their properties are encouraged to know the signs of EAB. Unless the insect is known to be in the vicinity, preemptive removal of ash trees is not recommended. Healthy trees provide a great many environmental benefits, including contributing to the value of a property. Trees infested by EAB or in the vicinity of an EAB infestation (about 15 miles) can be effectively treated with a systemic insecticide.

Homeowners are encouraged to be aware of the health and condition of all of their trees. Should there be any questions regarding the health of trees or the presence of EAB, homeowners are encouraged to make use of services such as those provided by an arborist licensed by the State of Connecticut.

Property owners who wish to cut down an ash tree, or any hardwood tree for that matter, and make use of it as firewood should be aware of the regulations regarding the movement of firewood. In particular, property owners are encouraged to be aware of the requirement for documentation regarding the transport of firewood. The easiest way to meet this requirement is through a Self-issued Firewood Transportation Certificate, which can be found on the DEEP website at www.ct.gov/deep/forestry.

Woodland Owners

Woodland owners are encouraged to be able to recognize signs of EAB, as well as to know how to identify individual ash trees. Overall, ash is a small but significant component of the forests within the state, but it may be a major component of any individual woodland owner's property. The wood from ash trees is considered to be valuable - as timber and firewood - and the various species of ash are important trees for wildlife.

C. MARTIN, DEEP FORESTRY

Signs near the state borders remind people that the movement of firewood across state lines is regulated and permits are needed.

Because of the value of wood from ash trees, woodland owners are cautioned to be careful regarding solicitations for the preemptive removal of ash trees from their land. Before selling trees, woodland owners are encouraged to seek the services of a CT DEEP Certified Forester. By state law, anyone in Connecticut who plans or designs the harvest of commercial forest products on behalf of a woodland owner, or who advertises or solicits to do that planning or designing, must be certified as a forester.

DEEP Division of Forestry has a program of landowner assistance that is helpful in getting woodland owners "on the road" to good forest management. DEEP Service Foresters provide advice and assistance upon request to private woodland owners. This is an excellent starting point for those concerned about what to do regarding the ash on their property.

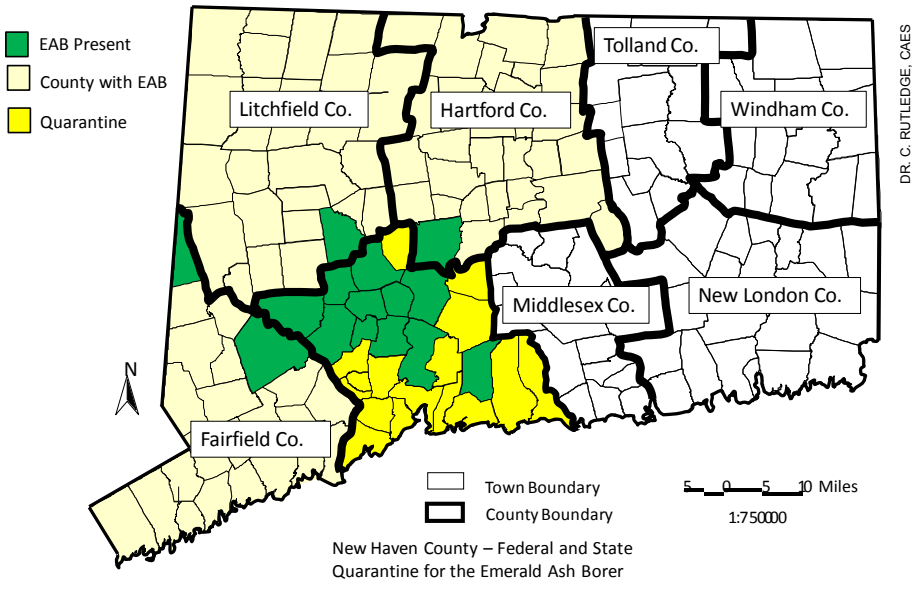
Woodland owners who plan to cut down hardwood trees, particularly ash trees, to use as firewood should be aware of the regulations regarding the movement of firewood. In particular, property owners should to be aware of the requirement for documentation regarding the transport of firewood (i.e., the Self-issued Firewood Transportation Certificate).

Users of Firewood

The movement of firewood is one of the primary means by which EAB and other invasive wood-boring insects are spread. For this reason, there has been an intensive effort to make firewood users aware of these invasive pests, and to take steps to reduce the likelihood of moving the insect into new areas. By following some basic and common sense measures, people who use firewood can have a real impact.

The best single piece of advice regarding firewood is to not use firewood that has either come from outside the immediate vicinity (roughly 25 miles) or from an area known to be infested by invasive insect pests. If firewood from outside the immediate vicinity is to be used, then it should be treated in accordance with federally-mandated standards to ensure that it is not car-

Emerald Ash Borer in Connecticut, September 2013



DR. C. RUTLEDGE, CAES

rying harmful insects or diseases. In certain situations, to be in compliance with federal and state requirements, this treatment is obligatory.

In direct response to EAB, the State of Connecticut has issued a regulation that all individuals who transport firewood must have documentation accompanying that firewood (i.e., the Self-issued Firewood Transportation Certificate).

Firewood Dealers

Because of the potential role that firewood could play in spreading EAB and other invasive insects, Connecticut has established specific responsibilities for those who sell firewood. These responsibilities include requiring that any firewood dealer know the geographic source of any firewood that he or she is selling, and that dealers know whether any firewood from out-of-state meets the requirements established by the USDA Animal and Plant Health Inspection Service and the Connecticut Agricultural Experiment Station.

Firewood dealers should especially be aware of the quarantine in place within Connecticut regarding the movement of firewood. This quarantine places severe restrictions on the movement of all hardwood firewood and other regulated articles, such as ash sawlogs, out of New Haven County. State regulations also require that all individuals who transport firewood must carry documentation regarding the source and destination of that firewood (a Self-issued Firewood Transportation Certificate).

In addition, firewood dealers can be a great help in "slowing the spread" by being an effective source of information for the public regarding invasive pests and their control.

For More Information

Further details regarding the emerald ash borer, movement of firewood, regulations, quarantines, and identifying ash trees are available on the DEEP (www.ct.gov/deep/forestry) and Connecticut Agricultural Experiment Station (www.ct.gov/caes) websites.

Bats and White-nose Syndrome: Updates

CT Receives USFWS Grant for Work on White-nose Syndrome

This past summer, the U.S. Fish and Wildlife Service (USFWS) awarded grants totaling $950,694 to 28 states (including Connecticut) for white-nose syndrome (WNS) projects. State natural resource agencies will use the funds to support research, monitor bat populations, and detect and respond to white-nose syndrome, a disease that afflicts bats.

WNS has spread rapidly from one state in 2007 to 23 states and five Canadian provinces this year, and it continues to move westward. It is considered one of the most devastating diseases affecting wildlife in eastern North America. Best estimates indicate that WNS has killed more than 5.7 million bats.

