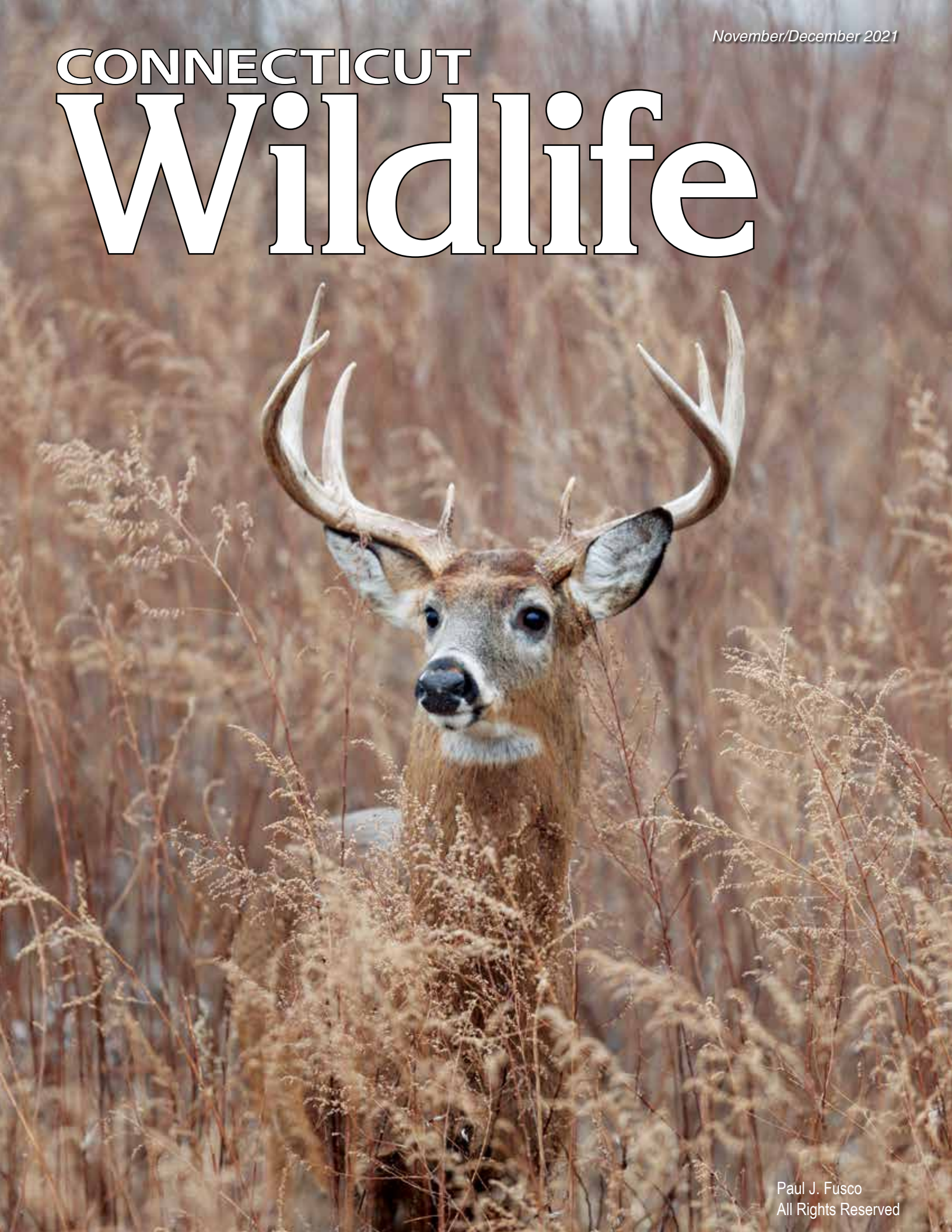
November/December 2021

CONNECTICUT Wildlife



From The Director

As 2021 draws to a close, it is a good time to reflect on the year and what we have learned along the way. I think we have all learned more about social distancing, the importance of community health, and the continued challenges of global pandemics and One Health issues than we ever anticipated. I have certainly put some of those long-ago lessons in epidemiology and virology to good use over the past two years.

One thing that stands out for me is the comfort we all seem to share in the natural world, regardless of what that is for each of us. It may be a butterfly visiting the planter on a balcony or glimpsing the quick dart and shine of a sunfish below the water's ripples or the stillness and warmth of a trail deep in the forest. Those moments provide calmness and curiosity and deliver a sense of promise in our resilience. The interest we have seen in our amazing outdoor spaces and diverse natural resources over the past year has been both rewarding and challenging.

Working together for greater benefits, while a key theme of our community health efforts in 2021, has also been reflected in conservation. This issue of "Connecticut Wildlife" highlights a perfect example of how trained biologists and scientists are working with students, our sportsmen and women, and volunteers to restore habitat for some of our rarest species. Without everyone doing their part to help restore wildlife habitat at Robbins Swamp Wildlife Management Area, our natural heritage would be lost.

I think we have also learned the importance of being adaptable. We have faced tremendous changes and, while some things have returned to a more familiar rhythm, others have not. While we cannot all tuck into our shells and brumate like a turtle, we can learn new and often creative ways to approach our challenges. Learning more about the behavior of brown trout seeking thermal refuges or bears that are adapting, and thriving, in more developed areas helps us understand broader conservation issues, like climate change and increasing human-wildlife conflicts. This in turn, helps us adapt and modify our conservation actions for greater success.

This year has also underscored the importance of respect and kindness. Each of us comes to the outdoors from a different place. Some of us are experienced outdoor enthusiasts, while others are new to walking in the woods, wildlife watching and photography, fishing, or even enjoying a state park, forest, or wildlife area. It is up to each of us to make the outdoors a welcoming, enjoyable place and for those of us more familiar with nature to share our knowledge with others who are just learning. Nature has a lesson for this, too. This time of year, Connecticut sees many winter wildlife "guests". It may be species such as bald eagles arriving for the winter or snowy owls seeking easier hunting south of the tundra. Many of these animals are in unfamiliar places and stressed by cold weather or harder-to-find food resources. This natural wonder sparks our curiosity and joy. We are watching amazing animals adapt to what they are faced with and finding ways to adjust to changing situations or new experiences. And, we need to work together for a greater benefit. If we are good hosts, by respecting these amazing winter visitors and treating them, and each other, with kindness, they will head into 2022 more successfully and we will get the best gift of all—our amazing natural heritage renewed for many years to come.

Enjoy the peace, joy, and wonder of nature.

Jenny Dickson, Wildlife Division Director

Connecticut Wildlife

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CONNECTICUT
Wildlife

Contents

November/December 2021

Researchers are using radio telemetry technology to monitor how Brown Trout use thermal refuges and the Housatonic River at large, by both actively and passively tracking tagged trout. See page 18 to learn more.

PHOTO BY C. SULLIVAN, UNIVERSITY OF CONNECTICUT.

IN THIS ISSUE

DEPARTMENTS

Cover:

Male white-tailed deer grow antlers (in April or May) and shed them (from mid-December to late January) annually. By fall, the antlers harden and the deer scrape them against saplings to remove the velvet in preparation for the rut, which peaks in the last two weeks of November in Connecticut. Antlers are used in sparring during the mating season.

Photo courtesy Paul Fusco

Teamwork to Create New Habitat

Robbins Swamp WMA site of new meadow

Written by Peter Picone, DEEP Wildlife Division

Imagine taking a 14-acre area with only two or three plant species present and turning it into a biologically diverse meadow with dozens of native wildflowers and grasses. This is currently happening at Robbins Swamp Wildlife Management Area in Falls Village. Not only is it a habitat project with a diversity of plants but also a diversity of partners. Partners in the meadow enhancement project include the DEEP Wildlife Division, students with the Housatonic Valley Regional High School Natural Resource Program (growing native plants in a greenhouse), Northwest Sportsman's Council (donated native seeds), the Connecticut Chapter of the Ruffed Grouse Society, Denise Ciastko of NativearthSeed LLC, and the Connecticut Agricultural Experiment Station (pollinator monitoring).

Biologically diverse fields planted with native grasses and wildflowers are used by an abundance of wildlife. Once the project is completed, native wildflowers will be blooming throughout the growing season, providing pollinators, such

P. PICONE

Jason Marshall, a delegate with the Northwest Sportsman's Council, adds native seeds to the DEEP Wildlife Division's Truax No-till Seeder.

