From The Director

It is hard to believe that it was a year ago when our lives changed dramatically in so many ways. “Normal” activities were upended, and we scrambled to find new ways to work, learn, recreate, and even complete research and conservation activities. We all paused many things and fisheries, forestry, and wildlife management activities were among the things impacted. Many early-season research projects for species like woodcock, which you will read about in more detail in this issue, were cancelled for 2020. Others were modified to allow for solo data collection or implementation. As we moved into late spring and summer, many activities were revised to allow for social distancing and use of personal protective equipment. Looking back at the everything we experienced over the past year, I am proud of how we were able to adjust to the changes and challenges and yet still accomplish so much for conservation of our natural resources.

There is no doubt it was a year filled with tremendous loss, but it also brought forward a sense of hope. We proved yet again that when we work together, we can accomplish amazing things. That message resonates clearly in the wonderful story about Max Belding. While his death is a tremendous loss, his love for our natural world and his overwhelming desire to share that with others created a legacy that will live on and inspire people of all ages to share his passion and appreciation for the outdoors. It is also a story that illustrates what we can accomplish together, and in this case, it is protection of some of our state’s best natural resources, be they cold-water trout streams, grasslands, pitch pine forests, or woodlands.

This issue also underscores the need we’ve all felt over the past year to seek solace in the rhythm of the natural world. The dedicated volunteers helping collect data for the Connecticut Breeding Bird Atlas embodied that desire to be immersed in the sights and sounds of nature. Despite formal survey work being suspended due to the pandemic, birders headed out to try and complete verification of nesting activity and many other atlas goals. Not surprisingly, bird watching is an ideal recreational pursuit for practicing social distancing and responsible recreation. Their time outdoors was time well-spent; the project made a lot of progress and participants were able to experience the physical and mental health benefits of being outdoors. (All though any birder might argue that trying to identify a tiny warbler up in the canopy in bad light when it refuses to make any sound is mentally challenging!)

The past year has given me a new appreciation for the lessons we can learn from nature. There is no doubt that for me, and probably for many of you, it is where I can get refocused; it always helps to put challenges into perspective. Perhaps the biggest lesson from nature we should embrace is that diversity is vitally important to the whole. Without diversity, ecosystems will not function effectively or efficiently, and their value becomes diminished. The same is true for our communities. Our differences make us stronger and give us more opportunities to find new ways to work together for our common goal of making sure future generations are able to enjoy the full array of fish and wildlife we do and to be able to seek solace in those natural places whenever they need it most.

I invite you to spend a few minutes in nature. Reflect on the strange journey we have all been on over the past year. Contemplate the beauty and grace around you and recharge. And most of all, think about how we can learn what nature is able to teach us if we are willing to listen.

Jenny Dickson, DEEP Wildlife Division Director
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A wood frog floats in vernal pool. Discover the Connecticut amphibians that can be found in vernal pools on page 8. 
Photo courtesy Paul Fusco
Remembering Maxwell M. Belding
A True Connecticut Conservationist

Written by Jane Seymour, DEEP Wildlife Division

It is with great sadness that we announce the recent passing of a great conservationist, Maxwell M. Belding. Through his vision and generosity, Mr. Belding was responsible for protecting hundreds of acres of precious natural resources in Vernon, Connecticut.

In 1981, Mr. Belding donated his beloved and pristine family property to the State of Connecticut to become the Belding Wildlife Management Area (WMA). At that time, the Belding property had tremendous economic potential if it were to be developed. However, preserving the natural features of the land meant much more to Mr. Belding than just monetary profit. The property, which features a stream with pure, cold water that supports a healthy population of trout, was a quiet oasis of nature that provided a wealth of memories for the Belding family. Not only did he choose to preserve the area, he also chose to share it with Connecticut’s residents. His desire was to protect the wildlife and fisheries habitats, provide environmental education by teaching young people about our relationship with nature, and offer the public a place where they can enjoy and discover wildlife and their habitats. However, Mr. Belding’s generosity did not end there. In order to fulfill the goals of the WMA, he established a trust fund to provide support for stewardship of the property. His daughter, Ruth, serves as a trustee to provide oversight of the trust and review and approve ongoing activities of the area. Mr. Belding worked with the directors of the CT DEEP Wildlife and Fisheries Divisions to identify goals and needs and develop a cooperative agreement. Retired Wildlife Division Director Dale May recalls that working with Mr. Belding was “one of the most rewarding interactions of my entire career.” Mr. Belding knew his property was a very special place and wanted to protect it for generations to come.

Maxwell Belding and his daughter Ruth, who serves as a trustee for the Belding Trust, at the Belding WMA dedication ceremony in 2005.
Protecting the Watershed

Because the land surrounding the Tankerhoosen River through Belding WMA and upstream has remained undeveloped, the water quality in this section of the river remains high. The river and its tributaries support diverse aquatic life, such as stonefly, dragonfly, and damselfly nymphs, as well as wild trout. These species would likely not exist in the river had the land been developed.

The presence of wild trout led to the designation of this stretch of the Tankerhoosen River as a Class 1 Wild Trout Stream. Formal wild trout management in Connecticut was pioneered in 1993 when the Belding Wild Trout Management Area (WTMA) was designated, the first management area of its type in the state, and still one of only two such designated streams in eastern Connecticut. Bill Hyatt, retired Bureau Chief and former Fisheries Division Director, recalls working with Max through the assessment process. “Max was a very generous person and a real pleasure to work with,” said Hyatt.

