

November/December 2012

Connecticut Wildlife

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



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Eye on the Wild

On September 22, 2012, the DEEP Bureau of Natural Resources and the Friends of Sessions Woods held another fun-filled and successful Connecticut Hunting & Fishing Appreciation Day at the Sessions Woods Wildlife Management Area and Conservation Education Center in Burlington. More than 1,500 people, mostly families with children, participated in a variety of FREE fishing, hunting, and outdoor activities. (A selection of photographs from the day is featured on page 19 of this issue and also on our Facebook page: www.Facebook.com/CTFishandWildlife.) The purpose of CT Hunting & Fishing Day was two-fold — a way to say thank you to sportsmen and women for their contributions to the conservation of Connecticut's natural resources and also provide an affordable opportunity for families and others to get outdoors and be introduced to fish and wildlife activities. The positive feedback we received from attendees demonstrated that Hunting & Fishing Day is accomplishing its purpose. So mark your calendar for September 28, 2013, and plan to attend next year's event! Stay tuned to our website, especially over the summer (www.ct.gov/deep/HuntFishDay).

This year's celebration of Hunting & Fishing Day was even more important as it coincided with the 75th Anniversary of the Wildlife and Sport Fish Restoration (WSFR) Program. Every issue of Connecticut Wildlife magazine in 2012, including this one, highlighted this monumental program. The WSFR Program and the partnerships it fosters are among the most successful conservation efforts in the nation's rich history of fish and wildlife management. The final article in the series briefly looks at the past, present, and future of the WSFR Program, especially as it applies to Connecticut. When reading this article, it becomes obvious that everyone, not just hunters and anglers, needs to look at the future of fish and wildlife conservation together -- that includes those who feed and watch birds, hikers and users of our state parks, forests and wildlife management areas, wildlife photographers, amateur naturalists, and anyone who cares about our great outdoors. The fish and wildlife in Connecticut belongs to all of us, so it makes sense that state residents participate in conservation as a whole. The responsible conservation of our natural resources benefits everyone, as well as the fish, wildlife, and habitat. But, it takes adequate funding to accomplish this. Therefore, finding creative ways of obtaining more funding for nongame species will likely be a focus in the future. Although financial contributions are important, there are other ways you can help. Read the article starting on page 4 to find out how you can make a difference for Connecticut's fish and wildlife today!

Kathy Herz, Editor

Cover:

Male white-tailed deer grow and shed antlers annually. The antlers begin to grow in April or May. They are soft and covered with a sensitive tissue known as velvet. By fall, the antlers harden; the deer scrape them against saplings to remove the velvet in preparation for the rut. Antlers are used in sparring during the mating season. They are shed from mid-December to late-January. Antler size is determined by age, genetics, and nutritional value of the deer's diet.

Photo courtesy of Paul J. Fusco

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The Federal Aid in Wildlife Restoration Program was initiated by sportsmen and conservationists to provide states with funding for wildlife management and research programs, habitat acquisition, wildlife management area development, and hunter education programs. Connecticut Wildlife contains articles reporting on Wildlife Division projects funded entirely or in part with federal aid monies.



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New Research on CT's Ruffed Grouse Population

Written by Kelly Kubik, DEEP Wildlife Division

Historically, ruffed grouse were documented as a common bird species in Connecticut. Unfortunately, grouse have become less common in the state over the last 25 years as populations have diminished. The ruffed grouse is a unique game bird that is dependent on early successional habitat to complete its life cycle. Grouse require habitat with a mixture of high stem densities and openings within the forest canopy. While a significant part of their decline can be attributed to the lack of suitable habitat in the state, it is possible that other factors are contributing to the decline.

In pre-colonial times, early successional habitat was created when natural events, such as fires and storms, made openings in the forest canopy. During the nineteenth century, the majority of Connecticut's original forests were cleared for agriculture and settlement. As the state became more industrialized and farmland was abandoned, the amount of early successional habitat in the state took an upward trend. Wildlife species that favored young forests, such as ruffed grouse, American woodcock, and New England cottontails, thrived during this period. Currently, these forests have matured past their utility for ruffed grouse and other early successional wildlife species.