P. PICONE

The northern leopard frog, a species of special concern in Connecticut, uses the wet meadows and fields at Robbins Swamp WMA in summer.

T. ZARRILLO

A female bumble bee (*Bombas bimaculatus*) visiting the flower of native bergamot.

P. PICONE

Native grass seeds (from left to right) in the hands of Jason Marshal (Northwest Sportsman's Council) holding big bluestem; Betsy Corrigan (DEEP Seasonal Resource Assistant) holding little bluestem; and Dennis Nogiec (Connecticut Chapter of the Ruffed Grouse Society) holding Indiangrass.

as bees and butterflies, with a variety of blossoms to choose from. Native grasses will be planted to create clumps with nooks and crannies that wildlife can use for cover and food. A variety of birds, butterflies, bees, other insect pollinators, reptiles, and amphibians will find the new biologically diverse meadow suitable for their particular needs of food, cover, and space.

Taking the Necessary Steps

A variety of steps have been taken to create the 7.2-acre native meadow and 4.8-acre soft edge/ecotone at Robbins Swamp WMA. In April 2021, the 14-acre area was cleared of invasive non-native plants by mechanical pulling and spot herbiciding. A planting list of native wildflowers and grasses was developed and the Northwest Sportsman's Council donated the seeds.

A 7.2-acre area was planted using a Truax No-till Seeder, originally donated to the Wildlife Division by the Connecticut Chapter of the National Wild Turkey Federation (see photo on page 4). One of the challenges when planting na-

tive grasses like little bluestem is that the seeds are so light that an ordinary seeder cannot do the job. The Truax no-till seeder has the ability to plant tiny wildflower seeds, as well as fluffy and light native grasses, such as little bluestem and big bluestem. Once wildflowers and grasses are established in this area, half of it will be mowed annually to maintain it.

A 4.8-acre area will become an ecotone, or edge, which will be allowed to grow naturally and create a soft edge where the field meets the forest. This area will be managed to control invasive plants and mowed less frequently than the 7.2-acre herbaceous field area. Woody plants, including native dogwoods, viburnums, serviceberries, and blackberries, will be allowed to grow but be cut periodically to prevent the area from succeeding into forest. Invasive non-native plants will be managed using mechanical and chemical control methods. This area will become dense with thicket-producing shrubs and provide a variety of seasonal food and cover for wildlife.

The Habitat Project Over Time

Over the next three growing seasons, students from the Housatonic Valley Regional High School are going to supply native wildflowers and native grasses as plugs grown in their greenhouses. The seeds for growing these native plants are being donated by Denise Ciastko of NativearthSeed LLC. Science teacher David Moran said that "this gives students an opportunity to use their horticultural skills and be engaged with field biology and applied science". Mr. Moran's students will be growing a variety of native plants, including joe pye weeds, milkweeds, asters, and grasses.

P. J. FUSCO

Monarch butterflies will be able to find milkweed in the restored field at Robbins Swamp WMA.

P. J. FUSCO

Seeds and insects that thrive in the new field habitat will provide food for hen turkeys and their poults.

P. PICONE

As plant diversity increases with each growing season in the restored meadow, so will the diversity of wildlife species.

According to Mr. Moran, the Housatonic Valley Natural Resources Program, which includes forestry, freshwater fisheries, wildlife, and the Connecticut Envirothon, has always been excited to partner with the DEEP in many projects over the years, a direct spin-off and benefit of the Envirothon Program. Mr. Moran said, "We again enter in a welcome partnership with the Wildlife Division in helping to restore the Robbins Swamp meadow with native perennials. Students will raise plugs in a greenhouse for the restoration of the meadow and for use by biologists across the state. We thank Wildlife Division biologist Peter Picone for connecting students, once again, to meaningful environmental work."

Northwest Sportsman's Council delegate Jason Marshall said that "this habitat enhancement will improve the habitat for harvested and nonharvested wildlife species". Huntable species, like wild turkeys and American woodcock, will benefit from the creation of biologically diverse fields and edges.

Benefits of the Project

The value of the planted area is expected to increase for pollinators in the coming years. The Connecticut Agricultural Experiment Station's research associate Tracy Zarrillo is monitoring the site for pollinator use. Wildlife and insect diversity are expected to increase as plant diversity expands with each growing season, adding more food and cover resources.

Imagine a monarch butterfly flying over a biologically diverse field of native wildflowers and landing on a common milkweed and depositing eggs, or an American woodcock flying in to roost overnight in the protective cover of a native big bluestem grass clump. These are two examples of dozens of new opportunities created for wildlife in the improved habitat conditions. It is exciting to participate in a cooperative project that will transform a field with limited wildlife value to a diverse meadow with a soft forest edge teaming with a wide variety of wildlife, plant, and insect species.

Eastern cottontails prefer open habitats, such as fields, meadows, yards, and other grassy areas.

Native Wildflowers and Grasses Planted at Robbins Swamp WMA

Native Wildflowers

Asclepias incarnata **- Red Milkweed**
Asclepias syriaca **- Common Milkweed**
Asclepias tuberosa **- Butterfly Milkweed**
Aster laevis **- Smooth Blue Aster**
Aster novae-angliae **- New England Aster**
Aster novi-belgii **- New York Aster**
Chamaecrista fasciculata **- Partridge Pea**
Eupotorium fistulosum **- Joe Pye Weed**
Lobelia siphilitica **- Great Lobelia**
Mimulus ringens **- Monkey Flower**
Monarda fistulosa **- Wild Bergamot**
Penstemon digitalis **- Tall White Beardtongue**
Penstemon hirsutus **- Hairy Beardtongue**
Pycanthemum tenuafolium **- Mountain Mint**
Pycnanthemum tenuifolium **- Narrowleaf Mountainmint**
Solidago juncea **- Early Goldenrod**
Solidago nemoralis **- Gray Goldenrod**
Solidago odora **- Licorice Scented Goldenrod,**
Tradescantia ohiensis **- Ohio Spiderwort, PA Ecotype**
Veronica **- New York Ironweed**
Zizia aurea **- Golden Alexanders**

Native Grasses

Andropogon gerardii **- Big Bluestem**
Schizachyrium scoparium **- Little Bluestem**
Sorghastrum nutans **- Indiangrass**

Aerial view of the 14-acre meadow restoration and enhancement project at Robbins Swamp Wildlife Management Area in Falls Village.

Owls

Phantoms of Darkness

Article and photography by Paul Fusco, DEEP Wildlife Division

The bleak time of winter harbors phantom predators of the night. Most are active only in darkness. Most are absolutely silent in flight, surprising their prey with stealth and aggression. Many make eerie calls in the dead of night. They are hard to find, retiring during daylight into places with thick cover. Their camouflaged plumage blends into the surrounding habitat well enough to make them virtually invisible. They often perch motionless, using cover as protective concealment from predators and from being disturbed. They are elusive and mysterious. Owls are an unfamiliar sight to most people.

Most owls sleep by day and are active at night. The crepuscular times of day, dawn and dusk, provide very good opportunities for listening and, if you are lucky, viewing. Typically, owls with a nocturnal (after dark) routine will become active at dusk as they prepare to leave their roost to hunt. Some owls that are active during the daytime (diurnal), including snowy, short-eared, and northern hawk owls, may hunt for food at any time of day. Others, including the Eastern screech, long-eared, and barn owls, are typically only active after dark, making them very difficult to see. Twelve owl species have been documented in Connecticut. Many are year-round residents, while others are seasonal or rare visitors.

At night, owls can be located within their preferred habitat by carefully listening for their distinctive calls. Great horned owls have a deep hooting call that resonates across fields and woodlands. Barred owls have an eerie "Who-cooks-for-you, who-cooks-for-you-all" call. Pairs of barred owls in deep woods will often call back and forth to each other. Eastern screech owls have a mournful, descending whinny and a continuous trill call. The northern saw-whet owl has a distinctive series of short, rapid "Too-too-too" notes, often repeated in endless succession. Their "toots" have been likened to the beeping sound of a truck backing up.