Upstream, however, adjacent land remained under threat of development. The importance of protecting the many unique resources Belding WMA had to offer prompted the DEEP to pursue acquisition of the upstream property to better protect the Tankerhoosen River watershed. This 449-acre parcel not only protected the river, it also provided habitat for a wide variety of songbirds, hawks, owls, turtles, frogs, salamanders, butterflies, and other pollinators. Made possible by Connecticut’s Recreation and Natural Heritage Trust Program, this upstream property was acquired in 2012. It doubled the size of the Wild Trout Management Area and added to the total protected corridor in the Tankerhoosen River watershed. Max Belding’s foresight and generosity in donating his family’s property served as a catalyst to protect even more fish and wildlife habitat and helped establish the Tankerhoosen WMA.

Over 130 species of birds have been spotted at Belding WMA. The area has been identified as a Birding Hotspot on the Cornell Lab of Ornithology’s eBird.org website. Surveys at Belding WMA have shown that the area is home to at least 19 species of mammals, eight species of reptiles, 12 amphibian species, 19 fish species, 19 species of dragonflies, seven species of damselflies, 119 species of moths, 34 species of butterflies, 35 species of bees, and at least 31 additional families of insects. Upstream, the Tankerhoosen WMA also hosts a wide diversity of species, including uncommon birds and insects like the American kestrel, prairie warbler, and tiger beetles. Had this land not been protected, most of these species likely would have disappeared from the area.

Several projects at Belding WMA have been completed by the Wildlife Division to benefit special habitats or unique species. For example, American chestnut and pitch pine are found on the property and projects have been implemented to help preserve these rare trees. Active management to create, maintain, and expand grasslands and shrublands, both disappearing habitats, is ongoing. Invasive plants are in the process of being removed and riparian habitats are being restored. A butterfly garden was established by the Vernon Garden Club and has been maintained by Master Gardeners. More details about Belding WMA are available on the DEEP website at https://portal.ct.gov/DEEP/Wildlife/Wildlife-Management-Areas/Belding-Wildlife-Management-Area.

History of the Belding Property

Mr. Belding’s connection to Vernon goes back a long way. His grandfather owned the Belding Silk Thread Mill that was once part of a thriving textile industry in the historic Rockville section of town. His father, Frederick, had acquired parcels of land that now make up Belding WMA.
Above: A scene of Vernon’s rural past. Left (top to bottom): Some historic views of the Belding property, which has a rich past. Some of the structures no longer exist. A view inside the cabin that Max Belding built from old tobacco barn timbers. The pond at Belding WMA was created by a dam that was the site of a former mill.
Bottom: Mr. Belding had a big heart. Here, he is hosting a cookout for the New Haven Boy’s Club in 1942 at the large stone table near the pond at Belding WMA.

The pond was created by a dam on the Tankerhoosen River that had long ago been the site of another historic mill, although little is known about its history.

Many years ago, the Belding family farmed the fields of the property where they grew buckwheat and other crops. Max Belding fondly remembered the buckwheat pancakes made from the harvest. Max understood the importance of agriculture, and wanted Belding WMA to also serve as a place for agricultural education. Today, Rockville High School’s Agricultural Education Center uses one of the fields to grow Christmas trees. This is a crop that actually provides habitat for species that depend on old-field habitat. The students are learning to grow a crop that is environmentally friendly.

In the 1930s, thousands of evergreen trees were planted on the property. At the time, much of the surrounding land was still farmland, and reforesting the property was a way to create habitat in a manner that would also provide future income. After returning home from serving in the U.S. Navy during World War II, Mr. Belding planted thousands more evergreen trees.

Mr. Belding enjoyed fishing in the Tankerhoosen River. He built a fishing cabin using timbers from an old tobacco barn. This cabin had a four-foot wide fireplace, a Maine woodstove, oil lamps, and a privy “which seemed far away on a cold night.” Fishing excursions were based at the cabin and picnics were held at the large stone table near the pond. Max’s daughter Ruth learned to fish there with her father, catching trout in the Tankerhoosen River. Ruth continues her father’s conservation legacy as an original and active member of the Belding Charitable Support Trust Board of Trustees.
Future Stewards

Every year, hundreds of school children visit Belding WMA to learn about wildlife and their habitats. In the meadow, third graders get to see tree swallows circling above their heads catching insects; red-winged blackbirds disappearing into the tall grass to tend to their nests; and red-tailed hawks soaring high above in search of food. They also find wild carrots, goldenrod galls, and milkweed bugs. In the forest, students learn about the life and death of trees; listen for chickadees, ovenbirds, and woodpeckers; and find nests, toads, and salamanders. Water striders, stonefly nymphs, and two-lined salamander eggs are found in the stream, and fairy shrimp and wood frog eggs in the vernal pool. Students play detective as they learn to identify tracks and other signs of wildlife. A dedicated team of volunteers and an ambitious group of students from the Rockville High School Agricultural Education Center teach the children who visit Belding WMA. The high school students receive training over April vacation, and take over as the instructors on field trip days. Many of the high school students who now serve as instructors remember participating in the field trips when they were in third grade. Some of these students also go on to major in an environmental science in college.