As early successional habitat continues to disappear in Connecticut, it is essential that researchers gain more knowledge about the state's grouse population. To facilitate this effort, the DEEP Wildlife Division implemented



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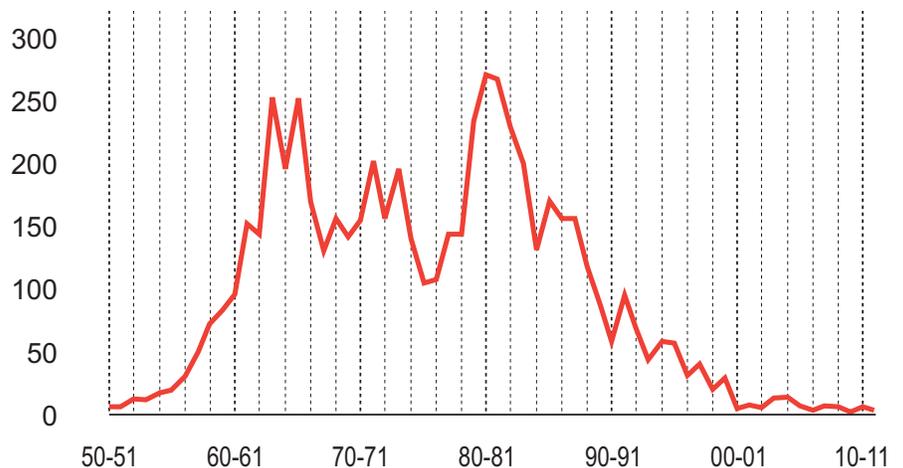
P. J. FUSCO

baseline grouse research in 2005. Surveys were conducted to assess distribution of birds and efforts were made to obtain age and sex composition of harvested grouse. Grouse sighting reports collected by the Wildlife Division indicate that grouse are persisting in low numbers. Observations also demonstrate that the largest concentrations of grouse occur in the northwestern portion in the state.

Critical information about ruffed grouse is still lacking, such as dispersal patterns, habitat use, and survival rates. In response, the Wildlife Division is embarking on a multi-year radio telem-

etry research project to determine and quantify this much needed information. Grouse will be captured in live traps, fitted with radio transmitters, and tracked on a weekly basis. Young birds will be targeted to assess dispersal patterns and survival during this critical period. Over-winter survival also will be assessed because it could be another factor regulating grouse populations. Habitat variables will be measured at each location where a grouse is found as well. The results of this work will be used to guide future management programs for Connecticut's grouse population.

Status of CT's Ruffed Grouse Population*, 1950-2012



* Based on National Audubon Society Christmas Bird Counts

WANTED:

Ruffed Grouse Observations

In an effort to obtain distribution and harvest information, the DEEP Wildlife Division is asking the public for ruffed grouse sightings and grouse parts. Grouse sightings may consist of actual bird observations or drumming activity. This information will assist biologists with determining present day locations of local ruffed grouse populations throughout Connecticut. Individuals are also asked to send in grouse wings and tails from hunter harvested or road-killed birds. These items help biologists determine the age and sex of the birds, which will assist in assessing productivity and harvest composition. To report grouse sightings and/or donate grouse parts, please contact Michael Gregonis at michael.gregonis@ct.gov or call the Franklin Wildlife office at 860-642-7239.

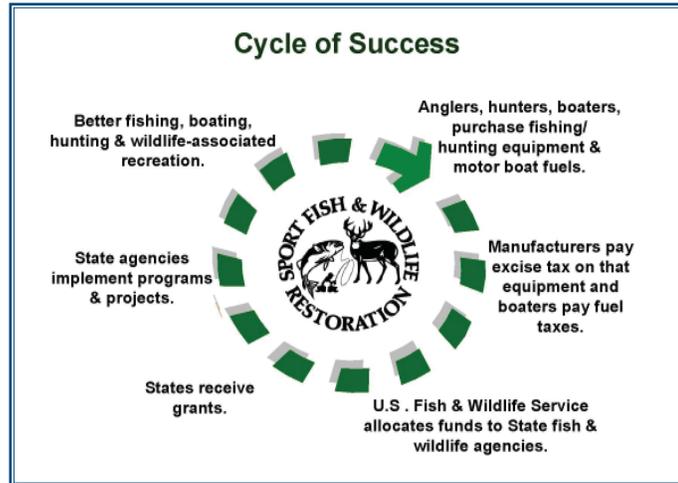
In this day and age, when the subject of taxes sparks great debate, it is difficult to imagine that there was a time in our nation’s history when a coalition of hunters, anglers, and other citizens specifically asked to pay federal taxes for the benefit of wildlife conservation. Their tireless efforts resulted in the establishment of the federal Wildlife and Sport Fish Restoration (WSFR) Program 75 years ago. The WSFR Program has become the most successful federal-state-conservationist-sportsmen partnership in history.