Where to Look

When looking for owls, or other types of wildlife, it is always a good idea to know habitat preferences and behavioral traits of the animal you are trying to find. Knowing what to expect can help with selecting locations to visit. For instance, if you want to try to find a barred owl, you should visit a mature forest habitat with a wet component. For great horned owl, you need to know that the species can be found in multiple habitats, especially heavy woods with nearby forest edge or openings.

Tree cavities are an important habitat feature for multiple owl species, including eastern screech, northern saw-whet, and barred owls. Open fields and marshes are important for snowy owls and short-eared owls. Some owls will even use abandoned buildings. Those include barn and great horned

Because of their habit of using very thick conifer cover, northern saw-whet owls can be among the most difficult owls to find and observe.

Great horned owls are large predators. They can often be found sitting close to a large tree trunk to sleep during the day.

owls. Also, a nearby water source may play a role in the presence of eastern screech and barred owls. Both of those species will often hunt frogs.

What to Look for

In some places, thick brush and heavy conifer forest can make finding an owl seemingly impossible. These birds know how to hide, but they often leave clues that can tell of their presence. Look for pellets that might be coughed up under favored roost trees. Pellets are the undigested parts (bones, fur, feathers) of an owl's meal that are compressed, and then regurgitated. And, look for whitewash (excrement) that can be seen on the ground under trees or on branches below where an owl might be or had been roosting. Whitewash from an owl is a bright white color and has the consistency of dripped paint. A roost location that has been used for a long time, say for a number of weeks during winter, can look like a gallon of paint has been poured on the branches and ground under the roosting spot. Sometimes, pine sap can look similar to white-wash but it would not have the consistency of dripped paint.

Owls often prey on smaller birds. When out in the field, be aware that songbirds creating a ruckus, giving shrill calls, and chattering loudly, may be directing their attention to a predator. This "mobbing" behavior sometimes reveals the presence of an owl.

Look for dark oval shapes in the shadowed branches of trees, especially conifers. Owls will typically perch in thick, dark portions of a tree. Some owls, like the great horned, will often sleep next to the trunk. The trunk provides cover and the owl's plumage blends into the tree bark perfectly. Great horned and screech owls have ear tufts that help break up their silhouette, giving them added protection against detection.

Fieldcraft

Most owls are comfortable in dark, quiet places that have little nearby activity or noise. Their highly-developed sense of hearing enables them to locate prey in complete darkness. This sharp sense of hearing is what gives owls the edge while hunting. Because their hearing is so sensitive to sounds, owls have great awareness to noise. A location that is noisy will be uncomfortable to an owl that is trying to rest or hunt, making it harder for the owl to find food, and the owl will likely not stay long in such an area.

Owls are patient hunters. One may sit perched for hours waiting for the right opportunity to catch its next meal. The owl observer also would benefit in his or her quest to find an owl by being patient, quiet, and moving slowly.

Viewing Ethics and Owls

When searching for these birds, owlers need to be mindful of the potential for disturbance and possible unintended harm to owls. Lapses in ethics or intentional disturbance can lead to survivability threats for some owls in some circumstances. Great care should be taken when observing day-roosting or nesting owls. Try to refrain from posting about these locations on social media. Limit the time spent at an owl location and try not to visit too often. Keep in mind that the more people who know about an owl's location, the greater the potential for disturbance to the owl. Disturbance is cumulative, so even if one person does not think he or she has had an impact, the next visitor(s) will add to the owl's disruption and may not have the same sense of responsibility as you do.

If an owler has found an owl, it may be all right to move

Short-eared owls are typically crepuscular (active in twilight), but can also be active during daylight hours in the winter.

Snowy owls are nomadic visitors from the Arctic. They typically use wide open tundra-like habitats during winter. Look for them in coastal and marsh habitats.

Barred owl with a freshly caught wood frog during a February thaw. Barred owls are one of the most common types of owl in Connecticut.

a bit closer for a better look if the owl is relaxed or seems to have its attention on preening or something else. If the owl shows signs of stress or annoyance, it is time to back off. An owl is stressed or disturbed if it begins to stare at the owler, lifts its tail to poop, has its eyes wide open, or starts to quickly look around into the distance. Sometimes an owl might appear to be "panting," as if it might be breathing fast. This could be due to being stressed or overheated.

Learn to move slowly and quietly so you do not cause the owl to fly away. As an observer, you want the owl to not feel threatened by your presence. Do not look directly at the owl. This would be interpreted as a threat. Try to keep a tree or branch between yourself and the owl. Above all, be patient. Seeing an owl in Connecticut is always an exciting and rewarding experience made more so by being respectful of a creature that is always in a quest for survival. Take the time to observe behavior and try to get a sense of what its life is all about.

Owling Gear

Binoculars are a must for owl viewing. Binoculars with a large objective lens will gather more light, making them best for seeing in darker conditions. The objective lens is the part of the binocular that has the biggest glass. It is measured in the second digit of a binocular description. For instance a binocular that is 8x40 means it has 8 power magnification and the objective lens is 40 millimeters. The greater the objective lens measurement, the more light it lets in, and the brighter it will be for viewing. A spotting scope would be handy for owls seen at a great distance, such as a snowy owl seen in a marsh.

Owling Tips for Photographers

In recent years, the popularity of various social media platforms has sometimes led to wildlife conservation concerns, including with owls, birders, and photographers. Be aware that photos of wildlife in sensitive situations or locations can and do result in conservation concerns. This leads to more people having the desire to go to that sensitive place to get their own photos. More people at a sensitive location means an increase in disturbance and potential stress for the subject. With most species, this kind of added attention is not good.

Disturbance is cumulative and can have a huge impact on nesting, young, or roosting birds if not kept in check. Photographers are encouraged to use good judgment and think of their stewardship responsibility before sharing photos of wildlife in sensitive situations. At the very least, refrain from giving away locations for sensitive wildlife on social media.

Owl photographers showing good fieldcraft. They are not crowding or surrounding the subject, and all are at a respectful distance using long lenses.

Also, try not to push your subject. If your subject changes its behavior, you are too close. If you feel you are not close enough, you may want to get a longer lens or use a blind. Blinds can be stationary, portable, or mobile. Consider using your car as a mobile blind. Observe and learn to read your subject's behavior to get more of an understanding of what the subject will tolerate.

It would be beneficial and less of a disturbance for the subject if the photographer were to keep something between them and the subject. This can be a tree, wall, clump of grass, or some other item. Stay low to the ground to minimize your profile. If you are standing in the open looking at an owl, the bird may feel threatened and will be quick to leave the area.

Day-roosting owls typically stay out of sight as protection from being discovered by predators while they rest, and to lessen disturbance from other wildlife or people. Photographers should keep this in mind. Try not to make noise, bring additional people, or linger. When many people are present, do not surround the owl. And, never force an owl to fly in order to get flight photos.

Many owls that breed farther north come to Connecticut as transients or to spend the winter. Exactly where they end up depends to a large extent on food availability. For those owling during the cold winter months, proper outdoor clothing is required. Good hiking shoes or warm winter boots will make your experience more enjoyable. Wearing a moisture resistant outer layer is a good idea when wet weather is in the forecast. If in the woods and off main trails, nylon/down jackets are susceptible to being torn by brush and prickers, and they can be noisy. Wear a jacket made of more durable, softer material. Do not wear bright colors. Leave the dog at home.

If owling at night, it is a good idea to have someone with you for safety reasons. Carry a flashlight or head lamp. A cell phone with GPS and a birding app can provide helpful owl identification tips, as well as keep you from getting lost in the woods. A backpack with water, snacks, and extra clothing is good to have on extended hikes.

Owls have sometimes been referred to as tigers of darkness. They look cute and cuddly at times, with their attractive plumage and big eyes. Most have a disposition that is anything but cute and cuddly. Owls are aggressive predators that help keep ecosystems in balance. They are important consumers of rodents and wildlife sometimes considered a nuisance. Like most wildlife, owls need space and habitat in which to live.

For the owler, observing these animals in their natural habitats can be a thrilling and memorable experience. It can also be a rewarding accomplishment because owls are so difficult to find. Yet with knowledge of their life and behavior, the seemingly impossible becomes possible when it comes to watching these phantoms of darkness in Connecticut's fields, forests, and woodlands.

Pair of state-endangered long-eared owls sleeping at a winter roost. Long-eared owls often roost communally during the winter. These roosts are sensitive to disturbance.