Mr. Belding’s philanthropy went beyond the donation and funding of Belding WMA. He also supported the arts. The Maxwell M. and Ruth R. Belding Theatre, also known as the Belding Bushnell, was named in honor of Max, who was a longtime trustee, and his family. In addition, he was a generous supporter of the Hartford Foundation for Public Giving, Connecticut Forest and Park Association, Hartford Hospital, Community Foundation of Eastern Connecticut, and many other organizations.

With the donation of the Belding WMA, Mr. Belding provided a space where thousands of students, the stewards of the future, have come to learn about wildlife and their habitats. Visitors walk through the area on a daily basis seeking the sanctuary of nature. Painters and photographers capture the beauty of the fields, forests, streams, plants, and animals. Birders delight in the wonderful diversity of birds, including some rare visitors, and anglers value the area for the unique experience of catching (and releasing) wild trout. Maxwell Belding has touched the hearts and lives of so many people. “He never sought the spotlight,” said retired Wildlife Division Director Dale May. “But, his generosity and friendly demeanor cannot be overstated.” He will be missed.

We are fortunate to have known Maxwell Belding, and to also have his daughter Ruth continue to serve as a trustee for the Belding Charitable Support Trust. Because of Maxwell’s generosity and foresight, the precious natural resources that exist at the Belding WMA will be here for generations to come. The DEEP Wildlife and Fisheries Divisions are extremely grateful to Maxwell M. Belding and his family.
As winter comes to an end, many will hear the familiar calls of amphibians as they gather at vernal pools. For those who may not be familiar with the term, vernal, or ephemeral, pools are seasonal wetlands that exist for variable periods from winter to spring, but are often completely dry during summer and fall. These temporary pools are vital to a host of Connecticut’s amphibians (and invertebrates) by providing a safe area for reproduction.

So, why have amphibians adapted to rely on a temporary pool of water that may dry up before their offspring are able to develop to a terrestrial existence? Why don’t they simply lay their eggs in larger year-round wetlands or ponds instead? The answer is simple: predators. Because vernal pools are typically dry during the summer and fall months, they do not support breeding populations of fish that would otherwise be able to easily prey on amphibian eggs and larvae.

In Connecticut, three species of amphibians are commonly encountered at springtime vernal pools – spotted salamander, Jefferson salamander, and wood frog. The spotted salamander is a large (4.25 - 6.75 inches) stout-bodied member of the mole (Ambystomati-
The wood frog, distinguished by a prominent dark mask behind the eye, is the only North American frog with a range that extends north of the Arctic Circle. Nearly 65% of the wood frog’s body can remain frozen until warmer weather arrives in spring! The wood frog is a medium-sized terrestrial frog (1.5 – 3.25 inches) and is pink, tan, or dark brown in color and is distinguished by a prominent dark mask that abruptly ends behind the eardrum (tympanum). During the

The spotted salamander, distinguished by its large size and bright yellow spots, is seldom seen except in early spring, spending most of its life underground. The preservation of vernal pool breeding habitats, and more importantly, the surrounding forested habitat is critical for the species’ survival.

Spotted salamanders spend their entire lives approximately one-half mile from the vernal pools where they were born, often hiding out of sight in burrows or under moist leaf litter and rotting logs during the non-breeding season. Despite being Connecticut’s most common mole salamander, the spotted salamander population appears to be undergoing a long-term decline. The preservation of vernal pool breeding habitats, and more importantly, the surrounding forested habitat is critical for the species’ survival.

Another common vernal pool visitor is the wood frog, the only North American frog found north of the Arctic Circle. Wood frogs are able to survive sub-freezing temperatures by producing high concentrations of glucose that act as a natural anti-freeze. Nearly 65% of the wood frog’s body can remain frozen until warmer weather arrives in spring! The wood frog is a medium-sized terrestrial frog (1.5 – 3.25 inches) and is pink, tan, or dark brown in color and is distinguished by a prominent dark mask that abruptly ends behind the eardrum (tympanum). During the

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non-breeding season, the wood frog (as the name implies) spends most of its life in various wooded habitats and will spend the winter under leaf litter, logs, and rocks of the forest. It is the wood frog’s overall tan color that allows it to easily camouflage itself among the leaf litter. After emerging from winter dormancy, wood frogs gather at vernal pools where the males commence a chorus of their signature raucous quack-like breeding call (often mistaken for a large group of ducks quacking) in the hopes of attracting a mate. Listen for wood frog choruses in March and early April.

During mating, the male wood frog uses its front legs to grasp the female (a behavior referred to as amplexus), and the eggs are then externally fertilized as they are released by the female. During amplexus, the female attaches her egg mass (containing approximately 1,000 individuals) to underwater vegetation at or near the surface of the vernal pool where the larvae will hatch in approximately 28 days. Once the eggs have been deposited, the adult wood frogs retreat to the nearby surrounding forests.

Some other vernal pool amphibians that are less commonly encountered by people are the Jefferson and blue-spotted salamanders. Both species belong to the mole (Ambystomatidae) salamander family, and their existence is quite similar to the spotted salamander, spending most of their lives underground or under rotting logs and leaves, hiding out of sight from predators. The main difference, however, is that both species are more specialized in their habitat use and are much more sensitive to pollution, habitat destruction, and fragmentation, and for these reasons, their populations have been declining.