The USFWS is leading a cooperative effort with federal and state agencies, tribes, researchers, universities, and other non-government organizations to research and manage the spread of WNS. Funding for grants was provided through the Endangered Species Recovery Program.

Additional information about WNS, the international disease investigation, and research can be found on the national WNS website at www.whitenose-syndrome.org. The site contains up-to-date information and resources from partners in the WNS response, current news, and links to social media.

U.S. Fish and Wildlife Service (www.fws.gov)

P. J. FUSCO

The white, cold-loving fungus that causes white-nose syndrome (WNS) in bats was given a new scientific name after genetic research conducted by the U.S. Forest Service indicated the fungus should be classified within a different genus. The new name is *Pseudogymnoascus destructans* – or the more pronounceable *P. destructans*.

Deadly Bat Fungus Has a New Name

The dreaded fungus that has killed millions of North American bats has a new name. The white, cold-loving fungus that causes white-nose syndrome (WNS) and gave this devastating wildlife disease its name has been known since 2009 as *Geomyces destructans*. The U.S. Forest Service reports that additional genetic research by its scientists indicates the fungus should be classified within a different genus and will be called *Pseudogymnoascus destructans* – or the more pronounceable *P. destructans* (or just PD).

"This research represents more than just a name change," said Mylea Bayless, Bat Conservation International's director of conservation programs in the United States and Canada. "Understanding the evolutionary relationships between this fungus and its cousins in Europe and North America should help us narrow our search for solutions to WNS."

"This research increases our confidence that this disease-causing fungus is, in fact, an invasive species," Bayless said. "Its presence among bats in Europe, where it does not cause mass mortality, could suggest hope for bats suffering from this devastating wildlife disease. Time will tell."

Bat Conservation International (www.batcon.org)

Nesting Bald Eagles and Peregrine Falcons on the Rise

Written by Kate Moran, DEEP Wildlife Division

During spring and summer of 2013, the DEEP Wildlife Division, assisted by many dedicated volunteers, monitored the nesting activities of bald eagles and peregrine falcons throughout the state. Thirty-five pairs of the state-threatened bald eagle were documented this year. Of these 35 pairs, six exhibited territorial behavior but did not reproduce. Four nests failed, while the remaining 25 pairs successfully produced 41 chicks. This tops last year's totals of 26 active pairs, with 17 successful nests and 33 fledglings. This year, only one nest fledged three chicks, compared to 2012 when four nests fledged three chicks – a record for Connecticut. Over one-third of the productivity in 2012 can be attributed to those four nests, underscoring the importance of conservation and nest protection for bald eagles in Connecticut. Banding efforts by the Wildlife Division this year were limited to two nests where two eagle chicks were banded. Many thanks are due to the Bald Eagle Study Group of Connecticut for their years of voluntary contributions!

Peregrine falcon territories numbered 17 in the 2013 breeding season. Preliminary counts indicate that 14 chicks fledged from six different nesting sites. The status of eight nests remains uncertain. The well-known Travelers Tower falcons failed to produce any chicks after their eggs were destroyed in an April storm. No peregrine falcon chicks were banded this year. The Wildlife Division would like to thank the many volunteer peregrine falcon nest monitors for their time and efforts!

P. J. FUSCO (3)

This year, bald eagles nested and raised young in every Connecticut county but one (Tolland).

2013 Peregrine Falcon Nesting Season Results

County	Active Territories	Territorial Only	Failed Nests	Successful Nests	Unknown Status	No. Chicks
Fairfield	4	1			3	
Hartford	4		1	1	2	4
Middlesex	1			1		4
New Haven	4			3	1	5
New London	3	1		1	2	1
Total	**17**	**2**	**1**	**6**	**8**	**14**

2013 Bald Eagle Nesting Season Results

County	Active Territories	Territorial Only	Failed Nests	Successful Nests	No. Chicks
Fairfield	1			1	2
Hartford	9	1	2	6	9
Litchfield	6	1		5	8
Middlesex	5	1	1	3	5
New Haven	5	1		4	5
New London	5			5	10
Tolland	1	1			n/a
Windham	3	1	1	1	2
Total	**35**	**6**	**4**	**25**	**41**

Sherwood Island: First Connecticut State Park Purchased

Written by Alan Levere, State Parks Division

Albert M. Turner had been hired as the first State Park employee to assess the geography of Connecticut for potential park locations. It took Turner most of the summer of 1914 to complete his statewide inventory of potential park sites. During that time, the new Commissioners were extremely anxious to obtain some real estate and begin building an inventory of park properties.

On the one hand, Mount Tom had been given to the State in 1911, specifically to be used as a state park. Unfortunately, at that time there was no State Park Commission to receive the gift, so the Mount Tom property was held by the office of the State Forest Commission.

Ideas for the first park acquisition were wide ranging. Because of contacts, friendships, and a general awareness of availability, the Park Commissioners had promising leads: Selden Neck along the Connecticut River at Lyme; Charles Island off Milford; Mason's Island off Stonington; and the Eureka Mining land that encompassed the head of a "sort of sleeping giant" in Hamden. But, the reality was that any purchase they could hope to make was limited by the money they had to spend.

The original founding Act allotted the Parks Commission $20,000 for land acquisitions and expenses for the first two years. Then, just like today, land values varied, depending on what society held as intrinsic value. Natural woodland may have been selling for $5 to $40 an acre, depending on the timber condition and proximity to market. Riverfront or lakefront had a value of $300 per acre on average; more if the local agricultural value was high. Saltwater beach shorefront sold for $15 to $40 a linear foot, with buildable upland behind it valued at about $6,500 an acre. With prices as they were, a single factor was readily apparent – the shoreline should be the first to be preserved because its value was high and escalating rapidly. Other lands were important, but the shoreline of Long Island Sound needed to become the fiscal priority.

Thus, in midsummer 1914, when a parcel of land destined for foreclosure became available on Sherwood Island in Westport, the Commission moved quickly to secure it. Sherwood Island was one of Field Secretary Albert Turners' original three shoreline locations, along with Bluff Point in Groton and Hammonasset Beach in Madison. The Park Commissioners held their July 1914 meeting in New Haven, which facilitated their travel to Westport for a field review of Sherwood Island. At the conclusion of that meeting, on Tuesday, July 7, the State Park Commission, "… voted to authorize the President to purchase, at his discretion, a certain piece of land containing about four acres, located in the Town of Westport, which is about to be offered at public auction…" It would be a humble beginning.

On September 22, 1914, the deed was signed and acknowledged. Two months later, the transaction was officially recorded in the Town of Westport land records. The Sherwood parcel was not the perfect tract to begin with, because even though it did encompass saltwater shoreline and coastal marsh, it had no public access. But the acquisition was a solid start, a toe-hold on the future. Sherwood Island proved to encompass more land than originally thought, five acres instead of four, and the price was right – $2,489, or just under $498 per acre. Seven days later, on December 29, 1914, the 427-acre Hurd Park, along the Connecticut River in Haddam, was added. The wheels of the new State Park System were in motion.