Connecticut Owls - Species Occurrence and their Habitats

Barn Owl (E)	*Tyto alba*	Farmyards, marshes, fields, grasslands
Barred Owl	*Strix varia*	Heavy forest, river bottom forests, close to water
Eastern Screech Owl	*Otus asio*	Woodlands, backyards, orchards, parks, often near water
Great Horned Owl	*Bubo virginianus*	Woodlands, forest edges, open country
Snowy Owl	*Nyctea scandiaca*	Open country, tundra, prairies, marshes, dunes
Northern Hawk Owl *	*Surnia ulula*	Conifer forests, bogs, muskeg
Burrowing Owl*	*Athene cunicularia*	Prairies, grasslands, airports
Great Gray Owl*	*Strix nebulosa*	Conifer forest with nearby meadows, bogs
Long-eared Owl (E)	*Asio otus*	Conifer groves, woodlands, thickets, close to open habitat
Short-eared Owl (T)	*Asio flammeus*	Open country, marshes, dunes, tundra
Boreal Owl*	*Aegolius funereus*	Conifer forest, boreal muskeg
Northern Saw-whet Owl (SC)	*Aegolius acadicus*	Dense conifer forests, thickets, close to forest openings

* *Very rare visitor in Connecticut*
E *Endangered in CT*
T *Threatened in CT (wintering population)*
SC *Special Concern in CT*

Painted in Black

The Common Grackle in Connecticut

Article and photography by Paul Fusco, DEEP Wildlife Division

The common grackle is one of our most widespread and abundant birds. A little bigger than a robin, it is a large, iridescent black songbird with a long, wedge-shaped tail. The wedge shape is more prominent in males than females and is highly visible when the bird is in flight. Unlike some other blackbirds that fly in an undulating flight pattern, the grackle's flight is straight and direct. Open woodland, agricultural fields, suburban backyards, grasslands, and marshes are all good habitat for the common grackle. The birds are numerous in backyards and parks. Grackles prefer open and semi-open areas and avoid deep woods. They are often found near water.

Grackles have a strong bill, which is long and pointed. The eyes are yellow, and their shimmering plumage is a beautiful combination of greens, blues, purples, and bronze. Grackles have regional variation in this iridescent color, and they were once considered separate species based on their iridescent color.

The breeding range extends from just east of the Rocky Mountains and southern Canada (Alberta) east through the United States to the East Coast, Gulf Coast, and Florida.

Bronzed vs. Purple

The two major variations are referred to as the bronzed grackle, with greenish-bronze body plumage, and the purple grackle, which has purple body plumage. The bronzed grackle is generally found in the northern part of the common grackle breeding range, to the north and west of the Appalachian Mountain Range, while the purple grackle occurs east of the Appalachians. There is a broad intermediate transition zone that runs diagonally from southern New England to southwestern Louisiana. Connecticut hosts both types, with the bronzed being more common in the northern part of the state and the purple being found in the southern part. A third grackle type is found further to the southeast, from the Gulf Coast to South Carolina and into Florida. This third type, sometimes referred to as the Florida grackle, is less colorful than the others.

Behavior

Grackles often nest in small colonies in the mid- to upper canopy of conifer trees. Alternative nesting sites may include rotting trees and stumps in freshwater marshes. The typical clutch is three to six pale greenish eggs, speckled with dark brown. Incubation lasts 13 to 14 days,and young fledge after 16 to 20 days.

Grackles find most of their food by foraging on the ground. They are omnivorous, eating mostly seeds, acorns, insects, and other invertebrates. However, grackles are opportunistic and can be predatory. They will rob the nests of smaller birds, taking eggs and chicks, and they have been documented killing smaller adult birds, including house sparrows. Grackles have also been known to chase down mice and may catch small flying bats in some areas. Small reptiles and amphibians can be on the grackle's menu, as well as small fish that are caught from the edges of streams and coastlines. While grackles are beneficial for their consumption of large amounts of pest insects, such as grubs, they are also known to cause considerable agricultural damage to crops, especially corn.

Migration and Winter

These highly gregarious birds are short-distance migrants. They withdraw from northern parts of their breeding range to the southern United States, primarily east of the Mississippi River. Large flocks gather in the fall in preparation for migration. The noisy flocks can reach extremely large numbers, sometimes involving over a million individuals. Often associating with other blackbirds and starlings during winter, these large flocks are called a plague. The birds can be a nuisance for people if the flocks congregate in populated areas, when concerns about noise and public health are raised.

Flocking behavior is beneficial for the birds to find food and keep an eye out for predators. If a large migratory flock descends into your yard, be patient as they usually do not stay long. Grackles are aggressive and can be bullies at backyard bird feeders. Some recommendations for dissuading them include not using tray feeders that are easy for grackles to land on, and switching from black oil sunflower seed or mixed seed to safflower or niger seed, which grackles do not like as much. Keep in mind that grackles consume large amounts of insect matter, including lawn grubs and other pest insects, so they are extremely beneficial to homeowners in suburban backyard settings.

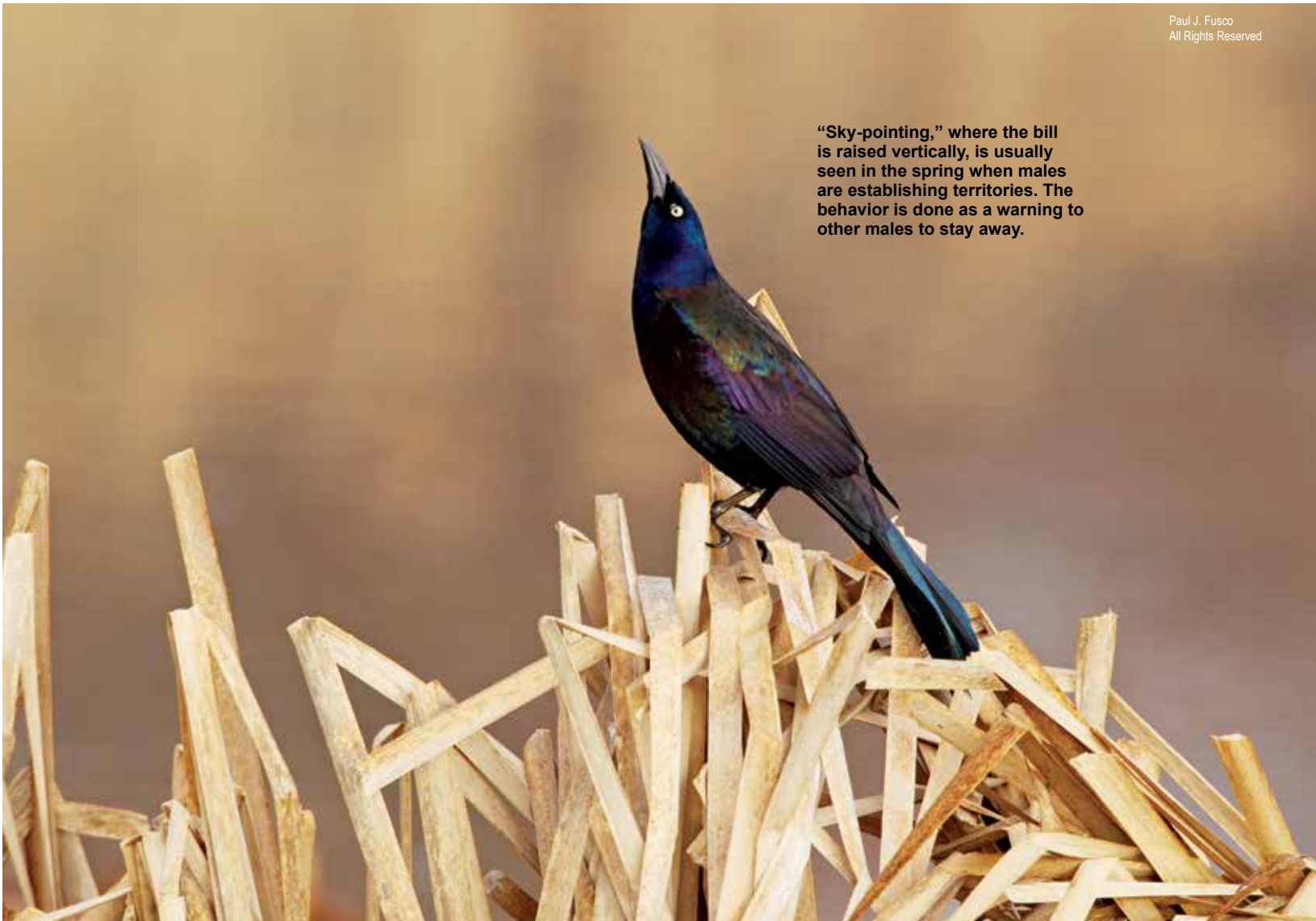
Due to nuisance issues caused by large flocks and the birds' tendency to damage agricultural crops, common grackles are sometimes targeted for management. Frightening devices, auditory alarms, repellents, and toxicants are used occasionally to discourage roosting flocks and reduce agricultural damages.