The Jefferson salamander, a state species of special concern, is a fairly large (4.5-7 inches) salamander with long toes, a long snout, and a fairly slender build that helps distinguish it from the other mole salamanders. In Connecticut, the Jefferson salamander is one of the earliest amphibians to breed in spring, arriving to vernal pools under the cover of darkness with the first warm rains. Its laterally flattened tail is nearly as long as its body,

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**Eyes on the Road!**

Habitat loss is the greatest challenge facing Connecticut’s wildlife, and the annual spring migration amphibians must make to their breeding pools is a treacherous one. As more habitat surrounding vernal pools becomes developed, Connecticut’s amphibians face the increasing strain of human encroachment, and many of these species are not very adaptable to these changes. Traveling under the cover of darkness to avoid predation does not change the fact amphibians often have to travel over roadways to reach their destination. Each year, countless amphibians are killed by vehicle traffic, and as a result, these individuals are unable to contribute their genetic material to the overall population. During warm, rainy spring nights, please keep your eyes on the road and look out for crossing amphibians. If you are aware of a migration hotspot, consider taking an alternate route to your destination or simply avoid traveling on smaller, wooded roads. Delaying your travel two hours after sunset is also recommended.
and like other mole salamanders, it has five toes on its rear feet but only four on its front feet. The Jefferson salamander varies from grayish-pale blue to a dark brown in color with varying amounts of faint bluish flecks along the sides. Genetically “pure” or diploid Jefferson salamander populations do not occur in Connecticut given that the species has hybridized with the similar-looking blue-spotted salamander.

The blue-spotted salamander is a small to medium-sized (up to 5 inches) striking salamander with a dark body covered in bright blue flecks. The “pure”, diploid blue-spotted salamander is an endangered species in Connecticut. It occurs east of the Connecticut River where it remains isolated from the Jefferson salamander. The “complex” blue-spotted salamander that has hybridized with the Jefferson salamander is a state species of special concern. Like all salamanders, the blue-spotted salamander is carnivorous, feeding on insects, slugs, worms, and other small invertebrates. When threatened, adult blue-spots will curl and “lash out” with their tail, which is covered in granular glands that secrete a noxious substance.

As is the case for most of Connecticut’s amphibians, protecting the buffer zone surrounding breeding pools is critical to survival. If you encounter a state-listed amphibian (Jefferson, blue-spotted salamander, etc.), please take a clear photo of the animal, note the exact location where you saw it, and submit a sighting report to DEEP’s Natural Diversity Data Base (https://portal.ct.gov/DEEP/Endangered-Species/Contributing-Data).

Another commonly heard amphibian in spring is the spring peeper, a species that typically breeds in open canopy wetlands but will also visit vernal pools. The spring peeper is a very small (1 inch) tree frog that is often tan, brown, or gray in color with lines that form an X-shaped pattern across its back. Unlike the wood frog, the spring peeper has small suction-like toe-tips that allow it to easily climb vegetation (although the frogs are more commonly found on the ground among the leaf litter). Males attract females with their high-pitched, ascending whistle and short trill calls. Just like the wood frog, the spring peeper is capable of partially freezing in order to survive sub-freezing winter temperatures.

Given the peepers’ small size, they are incredibly difficult to see. Your best bet of spotting one in spring is to stand or crouch very still along the edge of a wetland or vernal pool where you hear calling and carefully scan the water’s edge. Peepers often stop calling when they sense the presence of a possible predator, but are likely to resume after patiently waiting for a few minutes.

How can you help Connecticut’s vernal pool amphibians? If you are aware of migration hotspots, urge your town to install amphibian crossing signs or tunnels at locations that overlap roads. If you are fortunate enough to witness a mass amphibian migration in spring, you can help move frogs and salamanders from one side of the road to the other, as long as it is completely safe to do so. This can be done with gloves and small buckets as to not stress the salamanders or be exposed to any secretions. If your property contains vernal pools where amphibians breed, consider habitat management practices you can do around your home to help. Of Pools and People (http://www.vernalpools.me/) is a great place to start. Another great source of information is the Vernal Pool Association (vernalpool.org).

Timberdoodle, wood grouse, bogsucker, Labrador twister, woodhen, night peck, Mr. Big Eyes are other names for the amazing American woodcock. Woodcock are robin-sized members of the shorebird family. They are most closely related to snipe and dowitchers, but have different habitat requirements. Woodcock are birds of the young forest – their upland forest haunts are unique among the shorebirds.

**Description**

Well camouflaged against its leaf litter surroundings, the American woodcock is a bird of the eastern forests. Found from southern Canada south to northern Florida and from the Atlantic Coast west to the Great Plains, the woodcock’s range is widespread. In winter, birds in the north will move south to escape frozen ground. The woodcock’s preferred habitat is young forests with edges and wet thickets, along with wet meadows. It feeds by probing its long, straight bill into soft ground to search for its favorite food, earthworms. The bill tip is sensitive and flexible, allowing the woodcock to find and grab earthworms that are underground.

The most notable physical feature of woodcocks is the position of their eyes, which are set high and far back on the head, giving their vision 100% coverage. The obvious advantage to this is that they can watch for predators while feeding with their head down.

Woodcock have short, rounded wings, a short tail, and short legs. The cryptic plumage is comprised of browns, buffs, black, and gray patterned markings. The underside is buff to rusty orange.

**Behavior**

Taking to the air at dusk in early April, the male woodcock performs his spectacular courtship flight. He will fly up, spiraling to over 200 feet in the air above an open woodland edge or field, where he will vocalize with constant twittering calls of chicka-ree, chicka-ree, cicka-ree. With air rushing through his wingtips making a whistling sound, he will then zig-zag down to an open patch on the ground. There, he will strut and call with a nasal *peent* before taking to the air again to repeat his performance.