State Park Commissioners look across Westport's New Creek at the first five-acre land purchase at Sherwood Island. Although it was the first park property, the landlocked parcel had no official access until 1932. Until that time, illegal park users crossed the creek and encamped on the beach at their convenience.

The well-connected Park Commissioners kept their noses to the wind. Within 48 months and by the end of the First World War in November 1918, Connecticut had 15 state parks. However, much to the chagrin of Albert Turner, there was still no coastal saltwater access. It was time for Turner to rock the proverbial boat and, in so doing, he changed the nature of Connecticut's State Parks forever. Learn more on the Connecticut State Park Centennial webpage at www.ct.gov/deep/StateParks100.

Aerial Master - The Merlin

Article and photography by Paul Fusco, DEEP Wildlife Division

One of Connecticut's lesser known hawks is the merlin (*Falcio columbarius*), a small falcon similar to the American kestrel. In Connecticut, it is considered to be a passage migrant. Merlins are most commonly seen during the fall migration, with peak movement between late September and the first half of October. They are most often found along the shore, as they follow the coastline south. Some merlins may linger and occasionally a small number may overwinter in the state.

In flight, merlins show the long pointed wings and long tail of a falcon. Their profile is sleek and streamlined.

Merlins are small, dark raptors with the typical long, pointed wings and streamlined profile of a falcon. They have a longish tail with thick, dark bands. Males are blue-gray above, while females are brownish. Both adults and juveniles are boldly streaked on the underside. Merlins are distinguished from other falcons by the lack of well-defined, dark mustached markings on the face.

Merlins are circumpolar. Their breeding range includes the northern latitudes of North America, Europe, and Asia. In North America, they breed from Alaska south to Oregon and Idaho; east across Canada to Labrador; and south to northern New England. Most merlins spend the winter from the Gulf of Mexico and Florida south to northern South America. Some birds also winter in the western states and along the Atlantic coast.

Like other falcons, merlins favor open country habitats. In the north, they are found in willow/birch scrub and open boreal/taiga forest. Their range extends as far north as the treeless limit where tundra replaces the boreal forest. In other parts of their range and during migration, they use marshland, coastal, open forest, prairie, and river valley habitats. Merlins breed in areas of open boreal forest and tundra in the north, and in northern prairie and mountain habitats in the west. They favor low to medium height vegetation with a few scattered taller trees that they can use as hunting perches.

Three distinct races of merlin are separated geographically in North America. The *suckleyi* subspecies in the Pacific northwest, also known as black merlin, is the darkest. The *richardsoni* subspecies, which inhabits the prairie states and provinces, is the palest. The nominate race, *columbariusis*, or taiga merlin, is the typical merlin that occurs in Connecticut.

Behavior

Although merlins nest in trees, they do not build their own nest. Instead, they take over old, abandoned nests built by magpies, crows, or ravens. Females lay four or five rusty brown eggs. Incubation is done primarily by the female, leaving the male to do most of the hunting. The eggs hatch after 28 to 32 days, and the young fledge after about 30 days.

Merlins are described as being tireless, fearless, pugnacious, and aggressive. They are known to boldly attack and harass birds that are much larger than themselves. Flying with steady rapid wing beats, their flight is fast, powerful, and direct. The birds seldom soar like most other raptors.

When in pursuit, merlins are relentless. They will often exhaust and over-

take birds in the air after a long chase. Sometimes hunting from a tall conspicuous perch, a merlin will fly down to take prey in a quick burst of speed. They also hunt by flying fast and low to the ground in an attempt to surprise prey, which is caught in flight. Prey consists almost entirely of small birds, including sparrows, waxwings, pipits, larks, and shorebirds. Merlins will take whatever is most common in the area. They also will occasionally take small mammals, especially bats in flight.

Bold streaking on the underside and a lack of bold dark mustachial marks are traits of the merlin. This one is also showing off its thick, dark tail bands.

Conservation

In the mid-1900s, populations of this top predator were affected by organochlorine pesticides, which caused eggshell thinning and subsequent nest failures. Once DDT and other similar chemical pesticides were restricted, the merlin population rebounded. Today, the population is generally considered stable or, in some parts of their range, increasing. A range expansion began to occur in the 1960s in the prairie region when merlins were found occupying urban breeding habitats. In the Northeast, merlins have expanded their breeding range over the past 20 years into northern New England and upstate New York. Most recently, the species has begun to nest in Massachusetts. It seems to be only a matter of time before this bold falcon will be documented as a breeding species in Connecticut.

Merlins were formerly known as pigeon hawks because it was thought they preyed on pigeons. However, sparrows and other small birds are their more frequent prey. This merlin has just caught a song sparrow.

A New Weed in Our Marine Garden

Written by Penny Howell and Deb Pacileo, DEEP Marine Fisheries Division

Many people who ventured into Long Island Sound this past spring and summer found their boat lines or lobster traps entangled in a new seaweed named *Heterosiphonia japonica*. This ordinary looking red alga, whose only common name is 'HJ,' first showed up off Rhode Island in 2007, having spread from the northwestern Pacific by way of the entire European coastline from Norway to Italy in the 1980s and 1990s. HJ has the nifty habit of growing in early spring on a variety of surfaces, including other algae. In summer, it breaks up into small fragments which drift around onto new attachments, where the algae grows and reproduces with remarkable speed and volume. While drifting around, HJ fragments entangle just about everything. They have an array of hooked branches that tangle better and faster than snagged fishing line. Nets, ropes, and moorings are fouled and submerged structures are engulfed. Large mats of HJ, often mixed with other seaweed species, have washed up on beaches from Stonington to Stratford, smothering much of what they land on.

The CT DEEP Long Island Sound Trawl Survey encountered HJ in the eastern Sound in spring 2012, but by spring 2013, Survey catches of the alga had spread westward to waters off Bridgeport and Port Jefferson, New York. In 2012, a little more than a third of all spring samples had HJ tangled in the net, increasing in spring 2013 to almost half the samples, at all depths and over all bottom sediment types that the Survey encounters. The total weight of the catch for both years adds up to over 1,100 kg (2,240 pounds). Some catches were so large that they nearly halted the 50-foot research boat's forward movement. Other facilities on the Sound, such as Millstone Power Station in Waterford, have also had to deal with large quantities of HJ.

CT DEEP LIS TRAWL SURVEY

***Heterosiphonia japonica*, the latest sea 'weed' to find a home in Long Island Sound, looks delicate and feathery as a single branch in a dish of water, but in large quantities becomes a monstrous red mess that is very difficult to clean off screens, fishing nets, and lines.**

CT DEEP LIS TRAWL SURVEY

Huge catches of HJ (up to 246 kg or 542 lbs.) in June 2013 bogged down sampling nets, making it nearly impossible to clear so that nets could be towed properly.