These early conservationists were motivated by a pending natural resource disaster that few even knew was happening. By the mid-1800s, while our country was busy becoming the richest and most powerful nation in the world, its people were also laying waste to some of its most precious natural resources – fish, wildlife, and their habitats. The condition of our natural resources painted a dismal picture. Vast herds of 100 million bison and 40 million pronghorn had just about vanished across the western plains. An estimated 60 million beavers had been reduced to 100,000. Tens of millions of passenger pigeons, so dense in numbers that it took literally hours for the skies to clear during their migrations, had disappeared forever. Waterfowl populations had plummeted. Swamps had been drained, prime wildlife habitat converted to agriculture, and market shooting

their legislatures. Awakening America to the need for conservation was a painfully slow process. Americans simply did not understand the intricate workings of the natural systems that were being destroyed. There was little knowledge of predator/prey relationships, habitat or range requirements, and the interrelatedness of all living things.

By the early 1900s, a handful of conservation-minded free-thinkers – mainly America’s sportsmen – emerged with the political will and commitment to save our country’s fish and wildlife. In the first half of the 20th century, sportsmen were mainly responsible for conserving our natural resources. That’s because state hunting and fishing license revenue provided the one stable funding source to protect, restore, and manage fish and wildlife resources. With the creation of state fish and game agencies in the early 20th century, fish and wildlife were given a legislative voice – and some funding.

But it was not enough. Underfunded, understaffed, and prone to political interference, fledgling wildlife agencies in Connecticut and other states confronted frustration and failure more than success. The science of fish and wildlife management did not exist at the time, and little money was available to acquire land, pursue fish and wildlife restoration work, or enforce game laws.



The Wildlife Restoration Program is the oldest and most successful wildlife management program in the nation’s history.

Federal Aid in Wildlife Restoration Program

A historic change for the better began when Congress passed the Pittman-Robertson, or P-R, Act (also known as the Federal Aid in Wildlife Restoration Program) in 1937. The law established an 11% excise tax on the sale of sporting firearms, ammunition, and archery equipment, and a 10% excise tax on handguns. These taxes, collected from manufacturers by the federal government, are paid by hunting sportsmen and women and deposited into a special account, the “Federal Aid to Wildlife Restoration Fund,” which is administered by the U.S. Fish and Wildlife Service (USFWS). The funds are apportioned to the states in accordance with a formula based on land area, population, and number of paid hunting license holders of each state. State wildlife agencies determine the specific usage of apportioned funds by submitting project proposals to the USFWS for review and approval. Each project must address and be designed to meet a specific agency need. Once approved, the state agency carries out the work and, upon completion, is reimbursed for up to 75% of approved costs. The agency or cooperating partners must provide a 25% match to the federal aid funding.

Connecticut was one of the first states to capitalize on the opportunity afforded by the Wildlife Restoration Program. When the first excise tax receipts began flowing in 1939, the state

By the Numbers: WSFR Funding in Connecticut

	P-R Program	D-J Program
1st apportionment	\$2,499 (1939)	\$25,749 (1952)
2012 apportionment	\$2,802,447	\$3,497,637
Total up to 2012	\$51,959,075	\$72,964,692
Total WSFR funding for Connecticut = \$124,923,767		
Total acreage purchased with WSFR funds: 7,168 acres		

continued unabated. American and European women wore hats festooned with the feathers of egrets, herons, and 40 varieties of native birds. America was being plucked bare.

The story was similar in Connecticut, where wild turkeys, beavers, black bears, fishers, wolves, and mountain lions had disappeared from the state’s landscape by the mid- to late 1800s. Other wildlife populations had declined drastically, such as white-tailed deer, wood ducks, and various shorebirds and waterbirds, to name a few.

Nevertheless, most Americans at the time were not parading the streets with placards demanding conservation reform from



WSFR Program funding has made it possible for the Wildlife Division to establish a successful white-tailed deer management program.

devoted \$2,700 toward a study of ruffed grouse. From the outset, approved P-R projects included the purchase of land for wildlife restoration purposes; improvement of land for wildlife; research projects directed at solving wildlife restoration problems; technical assistance; and hunter education. With the help of federal aid funding, Connecticut has been able to acquire over 7,000 acres of wildlife habitat, including key wetlands along Long Island Sound and the Connecticut River. Other lands (gifts, state-funded) were used as match for past land purchases. Connecticut's Wildlife Restoration Fund apportionment has continually grown over time, from the 1939 amount of \$2,499 to \$2.8 million in 2012. The total amount that Connecticut has received over the past 75 years from the Wildlife Restoration Program reaches almost \$52 million. This increased funding has allowed the Wildlife Division to enhance management capabilities and increase its staff of professional biologists over the years. Managing populations of select wildlife species has significantly broadened over the past 75 years to include deer, furbearer, and waterfowl programs; monitoring of upland wildlife game species, and wild turkey restoration and management.