Conservation Issues

Many people may be surprised to learn that common grackles are a bird

whose population has been in steep decline. Although they are currently abundant and widespread, the North American Breeding Bird Survey has documented declines of almost two percent per year between 1966 and 2014, resulting in a cumulative population decline of close to 60%. Partners in Flight estimates a global breeding population of over 50 million, and considers the common grackle a "Common Bird in Steep Decline." BirdLife International analysis has the common grackle approaching the threshold for the conservation category of "Vulnerable" and may have it qualifying for a listing as "Near Threatened" due to concerns about the steep long-term population declines.

Grackles can take over backyard feeders at times during their migration. They are aggressive and will bully smaller birds, keeping them away from feeders. Platform feeders are attractive because grackles can easily land on them. Grackles prefer black oil sunflower seed and mixed seed with millet. If grackles are problematic in your yard, try temporarily switching to safflower seed or niger thistle to discourage them.



"Sky-pointing," where the bill is raised vertically, is usually seen in the spring when males are establishing territories. The behavior is done as a warning to other males to stay away.

Population Monitoring Is More than Just a Number

How bear biologists use several research techniques to see the whole picture

Written by Kyle Testerman, Wildlife Management Institute

Wildlife managers, like the biologists at the DEEP Wildlife Division, need an assortment of information to gauge how populations of species are doing. While the public often assumes biologists are most concerned with the overall population number, many other measures are used to better understand a species' population dynamics.

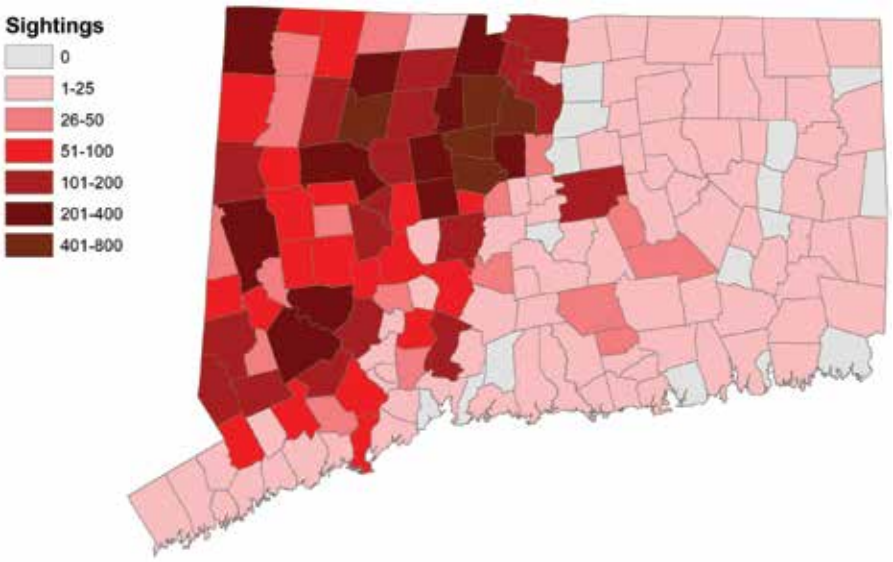
Determining a population's size is also extremely difficult, and often too time and labor intensive to be completed routinely. Just like the process of obtaining a near complete census of the state's human population once every 10 years is a significant undertaking, obtaining a census of a particular wildlife species that is trying to avoid detection by people is even harder, making it an unrealistic goal in most cases. Species with a restricted range that are easily detectable might be an exception. For example, if an easily detectable species is only known to exist at relatively few breeding sites, such as the piping plover, surveyors could attempt to visit each site and count every individual each season. Even in this scenario, it is still difficult to get the complete picture of the population in any given year. Instead, biologists attempt to estimate the size of a population by studying just a sample of the whole population.

One of the more commonly used methods to estimate the size of a population is through a capture-recapture study. In this study design, an initial

random sample (C) of the population is "captured" in some way, which could be through photographs like trail cameras, physically trapping animals, or collecting genetic material like hair and feces. The animals are then released back into the population. Later, a second random sample (S) is collected in the same study area, where presumably some individuals are recaptured from the first sample (R). Captured individuals must be identifiable in some way so that it is known if they are recaptured, and they are not counted as new individuals. Methods of identifying individuals can include using genetic material, recording an individual's unique markings (such as a jaguar's spots), or by physically marking the animal (such as an ear tag or body paint). The population size of the survey area (N) is estimated using this equation: N=(C x S)/R. For example, let's say 30 individuals are initially captured, identified, and released (C). Later, a second sample of 20 individuals is captured (S) and of those, 5 were previously captured in the first sample (R). Solving the equation yields an estimate of 120 individuals in the survey area. (30 x 20)/5=120. In other words, if you found that 25% (5 of 20) of the second sample were recaptures, you could estimate that your initial sample of 30 represents 25% of the whole population. This estimates the total population in the area to be 120.

While these types of studies can be very useful for estimating how big a population is, they are difficult to complete routinely. The capture-recapture estimate can be hard to extrapolate across a large area like Connecticut with diverse habitats and sprawling human developments. Population estimates are also not the main concern for wildlife managers, as other factors may provide a better picture of a population's outlook and be more important for management. Biologists can use an index to track broader changes in a population, using data from different

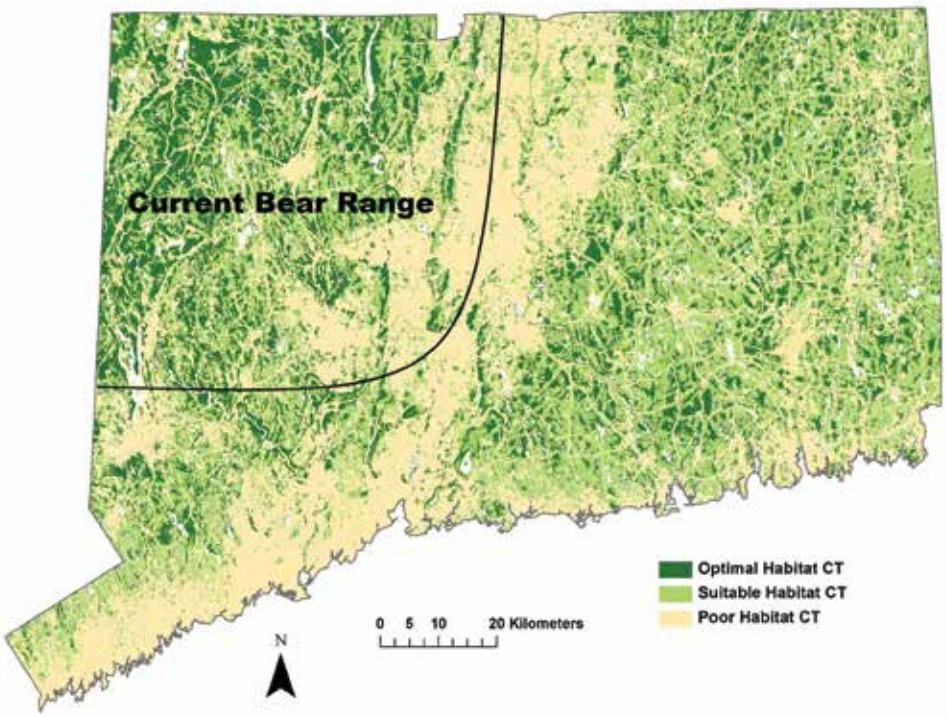
Black Bear Sightings in 2020



metrics. Elements of an index like this could include crucial information like whether the population has a high rate of reproduction and high reproductive success; what its survival is; what is the geographic range and if it is changing; how much habitat is available; or many other factors which might limit a population. Wildlife managers also analyze interactions between humans and wildlife and study the causes and trends to help minimize conflicts.