The invasion has begun, and it will be difficult to stop because the species is completely adaptable to a broad range of temperatures (freezing to bath water) and salinities (brackish to full seawater).

HJ is the latest alien species to invade our shores in recent years. This list also includes the Asian shore crab, New Zealand mud snail, and Chinese mitten crab. Oceans cover over 70% of our planet's surface, so it should be no surprise that marine organisms can spread easily, often with the help of commercial and recreational boat traffic. Most newcomers do not survive in any great numbers, but those species that can adapt to a wide range of habitats and conditions while growing and reproducing quickly will often be nature's winners. When new

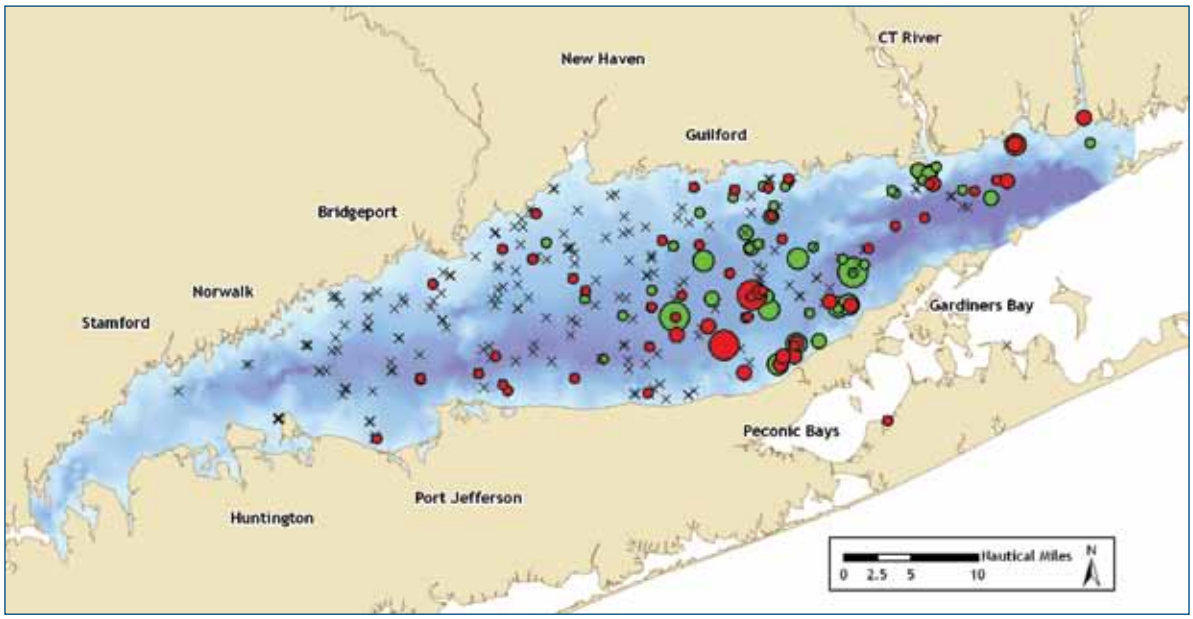
species survive in a new area, they can increase local diversity, resulting in an ecosystem that may be more resilient to biological and physical disturbance. This is because changes, even large ones due to storms, pollution, or global warming, have less effect when distributed among many species with differing strengths and weaknesses. However, the danger that separates new colonizing species from true 'invasives' is that aggressive species can overwhelm the local flora and fauna and, in short order, greatly reduce rather than increase the number of species the ecosystem can support.

In the northwestern Pacific, where HJ originated, the alga is not particularly abundant. So, there is hope that the abundance of this species in the Sound will eventually be stabilized by predation or some other limiting factor. A small snail has been documented as a grazer on HJ, but it is feared that the snail's grazing habits may be contributing to the fragmentation and spread of this menace. A larger 'predator' is needed to more effectively keep the proliferation of HJ in check. The best way to limit the success of invasive species is to maintain high native biodiversity so that potential competitors and predators are plentiful. Fortunately, Long Island Sound has high biodiversity,where there are snails, crabs, and fish waiting to try out this new alga. The species that makes HJ a mealtime favorite will be the next winner.

J. FOERTCH, MILLSTONE ENVIRONMENTAL LAB, DOMINION NUCLEAR CT

In January 2013, large amounts of HJ were found at Millstone Power Station in Waterford and carried through the power plant's cooling water systems. Extensive maintenance was required to remove all of this material from the intake and discharge structures.

Distribution of Red Algae *Heterosiphonia japonica* (HSA)



CT DEEP MARINE FISHERIES DIVISION

CT DEEP Long Island Trawl Survey, spring 2012 and 2013 distribution map for invasive red alga, *Heterosiphonia japonica* (HJ)

Water is shaded by depth; shallower water is lighter blue while deeper water is darker blue.

Places where LIS Trawl Survey sampled but did not find HJ are marked with an "X."

HJ weights (kg) 2012	HJ weights (kg) 2013
0.1 - 3.0	0.1 - 3.0
3.1 - 15.0	3.1 - 15.0
15.1 - 100.0	15.1 - 100.0
100.1 - 172.8	100.1 - 245.8

More Projects for Housatonic River Settlement Chosen

Projects added in Watertown, Seymour, Milford, and Stratford

Environmental officials have chosen seven fish habitat and marsh restoration projects to fund with $2 million from the 1999 Housatonic River settlement. The projects are outlined and evaluated in documents released in late August by DEEP, the U.S. Fish and Wildlife Service (USFWS), and the National Oceanic and Atmospheric Administration (NOAA). These documents can be viewed on the DEEP website at www.ct.gov/deep/naturalresources. A link also is provided on the federal Environmental Protection Agency's GE/Housatonic River website (www.epa.gov/region1/ge).

Previous projects have successfully restored natural resources and provided new recreational opportunities in the Housatonic watershed in Connecticut. Several of the new projects will increase habitat for migratory fish, such as river herring, through: 1) the removal of the Pinshop Dam in Watertown; 2) an analysis of options for the Old Papermill Dam on the East Aspetuck River in New Milford; and 3) construction of a bypass channel to facilitate fish movement around the Tingue Dam on the Naugatuck River in Seymour. Several marsh restoration projects in Milford and Stratford are expected to improve estuarine wildlife habitat. Finally, an analysis of barriers to fish passage at road crossings will be conducted in the upper watershed to identify opportunities to improve stream connectivity through culvert replacement. These projects to improve wildlife habitat in the watershed are made possible through a collaboration with the Housatonic Valley Association, the Ousatonic Fish and Game Club, state and federal agencies, and a local business.