Woodcock nests are a shallow depression in the leaf litter on the forest floor. The typical clutch is four eggs. Incubation lasts approximately 21 days. The chicks are precocial, meaning they hatch with downy feathers and are able to leave the nest and feed soon after hatching.

**Conservation and Management**

The woodcock has been the subject of intense management in recent years in attempts to
Fitted with a radio transmitter, this woodcock is part of a Wildlife Division research study which led to the Division’s Woodcock Management Plan. The use of radio telemetry equipment has allowed biologists to examine the habitat use and survival of the American woodcock in Connecticut. This research has guided the Wildlife Division in developing and implementing a Woodcock Management Plan for the state. The goal of this plan is to increase woodcock populations in three focus areas by 50 percent. Increasing current levels of young forest habitat on lands that are under DEEP control and within the focus areas will ensure that woodcock and other young forest dependent species have an adequate habitat base to meet their needs.

The woodcock faces many other threats besides habitat loss. Because they are ground nesters, the birds, their eggs, and young, are all vulnerable to predators, including raccoons, skunks, free-roaming housecats, hawks, and owls. Most of these predators have close associations with humans and development, thus woodcock face a population vulnerability directly connected to development. In many parts of the state, development also brings forest fragmentation – a type of habitat loss that degrades surrounding habitat through the pioneering of development into previously uninterrupted habitat. By opening up forest habitat, fragmentation allows increased predator access into woodcock nesting territories, making woodcock nests and young easier for predators to find.

The woodcock faces many other threats besides habitat loss. Its habitat has been under assault from development, degradation, and marginalization for many years. In Connecticut and the Northeast, young forest habitats have been maturing over the past 100 years due to the absence of active management, farming, and natural events, such as wild fire, resulting in older forests that are not used by woodcocks.

As part of management related to the loss of young forest habitat and the region-wide decline of the American woodcock, the DEEP Wildlife Division has designated three large-scale Woodcock Focus Areas that will concentrate conservation efforts with the goal of recovering or enhancing woodcock populations in Connecticut. Forest cuts have already occurred or are planned to take place in Focus Areas to create young forest habitat that will benefit woodcock, as well as other young forest wildlife species. Once the newly-created young forest habitat becomes established, woodcock will have more available breeding territory within these areas. For more information about Woodcock Focus Areas, see page 22.

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Illegal wildlife trafficking is a well-known worldwide problem, but its effects are also felt in Connecticut. In fact, many of our native species are targeted by illegal collectors. Turtles continue to be the most severely impacted group of species and their populations are particularly vulnerable to this threat. The scale of this problem was outlined in the previous issue of Connecticut Wildlife. Here, we look at what is being done to stop the illegal wildlife trade in Connecticut, focusing once again on our hard-hit turtles.

Halting the illegal collection and trade of wildlife takes collaborations from experts across many diverse disciplines. Policy makers, biologists, law enforcement officials, and others need data on wildlife populations and their natural history. Understanding the causes of population changes requires researchers to conduct long-term monitoring of populations at different spatial scales. For example, a small, isolated population of turtles will suffer more detrimental effects from poaching than a larger, less isolated population.

DEEP Wildlife Division biologists and other researchers continue to study many aspects of turtle populations. In addition to conducting long-term population monitoring, biologists are learning more about population genetics and demographics, including the sex and age classes within existing populations. Understanding these demographics is important for learning how populations might change over time in response to changes in the environment or other threats posed by humans. One way biologists study turtle behavior and movements across the landscape is by attaching radio transmitters to their shells. A radio transmitter emits a signal which biologists can track while in the field, plotting the turtle’s different locations over time. By locating tagged turtles, biologists can also learn about nesting behavior and use that information to make more informed decisions about habitat management.

Biologists share their research with other stakeholders, including conservation law enforcement officials from the U.S. Fish and Wildlife Service and Connecticut’s Environmental Conservation (EnCon) Police. These officers are responsible for investigating potential cases of wildlife trafficking and illegal collection, and to file charges if
To carry out this unique role, conservation law enforcement officers are trained in species identification and handling, and also learn about monitoring techniques and how to spot potential illegal activity specifically related to wildlife. Officers are responsible for confiscating illegally possessed wildlife and must decide what to do with those confiscated animals based on existing laws and current research. Officers also investigate reports from the public about suspicious or illegal activity and poaching. By sharing information and collaborating with biologists, other law enforcement agencies, and the public about cases of illegal trade, officers can help spread awareness aimed at preventing the same issues from occurring in other parts of the country.

Wildlife Division biologists and EnCon Officers maintain working relationships with many other organizations, both within Connecticut and across the country. These collaborations include working with wildlife rehabilitators, veterinarians, zoos, and aquariums, particularly when dealing with confiscated and injured wildlife. Regional working groups help connect experts from across state lines to share information, improve techniques, keep up to date on emerging issues and policy changes, and allow stakeholders to more effectively implement plans to stop the illegal trade of wildlife. While there are many professionals working towards this goal, much of the success at preventing wildlife trafficking rests on the public. Sharing information with the public and providing resources to learn about local wildlife and the threats they face is an important first step.