Now, let us look at a real-life example of wildlife research and management in Connecticut. Wildlife Division biologists have been monitoring the state's black bear population since bears began recolonizing the state in the 1980s. At first, it seemed that most of the bears sighted were younger males, likely dispersing from western Massachusetts, which at the time was the

Black Bear Habitat in Connecticut



K. TESTERMAN

Biologists collect reports of conflicts with bears, including the growing number of incidents involving unsecured garbage and bird feeders.

nearest resident population. It was not until the late 1990s that adult females (sows) with offspring were being reported from towns in the northwestern portion of Connecticut. Sows with offspring are likely to be seen in the same area that breeding took place, so at that point it was believed a reproducing population was establishing in this part of the state.

Did You Know?

While most of Connecticut's bears live in the western half of the state, the eastern half has a similar amount of suitable habitat. There is likely enough habitat statewide to support two to three times as many bears as there are in the state today.

Sighting reports of sows with offspring from the public continue to show growth and expansion of the breeding range from a few annual reports in towns near the Massachusetts border in the early 2000s to hundreds of reports from over 70 different towns in 2020. While most sighting reports of sows with young still predominantly come from the northwestern quarter of the state, there are reports of sows with offspring in several eastern towns. Dispersing male bears are seen throughout the state and their long-distance wanderings often account for many of the sightings in towns outside of the range of breeding females. While sighting reports themselves do not provide an estimate of population size, they are an important part the index used to gauge the population. Sightings do coincide with a growing bear population, as more people are encountering bears more often and, in more places, than in previous years. Increasing reports of bears killed in vehicle collisions each year also contribute to a population index that demonstrates continued growth and expansion.

In 2014, DEEP and UConn researchers conducted a genetic capture-recapture study using DNA obtained from hair samples collected from bears rubbing against barbed wire stations set up in different areas of the state. This allowed researchers to estimate densities of bears in these different areas, which has helped predict population densities elsewhere, as well as demonstrate the potential for more population growth where there are already numerous bears today. Using information from this study with data from GPS collars on a sample of sows, biologists were able to obtain a better picture of how bears navigate the landscape, particularly through residential areas with higher housing densities. By learning what habitats and landscape features bears avoid or prefer, biologists have developed maps to show where suitable bear habitat is throughout the state. This information is valuable for predicting where the population could continue to grow. Based on data from these projects at the time, it was estimated that there were about 800 bears statewide, including juveniles.

Bears in Other States

- **Other Northeastern states do not keep track of all the same numbers.**
- **Other Northeastern states have increasing or stable populations.**
- **Connecticut has more conflicts, relative to other states with bear populations.**
- **Reproduction is higher compared to other areas of the black bear's range.**
- **Other states can use harvest data to aid population estimates (harvest of tagged bears).**

Using data collected from bear necropsies (i.e., examinations of vehicle-killed bears) and from GPS collars on a sample of sows, biologists are able to study long-term trends in reproductive success, survival, and dispersal. Some of these collared sows have been studied since they were young bears themselves and many are now over 10 years old (one is over 20 years old!). Biologists have also learned that females reproduce at a younger age in our state's population than in some other parts of the black bear's North American range. While females in western states and northern latitudes typically first breed at 4.5 to 5.5 years of age, it is not unusual for a 2.5-year-old female to breed for the first time in Connecticut.

When a collared sow enters her den each winter, biologists can find the den and conduct hands-on data collection on her and any offspring she has that year. Over a decade's worth of data has shown that in Connecticut,

cub survival and average litter size are high relative to other parts of the black bear's range, averaging about 80% first year survival and 2.5 cubs per sow. These indicators demonstrate that Connecticut's population has a high potential for continued growth.

In addition to collecting general sighting reports from the public, DEEP biologists are spending considerable time managing conflicts between humans and bears. Most of these conflicts are preventable, and involve unsecured garbage, bird feeders, and other food attractants, which tend to be in proximity to homes. While spilled garbage and damaged bird feeders might seem like more of a nuisance to some people, accessing these human-related foods so frequently around homes contributes to bear habituation to residential areas. Over the last several years, bears have been entering homes more frequently, sometimes resulting in significant property damage and presenting a serious public safety concern. In areas of the state where people are less familiar with encountering bears, biologists expect reports of conflicts to rise, especially if residents are slow to adopt preventive habits.

K. TESTERMAN

GPS telemetry collars have been used on a sample of sows to learn about activity patterns, habitat preferences, den selection, and reproduction.

Studying wildlife populations is a complex task, with many separate and distinct goals. While the public is often most interested in knowing a population number, biologists work hard to manage and understand the bear population in more effective ways, while educating the public on methods to reduce conflicts and coexist more harmoniously. By using different, complementary techniques, a more complete picture of the population comes into focus.

P. J. FUSCO (3)

Bears and bird feeders are not a cute combination. Biologists spend considerable time trying to reduce these easily-preventable conflicts with bears before they become public safety concerns. This type of behavior can put bears on a progressive track towards more dangerous behavior, such as breaking into homes.

It's Getting Hot in Here

Thermal refuge use by Brown Trout

Article by Chris Sullivan, PhD Student, University of Connecticut; Dr. Jason C. Vokoun, University of Connecticut

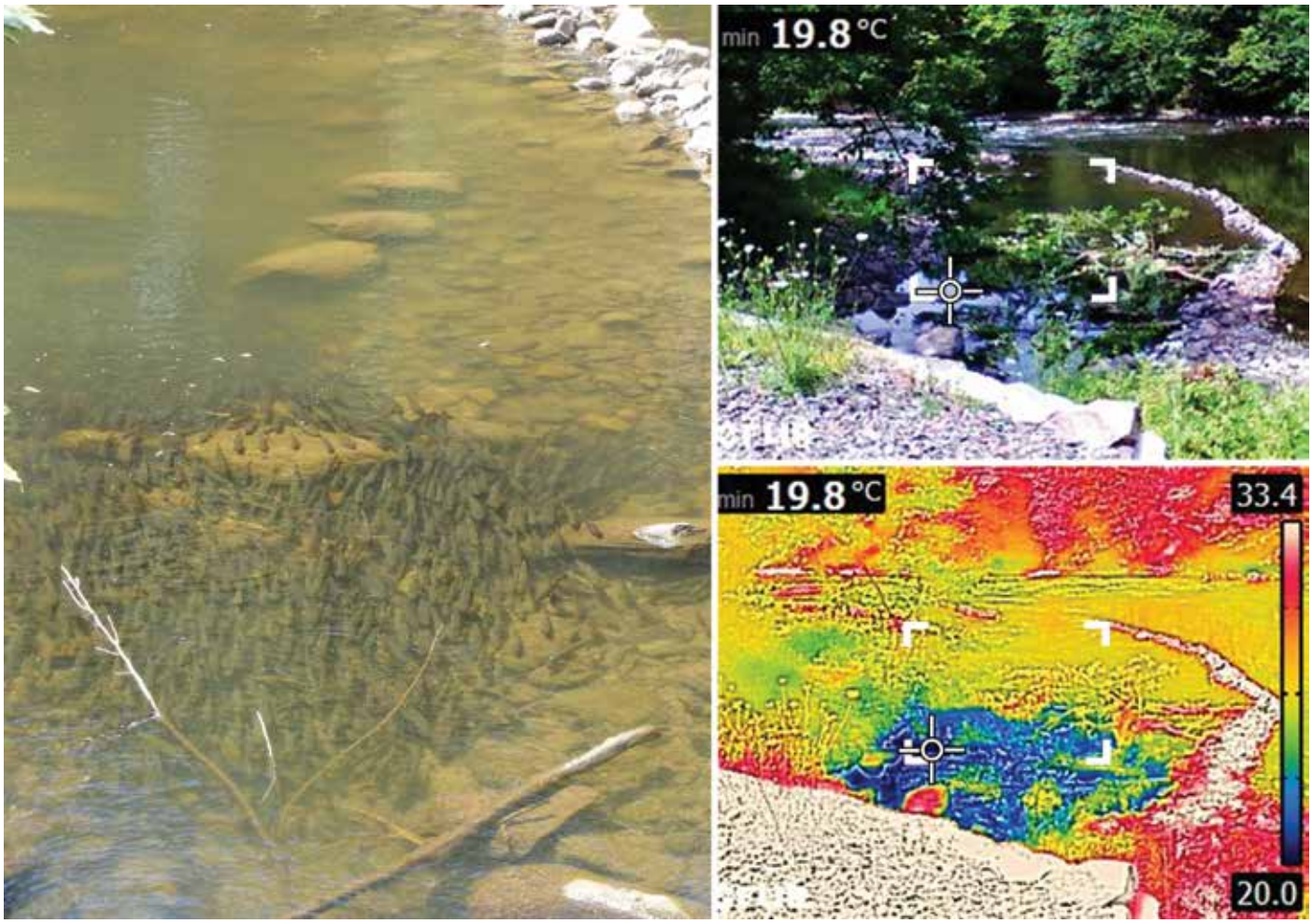
The availability and use of thermal refuges (i.e., an area with preferential temperatures that is not in a fish's normal habitat) throughout a riverscape is a concern for cold-water fish in temperate regions, particularly during summer. Cold-water adapted fish are sensitive to warm water temperatures, and individuals must often abandon their territories and move to thermal refuges for summer survival. Thermal refuges in rivers and streams are shallow patches of groundwater seeps, streambed hyporheic flows, or tributary confluences where water temperatures are more than 5°F cooler than mainstem river temperatures. Thermal refuge use can increase summer survival of cold-water fish and thus play a pivotal role in their persistence in marginal, warmer rivers.