Funding comes from a 1999 settlement with General Electric (GE) that included $7.75 million for projects in Connecticut aimed at restoring, rehabilitating, or acquiring the equivalent of the natural resources and recreational uses of the Housatonic River that were injured by the release of PCBs from the GE facility in Pittsfield, Massachusetts. Settlement funds grew to more than $9 million in an interest-bearing fund.

The allocation of these funds is the responsibility of the Natural Resource Trustee SubCouncil for Connecticut, which is comprised of the natural resource trustees from the State of Connecticut and the federal Department of the Interior, through the USFWS, Department of Commerce, and NOAA.

The original restoration plan, released in July 2009, awarded funding for 27 projects, including about $2.8 million for riparian and floodplain natural resources, $2.6 million for recreational use of natural resources, and $1.7 million for aquatic natural resources.

An Architect's Drawing of the Tingue Dam Fishway By-pass on the Naugatuck River in Seymour

In this architect's rendition of the Tingue Dam Fishway By-pass in Seymour, the Naugatuck River flows from top to bottom, over the dam (gray line to left). As migrating fish approach the dam from below, they will by-pass the dam by swimming up the channel to the right, and re-enter the river further upstream.

DRAWING BY: MILONE & MACBROOM ENGINEERING, LANDSCAPE ARCHITECHTURE, and ENVIRONMENTAL SCIENCE

Highlights from completed projects under the Housatonic River Basin Natural Resources Restoration Plan:

- **25 acres in New Milford protected and restored by the Northwest Conservation District at the Native Meadows Wildlife Preserve;**
- **20-acre Frost property in Sharon protected by the Housatonic Valley Association and Sharon Land Trust;**
- **More than 100 acres in Salisbury protected by The Nature Conservancy, the Trustees of Reservations, and the Salisbury Association Land Trust;**
- **3.5 acres purchased by the Town of Harwinton for recreational access along the Naugatuck River;**
- **A one-mile bike trail and parking area constructed by the town in New Milford's Sega Meadows Park; and**
- **12 acres purchased by the Town of Newtown for recreational access along the Halfway River.**

Smooth Greensnake

Opheodrys vernalis

P. J. FUSCO

Background and Range

The thin and small smooth greensnake is irregularly distributed in Connecticut. It is easily distinguished from other native snakes by its striking solid green coloration. This state species of special concern is facing the loss of its specialized habitat from the Connecticut landscape due to development and forest succession. In addition, populations are threatened by effects from insecticide spraying (contaminated prey). Mowing (lawns and hayfields) and farm equipment cause problems of their own by reducing vegetation height and causing direct mortality. Road mortality is another concern for this species, as well as predation by housecats.

"Spotty" would best describe this snake's range, both on local and broad scales. Overall, populations are mostly concentrated in New England, the southeastern Maritime Provinces of Canada, and northern portions of the midwest. In Connecticut, smooth greensnakes are found mostly in the eastern half of the state. They are rare in southwestern Connecticut and only occasionally found in the northwestern portion of the state.

Description

Small and delicate, this snake ranges from 12 to 25 inches in length. Its dorsal coloration is solid green with unkeeled (smooth) scales, while the underside is yellow or off-white. Juveniles resemble adults but are more olive-green in color.

Habitat and Diet

Smooth greensnakes favor moist, open habitats, such as old fields, meadows, pastures, fens, coastal grasslands, and edges of wetlands. Occasionally, this snake may inhabit sparsely forested areas with scattered shrubs and trees, such as mountaintop balds. Rural, undisturbed locations appear to be preferred, but smooth greensnakes have been found in urban and suburban areas as well.

Smooth greensnakes are insectivores; they feed on a variety of insects and spiders.

Life History

Smooth greensnakes reach sexual maturity at 11-12 inches, usually in their second year. Mating occurs in spring to late summer. Females in New England may lay their eggs and incubate them externally (oviparous) or retain their eggs and incubate them internally for a period of time (ovoviviparous), depending on summer weather conditions. A clutch of 3-13 eggs typically hatches sometime in July through September.

These snakes are active in Connecticut in May through November. Winters are spent underground, usually in rodent burrows, and sometimes with other snake species.

Interesting Facts

Smooth greensnakes are nonvenomous and completely harmless to humans. They are docile and will usually flee if threatened. These snakes have ecological importance by preying on insect populations and, in turn, provide a food source for other animals, such as hawks, great blue herons, raccoons, and foxes.

Although they are capable climbers, smooth greensnakes are much more likely to be found on the ground. They can be observed basking on rocks, logs, or other such basking sites.

Shortly after death, this snake loses its green coloration and turns bright blue.

The smooth greensnake is often confused with its similarly-colored close relative, the rough greensnake. However, the rough greensnake does not occur in Connecticut but in the southeastern United States. This species is considered to be more arboreal than terrestrial. It also has keeled scales (raised ridge in the center of each scale).

What You Can Do

Take the time to learn about, understand, and respect this vitally important reptile, and share your knowledge with others. If you encounter a smooth greensnake, observe it from a distance and allow it to go on its way. All snakes will retreat from humans if given a chance. You should not try to agitate it by getting too close or handling it. Although docile, it may try to bite. Never collect a greensnake as a pet. Not only is this illegal, but this snake does not survive well in captivity.

Do NOT attempt to kill any smooth greensnakes under any circumstances as this is an illegal action. Greensnakes are protected by Connecticut's Endangered Species Act and persons who kill or collect this special concern snake could be faced with fines or legal action. If you see or know of any suspicious or neglectful activity directed towards these snakes, you can report violators to the DEEP's 24-hour, toll-free TIP hotline (800-842-HELP) or Dispatch at 860-424-3333. Positive identifications of smooth greensnakes can be reported to deep.wildlife@ct.gov.

Northern Brownsnake

Storeria d. dekayi

P. J. FUSCO

Background and Range

The northern brown snake is found throughout Connecticut, and its population is currently considered secure in the state. This common but secretive snake flourishes in developed and urban areas. It was previously known as Dekay's brown snake.

The species is widely distributed over most of the northeastern United States and adjacent Canada, from southwestern Maine through Pennsylvania south to North Carolina.

Description

This small snake usually reaches an adult length of 9 to 15 inches. It has keeled scales (raised ridge along the center of each scale), and a dorsum (back) that ranges from dark brown or light tan in coloration. Two rows of darker spots run along the length of the back, often with a lighter band running between the darker rows. Irregular banding or weakly diamond-shaped patterns can also be found on the back. The belly is gray to pink and can have small black spots along the edges. A black mark is behind each eye and on the neck. Young northern brownsnakes can be identified by their white neck-ring, lack-of spots, and darker body.

Habitat and Diet

Northern brownsnakes are found in a variety of habitats, such as wetlands, grasslands, and forests, but they are most commonly encountered in disturbed or residential areas. Populations are most abundant in more developed portions of the state, even in vacant lots in some of Connecticut's largest cities. In forested areas of the state, these snakes are more localized, and often restricted to small patches of disturbance, such as along roadways, railroad tracks, or edges of fields.