Federal Aid in Sport Fish Restoration Program

A companion bill to establish a stable and secure mechanism to fund the restoration of America's fisheries was passed in 1950. The Federal Aid in Sport Fish Restoration Act (also known as the Dingell-Johnson, or D-J, Act) mandated a similar excise tax on fishing rods and related equipment. This reliable funding source has generated more than \$5.4 billion for fisheries research, habitat restoration, recreational boating access, construction of fish hatcheries, and aquatic education. Connecticut's first apportionment in 1952 was \$25,749; by 2012 it climbed to almost \$3.5 million. The total amount the state has received

so far from the Sport Fish Restoration Fund equals almost \$73 million. The first fisheries-related projects that Connecticut undertook with D-J funding were the restoration of the Wood Creek Dam in Norfolk that impounded a 150-acre lake and the acquisition of 66 acres for permanent fishing easements along the Jeremy and Blackledge Rivers (tributaries of the Salmon River).

Who Benefits from the WSFR Program?

The American public benefits from the WSFR Program. Outdoor enthusiasts get more and better places to hunt, fish, and recreate; the industry gets a growing base of hunters, shooters, anglers, boaters, archers, and other recreational users who purchase more supplies and equipment; and state and federal agencies get more funds to meet on-the-ground conservation needs. The general public also benefits from better stewardship of the nation's natural resources. In addition, numerous nongame wildlife species benefit from WSFR-funded land acquisition and habitat management that focus on game species populations.

The historic P-R and D-J Acts were hard-won victories that took years to achieve. Federal excise taxes, combined with revenue from hunting and fishing license sales, are the key to the North American Model of Wildlife Conservation, in which wildlife are owned by all the people. It is a "user-pay, public-benefit" system where the people who use the resources (mainly hunters and anglers) are willing to pay to manage and conserve them for the good of all. Through excise taxes and license revenues,

What's in a Logo?

When you see these logos on outdoor sports equipment, the manufacturer has paid an excise tax on the product.

Proceeds go to support fish and wildlife restoration and enhancement and expanded access to recreational resources.

At a shooting range, hunter education course, or wildlife management area, these logos say Federal Assistance funds are at work.



sportsmen and women have contributed more than \$14 billion to conservation through the WSFR Program, and annually provide more than 80% of the funding for most state fish and wildlife agencies.

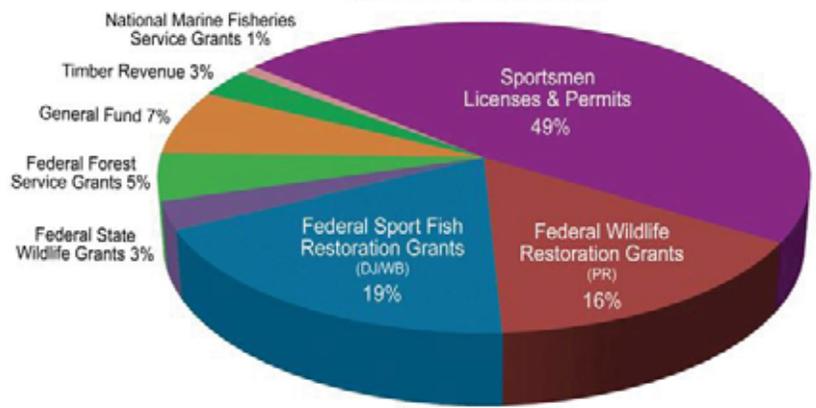
What Does the Future Hold?

Despite the successes of the WSFR Program over the past 75 years, many fish and wildlife species continue to decline. Nongame fish and wildlife species have only been secondary beneficiaries of habitat management efforts and land acquisitions funded by WSFR. More than 95% of fish and wildlife held in public trust by the states are not hunted nor fished, and are left out of the safety net. So, the big question is: Will our country, or even our state, ever adopt a program that uses the model of WSFR to raise money for nongame wildlife?

In 1980, the Forsythe-Chafee Fish and Wildlife Conservation Act of 1980 established a “nongame act” modeled after WSFR, but Congress never appropriated funding. The DEEP Wildlife Division established a Nongame Wildlife Program (now known as the Wildlife Diversity Program) shortly after the Act became law, but adequate funding never materialized. The national Teaming with Wildlife campaign sought an excise tax to support nongame wildlife conservation for more than a decade. This effort prompted Congress to create the Wildlife Conservation and Restoration Program and State Wildlife Grants (SWG) in 2001 which, for the first time, provided matching grants to states for managing species of “greatest conservation need.” The funding was distributed to states with the condition that each state develop a State Wildlife Action Plan. While SWG has provided federal funding for nongame wildlife conservation, it depends on annual appropriations, and the amount of money available has declined in recent years. SWG apportionments to states declined by 35% from \$76 million in 2010 to \$49 million in 2012 (averaging about \$1 million per state per year to manage thousands of nongame species).