In the third and final part of this series on wildlife trafficking, we will focus on the ways everyone can help stop the illegal trade of wildlife.
The Good, the Bad, and the Ugly: **Knobfin Sculpin Invade the Pomperaug River**

Written by Michael Humphreys, DEEP Fisheries Division

Connecticut is home to an interesting little fish of which most Connecticut residents are unaware, the Slimy Sculpin (*Cottus cognatus*). This cryptic fish, while common in many of the colder parts of the northern hemisphere, only lives in a handful of cold, clean streams in Connecticut. When the first sculpin was collected from the Pomperaug River Drainage in 2002 in the Weekeepeemee River, it was noteworthy for the DEEP sampling crew. No sculpins had ever previously been sampled from the Pomperaug River drainage, which is a tributary of the Housatonic River in Woodbury, Southbury, and Bethlehem.

During the following 10 years, additional specimens were occasionally collected at the same location. Beginning around 2012, the sculpin population began to dramatically increase in abundance in the Weekeepeemee, and specimens were beginning to turn up at other locations within the drainage. By 2015, the sculpin population had become alarmingly abundant at the original site on the lower Weekeepeemee River, eclipsing all other fish species, and sculpins were common in samples from the main stem of the Pomperaug River, as well as Sprain Brook and Nonewaug River (both tributaries within the Pomperaug drainage).

This population was flourishing and expanding in water temperatures that were significantly warmer than those found in typical Slimy Sculpin streams, and other fish populations, including trout, appeared to be reduced in areas with high sculpin abundance. It was becoming apparent that it was time to take a closer look at this unusual sculpin population. In cooperation with researchers at the University of Connecticut, specimens of sculpins from the Pomperaug drainage were subjected to DNA analysis and, lo and behold, these Slimy Sculpin look-a-likes were determined to be Knobfin Sculpins (*Cottus immaculatus*), a species native to the White River drainage in the southern portion of the Ozark region of Missouri and Arkansas.

Knobfin Sculpins likely arrived accidentally in Connecticut in the early 2000s in one of numerous commercial shipments of live fish from the Ozarks. Non-native species, such as the Knobfin Sculpin, commonly proliferate rapidly in the absence of natural controls present in their native habitats and can significantly alter the natural ecological balance at their new location. During summer 2019, the entire affected area of the Pomperaug drainage was systematically sampled by electrofishing in order to define the current extent of this non-native sculpin infestation (see maps). The DEEP Fisheries Division also checked adjacent drainages for sculpins, and reexamined many of the other known sculpin populations in Connecticut to make sure they were Slimy Sculpins and not Knobfins. As of summer 2019, the only known occurrences of Knobfin Sculpins in Connecticut were in the Pomperaug drainage. However, it is paramount that all Connecticut residents and visitors remain vigilant about preventing this spe-
cies from spreading. Many of our trout streams have what appears to be suitable habitat for Knobfin Sculpins, and once established, there is no reasonable method for eliminating an infestation of this species. It is illegal to collect any sculpins for bait or other purposes in Connecticut, or to release any fish species into the wild without a DEEP Fish Liberation Permit. The DEEP Fisheries Division asks anyone who suspects Knobfin Sculpins are present in a waterbody outside of the Pomperaug drainage to please call 860-424-3474.

**Identification:** The Knobfin Sculpin commonly measures three to four inches. The spiny and soft dorsal fins are widely connected. Pigment in the soft dorsal, caudal, and anal fins is highly marbled. The Knobfin has four pelvic fin rays; the palatine teeth are present and well developed. The mouth is somewhat larger than the Slimy Sculpin. The lips and throat of mature males have varying degrees of blue-green pigment, becoming very pronounced in breeding males.

**Habitat and Habits:** Knobfins have not been found in the smaller Pomperaug tributary brooks, seeming to prefer the habitat in the small main stem rivers. Habitat in these small rivers consists of clear, moderately cool water with gravel and cobble substrate and moderate to fast flows. The fish stay on the bottom, and can be found holding positions in a range of flows, from swift riffles to shallow pools. In prime habitat, they can reach high densities approaching one per square foot.

Anglers on the Pomperaug River have recently been reporting catching these small but voracious predators on hook and line.

For more about the Knobfin Sculpin, watch the DEEP Fisheries Division YouTube video at https://www.youtube.com/watch?v=EldnavEfeWQ&t=187s or visit our website at https://portal.ct.gov/DEEP/Fishing/Freshwater/Freshwater-Fishes-of-Connecticut/Knobfin-Sculpin.
CT Bird Atlas Enters Final Year

Written by Min T. Huang, CT DEEP Wildlife Division; Photography by Paul Fusco

This is the end. Jim Morrison wrote that line in 1967 and it applies to so many things, including the data collection phase of the Connecticut Bird Atlas. We are entering the final formal year of data collection of this fantastic and truly herculean effort! Great progress has been made on both the winter and breeding portions of the Atlas and the Atlas Team cannot thank the army of volunteer birders enough.

A year ago at this time in 2020, we were just starting to learn how to live and function with the COVID-19 virus circulating throughout our society. At the onset of the pandemic and given Governor Lamont’s stay at home edict, it was decided to forego a full survey effort in 2020 and add another breeding season of data collection during 2021. A partial benefit, however, is that we have another year to try and fully complete most of the 601 Atlas survey blocks.