This snake feeds during all hours of the day on insects, earthworms, slugs, snails, fish, and small amphibians (rarely).

Life History

In southern New England, northern brownsnakes are active from March through November. Once they emerge from their winter dens in spring, they immediately begin to look for a mate. The mating season in New England extends from March to May. Beginning in mid-July through August, females give birth to live young (viviparous) after a 105-113 day gestation period. Litter sizes range from 3 to 31 young snakes, which measure about 3.5 inches. The young tend to stay near the female shortly after birth, but she does not take care of them and they must fend for themselves.

Interesting Facts

Northern brownsnakes are somewhat tolerant of colder temperatures. They will spend the winter in dens, such as rodent burrows, rock crevices, or under buildings, that are below the frost line. These winter dens are often communally shared with other brownsnakes and also with other snake species, like gartersnakes, northern redbelly snakes, and smooth greensnakes.

These secretive snakes prefer to hide under rocks, logs, old boards, and other similar debris. They are normally active during the day; however if daytime temperatures are too hot, the snakes will become nocturnal. This harmless snake is non-venomous and does not bite. However, if handled or provoked, it can produce a strong musk odor from its anal glands. This reaction is rare and only used as a last resort.

Northern brown snakes are often confused with northern redbelly snakes, which can be slightly smaller and have a brown or gray body with a bright red or orange belly and keeled scales (raised ridge in the center of each scale). Redbelly snakes are more widespread in forested areas, whereas brownsnakes are usually found in disturbed habitats.

The northern brownsnake may expand its range and increase in population density throughout southern New England as rural areas become increasingly urbanized and snake species less tolerant of urban habitats decline.

What You Can Do

Take the time to learn about, understand, and respect this vitally important reptile, and share your knowledge with others. If you encounter a northern brownsnake, observe it from a distance and allow it to go on its way. All snakes will retreat from humans if given a chance. Even though a brownsnake may not bite, you should try not to disturb it by getting too close or handling it. Its only defense is the release of musk from special glands when disturbed. Never try to collect a brownsnake as a pet. In addition, the killing of any snake is strongly discouraged. If you encounter a snake problem, assistance can be found by calling the DEEP Wildlife Division at 860-675-8130.

2013 YEAR of the Snake

Celebrate Snakes! *Learn all about Connecticut's snakes at www.ct.gov/deep/YearoftheSnake.*

FROM THE FIELD

What Is Eastern Equine Encephalitis?

Eastern equine encephalitis (EEE) captured the headlines late in the summer of 2013 when Connecticut's Mosquito Management Program detected the EEE virus in mosquitoes in several towns in eastern Connecticut. DEEP responded by closing two campgrounds in Pachaug State Forest, as well as a portion of the forest where infected mosquitoes were found. In addition, the state conducted ultra low-volume ground spraying in the area to reduce the number of mosquitoes. By mid-September, a miniature horse from Griswold was euthanized after becoming infected with EEE and falling ill. It was the first incidence in Connecticut this year of a horse having contracted the disease.

Why so much concern about EEE? This rare but serious disease is caused by a virus that is spread by adult mosquitoes. On average, about five cases are reported each year in the United States. There has never been a documented human case of EEE in Connecticut, but the virus is found in birds and bird-biting mosquitoes that live near wetland habitats along the eastern seaboard from New England to Florida. In some years, high numbers of birds get infected, favoring spread to the types of mosquitoes that bite both mammals and birds. These mosquitoes can then infect people and horses. EEE is not spread by people and horses with the disease. The risk of getting EEE is highest from late July through September.

The virus responsible for EEE attacks the central nervous system of its host. Horses are particularly susceptible to the infection and mortality rates approach 100%. Signs of the disease in horses include unsteadiness, erratic behavior, loss of coordination and seizures. There is no effective treatment and death can occur within 48 to 72 hours of the horse's first indications of illness. Horses can and should be inoculated against this disease, especially in areas where EEE is known to circulate.

In humans, symptoms of EEE appear from three to 10 days after being bitten by an infected mosquito. Some infected people may not develop illness. For those who become ill, the clinical symptoms may include high fever (103 to 106 degrees F), stiff neck, headache, and lack of energy. Inflammation of the brain, encephalitis, is the most dangerous symptom. The disease worsens quickly and some patients can go into a coma within a week. Once symptoms develop, treatment for EEE is supportive and aimed at reducing the severity of the symptoms. Up to one-third of people who get the disease may die from it. Of those who survive, approximately one-half will have permanent neurologic damage. Presently, there is no available vaccine for use in humans. More information about EEE, West Nile virus, and mosquito testing is available at www.ct.gov/mosquito.

Thanks to the Northwestern CT Sportsman's Council

Members of the Northwest Connecticut Sportsman's Council recently volunteered their time to refurbish a bird blind at the Goshen Wildlife Management Area in Goshen. Council chairman Chris Marino, along with members Jerry Ciarcia, Jim Fairchild, Jim Fedorich, Dominic Yardito, and Gordon Smith, spent over 40 man-hours painting and refurbishing the bird blind. The DEEP Wildlife Division greatly appreciates their efforts!

New! Interactive Maps for Hunters and Saltwater Anglers

Hunters have a new resource to obtain maps and more detailed information about hunting areas in Connecticut. The DEEP website (www.ct.gov/deep/hunting) has a link to an Interactive Map feature that allows hunters to find hunting areas by "type" (i.e., deer lottery, small game hunting, etc.) or by specific name. Options are available to view a satellite image (showing boundaries), a topographic map, or a PDF of a map that also provides details on location, access, a habitat description, and more. This is a great resource for planning your next hunting outing. For those interested in saltwater fishing, check out the new Saltwater Fishing Resource Map on the DEEP website: www.depdata.ct.gov/maps/saltwaterfish/map.htm. This map shows the locations of points of interest related to saltwater fishing within Connecticut and around Long Island Sound.

P. J. FUSCO

Silvio O. Conte NWR Expands in Connecticut

The U.S. Fish and Wildlife (USFWS) Service recently partnered with The Nature Conservancy to add 66 acres of tidal marsh and coastal lands along Whalebone Cove in Lyme, Connecticut, to the Silvio O. Conte National Fish and Wildlife Refuge. The addition establishes the refuge's new Whalebone Cove Division. The expansion includes a donation of 40 acres from The Nature Conservancy and the USFWS purchased 26 acres from a private landowner.

The newly protected property contains approximately 2,000 feet of Connecticut River frontage and forms the southern entrance to Whalebone Cove. It features extensive high and low tidal marsh communities; steep, wooded slopes; an upland kettle-hole wetland complex; floodplain forest; upland meadows; and mature forest. Whalebone Cove features exemplary tidal marshes that host one of the largest stands of wild rice in Connecticut. It is an important wintering area for bald eagles and black ducks and a significant feeding area for migratory waterfowl. Whalebone Cove is one of the most undisturbed and biologically significant freshwater tidal marshes on the Connecticut River.