PHOTO: C. SULLIVAN, UNIVERSITY OF CONNECTICUT.

In Connecticut, trout and salmonids, particularly Brown Trout, were stocked into many streams and rivers beginning in the 1860s. The DEEP currently stocks Brown Trout in many rivers and streams throughout the state, annually stocking nearly 452,000 nine to 12-inch and 48,000 six to eight-inch trout (includes Brook and Rainbow Trout). The Brown Trout fishery, in addition to the other stocked trout species, promoted by these stocking efforts provides economic benefit, resulting in an annual net economic impact of $4.9 to $10 million and is one of the state's most popular fisheries. Roughly 4,800 miles of rivers and streams provide habitat for stocked Brown Trout throughout Connecticut; however, warm summer temperatures that exceed their thermal tolerances occur regularly, and limited or negligible

M. BEAUCHENE

Thermal refuge areas on the Housatonic River are critical for brown trout to survive the very warm water temperatures during summer. Fish that use these areas can grow to become a beautiful-looking fish.



An aggregation of Brown, Rainbow, and Brook Trout at the confluence Furnace Brook with the Housatonic River. Summer water temperatures regularly exceed temperature preferences of trout, and trout must use this thermal refuge for survival during most summers. Visual (top right) and thermal infrared images show the extent of the cold-water thermal plume, but it is likely larger than depicted because TIR cameras only capture surface water temperature.

PHOTOS: M. HUMPHREYS (left); C. SULLIVAN (2 right)

numbers of stocked Brown Trout can survive more than a year post-stocking (i.e., holdover). Brown Trout survival and persistence throughout Connecticut rivers and streams relies on the species' ability to find and use thermal refuges, which are among the most threatened habitats statewide. As a result of warm summer temperatures and increasingly limited cold-water habitats, a substantial funding investment by DEEP is required to produce, stock, and maintain Brown Trout for this popular fishery.

Currently, only limited sections within two large rivers consistently support holdover Brown Trout. Most notably, the Housatonic River is the state's second largest river (150 miles) and supports some of the state's premier "blue-ribbon" Brown Trout fisheries. Two Trout Management Areas (TMA), the nine-mile long Housatonic River TMA and four-mile long Bulls Bridge TMA, offer numerous large and small cold-water tributary confluences that are known to provide thermal refuge for trout. Brown Trout use these thermal refuges for days to months during the summer, yet year-round survival is considered low and populations must be sustained by the annual stocking of roughly 18,000 six to 15-inch Brown Trout. The success of stocking and, therefore, the success of the fishery rely on the behavior and survival of Brown Trout within and around the TMAs. To better manage the fishery now and into the future, an understanding of how stocked Brown Trout behave and survive once stocked is necessary. Therefore, UConn researchers are conducting a rigorous assessment of stocked Brown Trout behavior within and around thermal refuges in the Housatonic River TMA, the larger of the two TMAs.

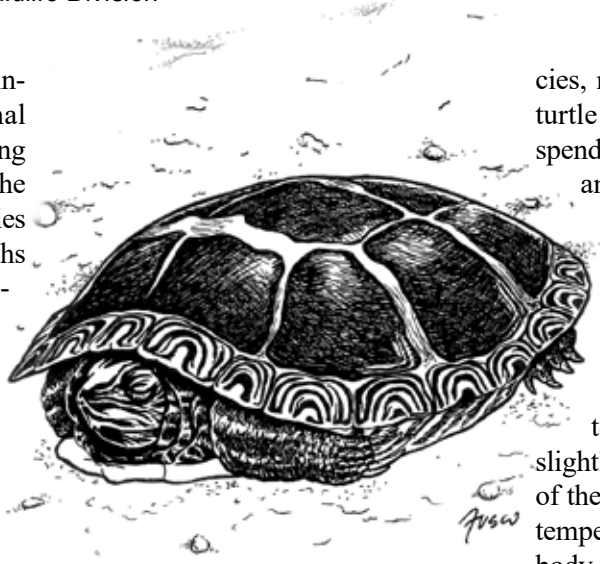
Working with collaborators from the DEEP Fisheries Division, researchers will be monitoring stocked Brown Trout movements starting in fall 2021 until late in 2023. They are focusing on larger refuges in the Housatonic River TMAs: Furnace Brook and Mill Brook, as well as Kent Falls Brook outside of the TMA. Using radio telemetry technology, researchers will be able to monitor how Brown Trout use thermal refuges and the Housatonic River at large, by both actively and passively tracking tagged trout. These data will be used to further enhance and protect coldwater fish populations in Connecticut's rivers and streams.

Stuck in Colder Weather

How Connecticut's Turtles Spend the Winter

Written by Paul Benjunas, DEEP Wildlife Division

For many wildlife observers, winter means identifying animal tracks in the snow or watching birds visit backyard feeders from the warmth of our home. Many other species that were active even just a few months ago have now retreated for the remainder of the year and await the warmth of spring. One slow-moving group of animals in particular has unique adaptations that allow them to survive the bitter cold of winter. We are talking about Connecticut's turtles!



So, Where Do Turtles Go in Winter?

Growing up in central Connecticut for much of my childhood, I would frequent a large pond in our backyard that was host to all kinds of wildlife. One late winter morning, with spring just around the corner, I decided to take a stroll around the pond to see what wildlife was around. The ice that covered the pond was clear enough to see through, and on this particular outing, I remember seeing an eastern painted turtle slowly crawling along the bottom of the pond. Now how can that be, I thought to myself? At the time, I knew painted turtles had to eventually travel to the surface to breathe air…right? How was it going to do that while being trapped under ice?! As you can imagine, I found this observation quite puzzling.

Before we explore further, let us first get a brief overview of our state's turtles. Twelve turtle species (including four sea turtles) occur in Connecticut. Turtles, like all reptiles, are ectothermic, meaning they rely on ambient (outside) sources of heat to drive their metabolism. A turtle's body temperature at any given time closely matches the temperature of its surroundings. This is why basking [illegible] important for turtles (and other reptiles), particularly in early spring.

But, as fall fades into winter, turtles sense the dropping average daily temperatures and begin to seek shelter. Terrestrial species, like the eastern box turtle, will dig (as best they can) an overwintering burrow in loose soil where they can easily conceal themselves within leaf litter or small brush piles. These winter burrows are often only about a half a foot deep, and dug on south or west-facing slopes to help maximize the amount of sunlight, making it a slightly warmer location to overwinter. Box turtles have a special adaptation that further allows them to survive chilly temperatures. Similar to the wood frog, the box turtle is freeze tolerant (up to a certain degree), meaning it can survive partial icing of its internal organs and extremities! When this happens, the turtle's blood is shunted or diverted to where it is most needed; the turtle's core. While this is certainly an amazing feat, box turtles can only survive this way for short periods of time, which is why taking the time to excavate a burrow during fall is absolutely critical for survival.