The ultimate goal for the breeding portion of the Atlas is to have 100% completion status for the breeding season across all of the survey blocks in the state. When data collection was stalled for 2020, volunteers were encouraged to be safe while outdoors birding (wear masks, social distance) and concentrate on getting breeding confirmations. Bird watching is an ideal pursuit when practicing social distancing and, despite the pandemic, birders got outdoors to work towards our completion goals. Criteria for block completion are: 1) species list that is at least 80% of the list from the first Atlas; 2) at least 50% of that list consists of confirmed breeding; and 3) at least 20 hours of survey effort. Figure 1 shows the number of blocks that are at various stages of “completion”.

A total of 89 blocks are completed and 210 blocks are over 90% complete. Only 43 blocks are less than 50% complete.
Table 1. Blocks with at least 30 bird species recorded through the 2019 breeding season.

<table>
<thead>
<tr>
<th>Count</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>At most 30 species</td>
<td>139 23</td>
</tr>
<tr>
<td>More than 30 species</td>
<td>462 77</td>
</tr>
</tbody>
</table>

Table 2. Blocks with at least 30 bird species recorded through the 2020 breeding season.

<table>
<thead>
<tr>
<th>Count</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>At most 30 species</td>
<td>26 4</td>
</tr>
<tr>
<td>More than 30 species</td>
<td>575 96</td>
</tr>
</tbody>
</table>

Table 3. Blocks with 16 or more confirmed breeding bird species after the 2019 breeding season.

<table>
<thead>
<tr>
<th>Count</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 16 confirmed</td>
<td>366 61</td>
</tr>
<tr>
<td>At least 10 confirmed</td>
<td>235 39</td>
</tr>
</tbody>
</table>

Table 4. Blocks with 16 or more confirmed breeding bird species after the 2020 breeding season.

<table>
<thead>
<tr>
<th>Count</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 16 confirmed</td>
<td>189 31</td>
</tr>
<tr>
<td>At least 10 confirmed</td>
<td>412 69</td>
</tr>
</tbody>
</table>

Figure 1. Graph showing the number of blocks and their level of “completeness” based on the three criteria being used to designate “completeness” of a block.

Figure 2. Breeding phenology for most bird species indicating the month in which most breeding confirmation behaviors are occurring.

The CT Bird Atlas will inform and guide landscape planning and conservation across the state. Birds are a barometer of overall environmental quality and this project provides data on current bird distribution and habitat use, and serves as a critical comparison to 35 years ago.
Species Lists and Breeding Confirmation

The species lists for most of the blocks are very good. The mean number of species recorded per block is 63, with a range of 0 to 110. The average number of confirmed breeding bird species per block is lower at 25, with a range of 0 to 70. The tables show how much progress was made towards the Atlas goals in 2020.

Although the raw statistics paint a fairly optimistic picture, an example of the need to try and get breeding confirmations is shown by a very common species, the black-capped chickadee. The first breeding Atlas is shown in the left map on page 18, indicating that this species was confirmed in pretty much every block in the state. Although we expect to find and are finding changes in the breeding distribution of species, we would not expect to see a huge change, if any, in a species like the black-capped chickadee.

The relative paucity of confirmations of this very common bird speaks to the need to really focus this final year of survey effort on confirming breeding behavior. The map for the chickadee has a lot of probable records, but not confirmed records. Those probable records are likely confirmations just waiting for the “smoking gun” evidence needed for confirmation. Increasing the number of confirmed breeding species does not mean that more time needs to be spent surveying blocks, but rather time must be focused more efficiently during late June, July, and August. These time periods are when it is easiest to observe breeding behavior. The breeding confirmation of species is obviously more difficult than merely observing a species in a block. Confirming breeding behavior takes a bit more time, but, if done at times that best increase the probability of observing specific behaviors, it can be relatively easy and certainly rewarding!
Figure 2 shows that breeding phenology for most species indicates that the months of July and August may be better times to observe the more conspicuous and easier to detect breeding behavior of FL (fledglings) and NY (nest with young). With a continued emphasis in July and August, volunteers will be able to confirm the highest number of breeding species and bring more blocks to completion.

Certainly, a number of species do not conform to this schematic (raptors, waterfowl, wading birds), but most of our breeding bird species do. Figure 3 shows that during the first two years of breeding season data collection, relative to the early portion of the breeding season, very little effort was spent during the critical July and August time periods.

Another way of looking at the distribution of confirmed breeding is shown in Figures 4 and 5. These figures, along with a quick look at the Connecticut Bird Atlas website (http://www.ctbirdatlas.org/), will help with indicating where information is lacking on confirmed breeding. Species lists and breeding status (possible, probable, confirmed) are shown as a pull down menu on the CT Bird Atlas website for each block. For many of those probable species, it is just a matter of being out at the right time of year to document the most easily observed behaviors and moving those species to the confirmed column. It can be seen that progress was made in 2020 by looking at Figure 6 and noting that the map in Figure 5 is much lighter than in 2019! It appears that the request for more emphasis in the critical period in late June-early August was taken to heart because there was a huge increase in 2020 over the preceding two years.

For this final breeding season, birders participating in the CT Bird Atlas are being asked to concentrate on getting confirmations in those blocks that are not yet completed. For many of these blocks, it will be a matter of confirming species, as the species lists are strong, and the hours spent are well over 20 hours. The latter speaks to the importance of when observations are made. Wishes for happy and safe birding, along with sincere thanks, are extended to all volunteers for the CT Bird Atlas!