Silvio O. Conte NWR was established to conserve native plants, animals and their habitats in the 7.2 million acre Connecticut River watershed that stretches across four states (including Connecticut). It is the only refuge in the country dedicated to a river's entire watershed. The refuge works to protect land, form partnerships with citizens to foster conservation efforts, educate the public, and pass on the importance of the watershed to future generations.

The Nature Conservancy (www.nature.org)

Kokanee Salmon (aka the Red Salmon)

Written by Brian Eltz and Edward Machowski, DEEP Inland Fisheries Division

Autumn in Connecticut brings about a change in foliage colors, but leaves are not the only things that transform in fall. The kokanee salmon (*Oncorhyncus nerka*), a landlocked form of the larger anadromous sockeye salmon, undergoes extreme changes in preparation for a once in a lifetime spawning event (kokanee, like all Pacific salmon, are semelparous, meaning they spawn only once and die). Each fall, as spawning season approaches, both male and female salmon undergo drastic physiological changes, including degeneration of some internal organs and absorption of scales to form thick and leathery-tough skin. These changes are adaptations used by Pacific salmon to endure the rigors of spawning. In addition, mature males will develop a humped back, "fang-like" teeth, and the characteristic hook-jaw (kype). Their color will change from dark blue on the head and back with silvery sides to bright or olive-green on the head, with deep crimson red and orange coloring on their bodies. The coloration change of spawning females is less brilliant than that of males.

Kokanee reach maturity between two to four years of age, depending on genetics and growth rate. Once mature, the salmon seek suitable spawning areas like gravel beds along a lake's shoreline or inlet streams, where they spawn between August and November. A female, commonly referred to as a hen, can carry up to 2,000 eggs. She deposits the eggs into redds (a nest) that she scrapes out of the gravel with her tail, and waits for a suitable male to fertilize them.

Adults die within days of spawning, but the fruits of their labor will appear from the nests within a couple of months as alevins, also known as sac-fry. The fry leave their nests to feed on plankton, and as they grow in size, they are referred to as parr or fingerlings. At this stage, the parr move to pelagic (open) water, forming schools and growing to adult size while feeding on zooplankton.

Natural populations of landlocked kokanee are found from Alaska, south through western Canada and into Washington and Oregon. Like many other gamefish, kokanee have been widely distributed around the United States, including Connecticut. Their origin in Connecticut is unclear, but kokanee were first observed in East Twin Lake (Salisbury) during the 1930s. The salmon successfully reproduced and a recreational fishery blossomed early by the 1940s. However, natural reproduction could not support the fishing pressure, and the population crashed in the late 1940s. Because of this fish's popularity, the Connecticut Board of Fisheries and Game (predecessor to

J. MURTAGH, DEEP INLAND FISHERIES

DEEP Inland Fisheries staff hoist a trap net in search of mature kokanee salmon during the fall of 2012.

DEEP) reintroduced kokanee into East Twin Lake by the late 1950s.

To sustain the kokanee fishery at the lake and prevent a crash similar to the one that occurred a decade earlier, it was necessary to stock hatchery-reared fry each year. To rear large numbers of fry, mature fish were collected from East Twin and brought to the State's Burlington Fish Hatchery where eggs were removed (stripped), fertilized with sperm, and placed in incubation trays. Generally, 40,000 to 50,000 fry were stocked into the lake each spring. Fry stocking was successful due to the productivity of this limestone-based lake. By the 1970s, East Twin Lake became one of the most popular kokanee fisheries in the Northeast. Because of the kokanee's success at the lake, the Inland Fisheries Division introduced salmon fry into 15 other lakes. Only two of the lakes, Lake Wononskopomuc (Salisbury) and West Hill Pond (Barkhamsted, New Hartford), were able to produce fishable populations of kokanee.

Unfortunately, history repeated itself in the 1990s when kokanee were extirpated from East Twin and Wononskopomuc. Landlocked alewives (introduced to the lakes illegally) out competed the kokanee for their food source of plankton.

Fast forward to today, and kokanee can once again be caught at East Twin Lake and occasionally at Lake Wononskopomuc because alewife populations have either declined or crashed. Presently, DEEP stocks approximately 75,000 fry into East Twin Lake. West Hill Pond and Lake Wononskopomuc each receive approximately 50,000 kokanee fry each year. Currently, all broodstock salmon are collected from West Hill Pond because highly invasive zebra mussels are present in East Twin Lake. Angler catches are reported from all three lakes, but hookups are most frequent at West Hill Pond where 13- to 14-inch fish are commonly caught. Catch rates at East Twin Lake are low, but salmon up to 18 inches have been reported by anglers. A new state record kokanee weighing 2 lbs. 14 oz. was caught from East Twin in 2011. Salmon catches at Lake Wononskopomuc are rare because alewives are still present.

How to Catch a Kokanee Salmon

Kokanees provide excellent table fare and are great fighters on light tackle. They can be caught from early spring through late September, but May to July is considered the best period to catch them. During this time, zooplankton numbers are increasing rapidly; this may be one reason for the aggressive feeding behavior often seen by anglers. Many anglers believe kokanee are most readily caught in the morning before 9:00 AM, but most experts say the fish can be caught throughout the day. Kokanee prefer cold, well-oxygenated water and are often found in the deep waters below the thermocline (transition between the warmer mixed layer of water near the surface and cooler deep water layer). Salmon tend to swim in schools, following the movements of zooplankton, and are often easily detected with fish finders.

The primary method for catching kokanee is to troll slow and deep, with a spinner rigged with a chunk of worm, maggot, or piece of corn. Often lead core line, downriggers, or one- to three-ounce sinkers are used to get the lure or bait to the required depth. Kokanee will also hit small spoons and hootchies (plastic skirt that looks like a squid). They tend to prefer green or chartreuse lures early in the day and bright red, pink, white, or orange under good light conditions. Often, anglers will use a small dodger (thin metal spoons) attached to the line ahead of a lure to add action. Many anglers swear by the time-honored tradition of using Green Giant-white shoe peg corn. In fact, many argue it is the only corn you should use!

Angling at night is another popular and often more productive fishing method. Beginning at dusk, anglers will anchor in deep water (near 40 feet) and use lanterns or floating or submersible lights to attract zooplankton and also salmon. Using light line (4 – 6 lb. test), anglers attach a weight or lure, along with either a Glo Hook or small red hook (#10 or #12 Gamagatzu) tipped with a piece of corn, worm, or maggot. This rig is fished typically at, or just below, the thermocline. Generally a seven-foot light action rod with a level-wind reel is preferred. At night, kokanee strikes are subtle, so use of a spring bobber or similar device is often necessary to detect the hit. Kokanee have soft mouths, so it is best to set your drag on the lighter side and keep the line tight. Good luck and remember to keep those lines tight!