Connecticut's freshwater turtle species, most notably the eastern painted turtle and common snapping turtle, spend the winter at the bottoms of lakes and ponds where they often dig themselves into the muddy bottom. While the thought of being submerged in pond water during the middle of winter seems rather unpleasant, the reality is that the temperature of the water is much more stable and often slightly warmer than the temperature of the air during winter. As long as the temperature at the bottom of the water body does not dip below freezing for extended periods of time, the turtles can survive with very little difficulty.

Turtles Do Not Truly Hibernate

Instead, they experience a process known as brumation. A turtle in brumation requires much less energy and oxygen. The colder temperatures simply mean the turtles' metabolism and heart rate slow down significantly and, at that point, the turtles are no longer required to forage and feed the way they would during the "active" spring and summer months.

So, how does a turtle breathe during brumation when it is trapped under ice for several months? This is where things get interesting. Simply put, some turtle species breathe through their rear end. The technical term for this process is cloacal respiration. The cloaca is the opening through which the turtle excretes and lays its eggs, and it just so happens this area on the turtle's body is comprised of many blood vessels. This vascularized surface of the turtle's body allows the uptake of oxygen from the surrounding water, meaning the turtle does not need to use its lungs to meet its minimal oxygen requirement during brumation.

D. QUINN

As daily temperatures begin to drop, terrestrial turtle species, like this eastern box turtle, will dig (as best they can) an overwintering burrow in loose soil and conceal themselves in leaf litter until spring arrives.

New Atlas of Amphibians and Reptiles in Connecticut

A new 305-page publication – *Conservation of Amphibians and Reptiles in Connecticut* – contains detailed text,131 color photos, species account maps, and conservation solutions for the complex challenges Connecticut's amphibians and reptiles face. This book is available for purchase at the Sessions Woods Wildlife Management Area, 341 Milford Street (Route 69), in Burlington (by check or cash only). Purchases can also be made online at the DEEP Store (*https://portal.ct.gov/DEEP/About/DEEP-Bookstore/The-DEEP-Store*).

All proceeds from the sale of this publication go towards the conservation of Connecticut's reptiles and amphibians.

P. J. FUSCO

The wood turtle, a state species of special concern, will overwinter in rivers and large streams, extracting dissolved oxygen from the water, allowing the turtle to remain submerged until spring.

2020-2021 Trapping Season

Based on responses to an annual questionnaire, Connecticut trappers reported assisting 117 landowners with nuisance issues by removing 324 problem animals. The vast majority were beavers (263). Also, respondents reported trapping activities during the November 2020-March 31, 2021 season in 98 towns statewide, 874 trapping licenses were sold in 2020, and 31 permits to trap on state-owned properties were purchased last year.

Pelt Tagging Totals

Species	2020-2021	10-year Average	Percent Change
Beaver	702	964	-27%
River Otter	103	150	-31%
Mink	32	151	-79%
Coyote	175	167	5%
Red Fox	60	78	-23%
Gray Fox	11	28	-61%
Fisher	7	70	-90%

Regulated trapping can be an effective tool for managing beaver populations and reducing problems, such as flooding.

In Memoriam

Remembering Wildlife Ambassador Hank Golet

Written by Julie Victoria,
Retired DEEP Wildlife Division Biologist

Looking through past issues of *Connecticut Wildlife* magazine, you will see the name Hank Golet of Old Lyme popping up under the Bald Eagle Study Group, Midwinter Eagle and Woodland Raptor Survey volunteer, osprey banding volunteer, and as a credit for some contemplative photographs (Sept./Oct. 2008, Nov./Dec. 2013). For over four decades (and maybe longer), Hank contributed to the study, documentation, and conservation of wildlife in Connecticut. The DEEP Wildlife Division lost a volunteer extraordinaire on October 15, 2021, with Hank's passing. Hank was soft spoken with a wonderful sense of humor. He considered himself a birder and general naturalist but he was so much more. What Hank contributed the most was his time. Time to put up more osprey platforms on the Roger Tory Peterson Wildlife Area, time to replace their predator guards when they were pitted by salt water, time to monitor bald eagle nests, time to collect sightings of snakes and insects, time to walk through Nehantic State Forest almost daily looking at wildlife, time to take some breathtaking photographs. And, the time and boat transportation to monitor osprey nests and help band osprey chicks year after year. Plus, he could operate an aerial lift with one hand and hold an osprey chick in the other thanks to his lineman days with CL&P! Hank could also be counted on to take the time to share his knowledge and passion for wildlife with anyone who asked or showed an interest. Where wildlife and the DEEP Wildlife Division are concerned, he was a man for all seasons and will be sorely missed.

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Conservation Calendar

Jan. - April 15..... Donate to the Endangered Species/Wildlife Income Tax Check-off Fund on your 2021 Connecticut Income Tax Form. Details on how to donate can be found at *https://portal.ct.gov/DEEP/Endangered-Species/Endangered-SpeciesWildlife-Income-Tax-Check-Off*.

2021-2022 Hunting Season Dates

Jan. 1-31, 2022..... Continuation of the archery deer season on private land in Deer Management Zones 11 and 12.

Jan. 15-Feb. 15 ..... Canada goose late season in the south zone.

*Consult the 2022 Connecticut Hunting and Trapping Guide and 2021-2022 Migratory Bird Hunting Guide for specific season dates and details. Guides are available at town halls and outdoor equipment stores, and also on the DEEP website (***https://portal.ct.gov/DEEP-CT-Outdoor-Guides***). Go to* **https://portal.ct.gov/CTOutdoorLicenses** *to purchase Connecticut hunting, trapping, and fishing licenses, as well as required permits and stamps. The system accepts payment by VISA or MasterCard.*

$4M Great Meadows Marsh Restoration Project Launches

Connecticut's coastline is getting an exciting refresh: After years of planning and fundraising, ground was broken at Great Meadows Marsh, a Globally Important Bird Area, and part of the Stewart B. McKinney National Wildlife Refuge. On November 1, construction officially began to restore up to 33 acres of salt marsh and other important coastal habitat.

Great Meadows Marsh contains the largest block of unditched salt marsh remaining in Connecticut. Once more than 1,400 acres, the marsh is now less than 700 acres and portions of it no longer function properly due to dredged soils brought in as fill, colonization by non-native plants, and sea-level rise. The degraded marsh produces abundant mosquitoes that have plagued locals and visitors for years. Local birders, anglers, and wildlife enthusiasts know the site well as a special place to spot the rare snowy owl or catch striped bass. The marsh and its creeks are also important habitat for endangered plants, horseshoe crabs and blue crabs, saltmarsh sparrow (a Connecticut species of special concern) and other migratory birds, and fish like Atlantic silverside and menhaden.

Since the project was announced in 2019, it has grown to represent a $4.1M investment in Connecticut's coastline. Just over $1M was originally raised for the effort; it now includes an additional $3.07M in funding from the U.S. Fish and Wildlife Service, U.S. Environmental Protection Agency, The Nature Conservancy, Robert F. Schumann Foundation, and Jeniam Foundation. Initial funding came from three natural resource damage case settlements related to contaminated sites close to the area: Raymark Industries, Lordship Point Gun Club, and the Housatonic River/General Electric cases. These case settlements supported planning and engineering, and leveraged funds for the project construction and future monitoring.

Audubon Connecticut, the National Oceanic and Atmospheric Administration, Connecticut DEEP, and U.S. Fish and Wildlife Service are partnering on this exciting local restoration project. In addition to managing the construction, Audubon will offer opportunities for the community to get involved, primarily through planting native grasses and shrubs in spring. Sign up to stay updated at *https://act.audubon.org/a/great-meadows-marsh-restoration-updates*.

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P.O. Box 1550
Burlington, CT 06013-1550

P. J. FUSCO

It is legal to trap and hunt coyotes in Connecticut. Hunters and trappers are required to follow strict laws and regulations and to report and tag coyote pelts before they are sold, tanned, or mounted. There are special provisions for using land sets to trap coyotes on private land from December 1 through January 31. See a summary for 2020-2021 trapping season (November 2020-March 31, 2021) on page 22.