Northern goshawks were confirmed in 2020 as a breeding species in Connecticut! A number of previous efforts by the DEEP Wildlife Division in the mid-2010s and by a consulting firm in 2019 failed to confirm this species. The goshawk is secretive, but is well known for its fierce defense of its nest. Those who come too close to the nest usually find out when they are dive-bombed by the nesting hawks.
FROM THE FIELD

Cromwell Bald Eagle Seen at Hanover Pond in Meriden

The bald eagle is well known as the national emblem of the United States of America; however, the bald eagle went from being common in the early 1700s to extremely rare in the lower 48 states by the 1960s. Through legal protections, such as the federal and state Endangered Species Acts and environmental regulations concerning DDT and other similar chemicals, and the work of biologists and volunteers, eagles have made a comeback. In 2020, there were 72 known nesting territories in Connecticut.

One method biologists use to monitor the health of eagle populations is banding. Eagle chicks are banded at five weeks after hatching when they can be more easily handled and their feet are large enough to hold the band. Since 2006, the Wildlife Division has been following the success story of one eagle that was born, raised, and is now a part of a breeding pair in Connecticut. His story starts on May 30, 2006, when he and his two brothers were banded in a nest on the Connecticut River in Cromwell. Each chick was issued a silver band with a unique nine-digit federal number, as well as three different black leg bands etched with 8/X, 8/V, and 8/W. Based on their size in the nest, eagle 8/X was the first to hatch, eagle 8/V was the second, and eagle 8/W was third.

The oldest, eagle 8/X, was reported dead in January 2014 in Clinton, Connecticut, after colliding with a train. The youngest brother, eagle 8/W, was reported alive and well in November 2013 in Cossayuna, New York, and then again in March 2019 in North Hinsdale, New Hampshire. The middle brother, eagle 8/V, has been continuously seen where he was born, in Connecticut. He was first reported alive and well in March 2009 in Meriden and has been seen around the area ever since. Most recently, he and his partner, together since 2011, have been seen around Hanover Pond, which is their primary hunting ground. Together, they defend Hanover Pond as if it were their home, but their nest is on another body of water. Last year, the pair produced one chick and biologists are hoping to see another successful hatch this spring.

Woodcock Stewardship Focus Areas

Woodcock populations have been declining within their range during the last 50 years, primarily due to the loss of young forest habitat on both their breeding and wintering grounds. Woodcock require a variety of different habitats throughout their life cycle. They are not restricted to specific vegetation types, as long as the habitat provides the necessary early successional structure. Wildlife Division biologists began a woodcock habitat use and survival study in 2005. Over the course of this study, it was found that habitat quality and quantity largely governed the survival rates of woodcock in Connecticut. The results of this research allowed the Division to develop and implement a woodcock management plan for the state. The primary goal of this plan is to increase woodcock populations on state land and in woodcock focus areas. These focus areas contain mixed ownership, with either a state forest or wildlife management area (WMA) as their core. Using DEEP controlled properties as the core of these focus areas ensures that the habitat will be managed appropriately and a long-term commitment is made to the management of woodcock and other young forest obligate wildlife species.

Currently, one woodcock demonstration area exists at Roraback WMA in Harwinton, while two others are planned for eastern Connecticut. Woodcock demonstration areas showcase young forest habitat management practices, provide an outdoor classroom for training sessions and workshops, and serve as science areas for monitoring and research. The goal of these demonstration areas is to use woodcock as a model species, creating interest from private landowners to conduct young forest habitat projects on their property. Accomplishing the goals of the woodcock management plan will require assistance from both public and private landowners.

Mid-April - August ...Share the Shore! Respect fenced and posted shorebird and waterbird nesting areas when visiting the Connecticut shoreline. Also, keep dogs and cats off of shoreline beaches to avoid disturbing nesting birds.


2021 Fishing and Hunting Season Dates


The fishing season opened early in 2021 on March 4 due to an Executive Order from Governor Lamont.


Meet the Wildlife Division’s New Habitat Program Biologist Tanner Steeves

In May 2020, Tanner Steeves joined the DEEP Wildlife Division as a new Wildlife Biologist for the Habitat Program. Tanner grew up in northeastern Connecticut. He completed his undergraduate studies at the University of New Hampshire, where he majored in Wildlife Management, and received a Master’s degree in Biodiversity and Conservation Biology from the University of Connecticut with the UConn Ornithology Group. Tanner has a wide variety of field experience in wildlife biology, including several seasonal stints with the Wildlife Division working with the Deer and Habitat Programs, as well as on New England cottontail projects. For the previous five years, Tanner worked for the Rhode Island Department of Environmental Management’s Division of Fish and Wildlife as a Wildlife Biologist for the Habitat Program where he led habitat management projects involving prescribed fire, grassland restoration, coastal adaptation, and forest management. He will use these skills to help the Wildlife Division’s Habitat Program continue to sustain and enhance wildlife habitat on state land throughout Connecticut. Tanner currently lives in the Lower Connecticut River Valley and enjoys skiing, hunting, birding, and exploring the outdoors with his young kids.

The Division’s Habitat Program manages for a diversity of habitats on our system of 109 state-owned wildlife management areas, as well as state forests and other state and private lands. A variety of techniques is used to manage habitat, including forest harvests, mulching and mowing, prescribed burning, invasive plant control, and open marsh water management.
A lone wood frog waits for others to arrive to a vernal pool. Temporary pools of water, known as vernal pools, are essential breeding habitat for a variety of Connecticut’s amphibians.