During autumn, as the winds of change bring crisp dry air, the first frosts, apple picking, and leaf peeping, keep in mind that the kokanee salmon are also busy changing into their spawning attire and being captured by our fisheries biologists to produce the next generation of these unique fish.

J. MURTAGH, DEEP INLAND FISHERIES

Kokanee salmon undergo significant changes during the spawn, including turning a beautiful shade of red. Males, like this one, also will develop a large hooked jaw (kype).

Kokanee salmon provide excellent table fare and are great fighters on light tackle.

P. J. FUSCO

P. PICONE , DEEP WILDLIFE DIVISION (3)

Caterpillar of the spicebush swallowtail mimicking a bird dropping.

Caterpillar of the spicebush swallowtail mimicking a snake with big vestigial eyes.

The spicebush swallowtail caterpillar can fold over leaves of a spicebush, using then for cover.

Spicebush Swallow Tail Butterfly Demonstrates Association with Native Plants

Improving habitat by planting native plants can range from landscaping your yard to restoring a listed plant species. Connecticut's roughly 1,800 native plants have co-evolved with wildlife and developed interdependent needs. Take, for example, the association between spicebush (*Lindera benzoin*), a small shrub that can grow up to six feet tall, and the spicebush swallowtail butterfly (*Papilio troilus*). Spicebush is an important host plant for this butterfly, which lays its eggs on the plant. The caterpillar spends a portion of its life hiding and foraging on spicebush leaves.

The spicebush swallowtail caterpillar takes on several different appearances to thwart potential predators. The top (right) photograph illustrates how the caterpillar mimics a distasteful bird dropping to improve its chances of survival. At the next stage of change, the caterpillar looks like a large-eyed snake (middle photograph). If spooked or threatened, the caterpillar sticks out a vestigial orange tongue with a strong odor. It also spends a considerable amount of time folding over leaves to form a channel in which the caterpillar can hide from predators and protect itself from outdoor elements (bottom photograph). These adaptations have evolved over millennia.

Look for the caterpillars of spicebush swallowtail butterflies on spicebush shrubs in most wetlands or moist forest understories throughout Connecticut. The key to finding this fascinating insect is to look for folded-over leaves on spicebush shrubs. How do you identify a spicebush? This shade tolerant shrub has dark green, oval-shaped leaves with a smooth edge. The leaves can grow up to five inches in length, and have a lemony scent when crushed. The flowers, which bloom in March and April, are small and pale yellow. The fruits, called drupes, are shiny red berries that provide food for a variety of birds and mammals.

Peter Picone, DEEP Wildlife Division

New Hunting and Trapping Regulations

A number of changes to hunting and trapping regulations were approved and implemented for the fall 2013 hunting seasons, including:

- **Adding crossbows as legal archery equipment**
- **Expanding junior deer and turkey hunter training opportunities**
- **Allowing muzzleloading firearms during the shotgun/rifle deer seasons**
- **Providing an orange clothing exemption for predator hunters**
- **Changing the methods for tagging gamebirds taken during regulated activities**
- **Adjusting the crow hunting season dates**

In addition, the new regulations establish specific protections for snapping turtles by designating seasons, size/bag limits, gear restrictions, and other measures designed to ensure the long-term viability of Connecticut turtle populations.

The changes are not currently published in the 2013 Connecticut Hunting and Trapping Guide, but will be included in the 2014 guide, which is in production. More details can be found on the hunting and trapping section of the DEEP's website at www.ct.gov/deep/hunting.

Conservation Calendar

Programs at the Sessions Woods Conservation Education Center

Programs are a cooperative venture between the Wildlife Division and the Friends of Sessions Woods. Please pre-register by 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.

Nov. 3.....**Wild Alaska**, starting at 2:00 PM. The Friends of Sessions Woods welcomes back wildlife photographer and Master Wildlife Conservationist Gary Melnysyn for a presentation on beautiful, wild Alaska. Gary has been fortunate to photograph grizzlies, moose, caribou, and bald eagles while visiting Alaska. His stunning wildlife images have delighted audiences throughout the region. Gary is affiliated with a variety of professional organizations and has received various awards. He also will provide insight and tips for successful wildlife images during the program.

Nov. 16.....**Children's Program: Wild Turkey Trek**, starting at 1:30 PM. Mindy Domurat, Outreach Assistant for the Wildlife Division, will present this wild turkey adventure suitable for children ages 3 to 10. Mindy will begin indoors with background information about wild turkeys before a trek outside on the trails. Following the walk, children are invited to create a wild turkey craft.

Dec. 14 .....**Winter Walk**, starting at 1:00 PM. Join Wildlife Division Natural Resource Educator Laura Rogers-Castro for a guided walk along the trails at Sessions Woods. Laura will discuss features in the winter landscape that help provide wildlife with the resources needed during this challenging season. Participants should dress for the weather. The length of the walk will be determined based on current conditions. Meet in the lobby of the Conservation Education Center.

Jan. 18.....**Snowshoe Walk**, starting at 1:00 PM. Snowshoe along the trails at Sessions Woods to look for signs of wildlife activity. Natural Resource Educator Laura Rogers-Castro will lead this program and identify the sights and sounds of wildlife on a winter afternoon. This program is snow-dependent and participants must supply their own snowshoes. The walk will be determined based on the snow conditions. Participants should wear appropriate clothing and bring water for this somewhat strenuous excursion. Meet in the lobby of the Conservation Education Center.

Hunting Season Dates

Sept. 16-Nov. 19 ..... First portion of the deer and turkey bowhunting season on state land

Sept. 16-Dec. 31 ..... Deer and turkey bowhunting season on private land and state land bowhunting only areas

Oct. 5-31 ..... Fall Firearms Turkey Season

Oct. 5 & Nov. 2 ..... Youth Waterfowl Hunter Training Days

Oct. 19 ..... Opening day for the small game hunting season

Nov. 9-16..... Youth Deer Hunter Training Days

Nov. 20-Dec. 10 ..... Statewide Firearms Deer Hunting Season

Consult the 2013 Connecticut Hunting & Trapping Guide and the 2013-2014 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 Web site (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.

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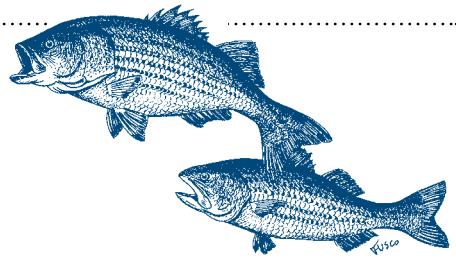

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P. J. FUSCO

A juvenile American golden plover wrangles an earthworm in a grassy field along the Connecticut shoreline. Such shoreline habitats serve as important stopover sites for migratory shorebirds, like the plover, during their remarkable fall migration which takes them from their Arctic breeding grounds to as far south as the Pampas region of Argentina every fall, a distance that may be over 8,000 miles.