As state wildlife agencies continue to face such modern challenges as invasive species, wildlife diseases (for example, white nose syndrome in bats), and continuous loss of habitat to development and degradation, it is becoming more and more difficult for the agencies to maintain current wildlife populations, let alone do more for nongame wildlife. SWG funding has been beneficial, but it is not enough and is too vulnerable to fluctuation in these difficult economic times. Additional dedi-

Bureau of Natural Resources Funding Sources
Approximately \$16,000,000/Year



cated funding will be necessary in the future for supporting the conservation of ALL wildlife. However, establishing a dedicated funding source for nongame wildlife would take a massive effort from a broad spectrum of supporters -- the questions are, will they commit in the same way hunters and anglers did 75 years ago? Will they get the support and momentum they need? It remains to be seen as time goes on.

How to Help Connecticut's Wildlife

In the meantime, there are several things you can do to help wildlife in our state. Buy a hunting and/or fishing license, even if you don't hunt or fish. Purchase a Connecticut Duck Stamp to help conserve our state's wetland habitats. Donate a portion of your state income tax refund to the Connecticut Wildlife/Endangered Species Check-off Fund. Share *Connecticut Wildlife* magazine with family, friends, and neighbors. Regularly visit the Wildlife Division web page (www.ct.gov/deep/wildlife) and Facebook page (www.Facebook.com/CTFishandWildlife) to keep informed about wildlife issues and to find out how you can volunteer. Become involved with local conservation organizations that are cooperators with the DEEP. Take a moment to discover Connecticut's wildlife . . . it could be the beginning of a life-long commitment to fish and wildlife conservation.

Information for portions of this article was provided by the educational campaign for the 75th Anniversary of the Wildlife and Sport Fish Restoration Program.

Forestry on the Farm: Growing Christmas Trees in CT

Written by Kathy Kogut, Executive Director, Connecticut Christmas Tree Growers Association

Thousands of Connecticut families enjoy visiting local Christmas tree farms during the several weeks preceding December 25 to choose a tree, cut it down, load it into or onto their car, and take it home to create a cherished holiday display. Thousands more purchase locally grown, freshly cut trees directly at farms or from local non-profit organizations or commercial vendors. It is almost second nature to think of these activities as time honored traditions but they are really quite recent.

Displaying a fresh, recently-harvested conifer in the home at Christmas time is a century's old tradition for many people around the world. For most of those years, trees were randomly

harvested individually or in large quantities from natural forest settings. A trend toward planting and growing Christmas trees in a more organized fashion began around the mid-20th century worldwide. In North America, tree farming began in earnest, mostly in northern states and Canada, and has spread to many other states since.

Connecticut's earliest tree farms



first appeared in the early to mid-1950s, either on farmland that was coming out of annual crop production, such as dairy silage or vegetables, or on permanently open land, such as pastures. Since then, a number of tree farms have sprung up on once cleared land that had lapsed into early succession forests or even on cleared, established forest land; however, the majority of farms still remain on historic farmland soils. Other growers have also repopulated recently-cut forest settings with Christmas trees.

“Tree farming” can be a misleading term. While farms (or plantations, as many growers call them) are usually planted in rows in an organized manner, with fields divided into sections differentiated by species or age, growers are usually more successful when they follow practices developed for forestry rather than agronomy.

Regardless of the growing environment, Connecticut’s tree farmers, with considerable help from Connecticut Agricultural Experiment Station scientists, DEEP Service Foresters, and University of Connecticut Extension forestry personnel, have encountered and met numerous challenges in the nearly 60 years since those first plantings were made.

The variety of conifer species grown as Christmas trees has expanded over the 50-plus years of earnest production. Initially,

When looking for the perfect Christmas tree for the holidays, consider buying a Connecticut-grown tree from a local Christmas tree farm. Go to www.ctchristmastree.org to find locations of tree farms and get helpful tips on farm visits, tree selection, and tree care.

species native to arboreal forests, such as white spruce, Norway spruce, and Scotch pine along with locally native white pines, were grown. Each species has its own cultural peculiarities, but most of Connecticut’s early tree farms had great success with one or more of them. Since then, species from different regions have been successfully introduced.

First, Douglas fir, a native of the Pacific Northwest, and Colorado blue spruce, a Rocky Mountain native, arrived. Both of these species have been fairly tolerant of Connecticut conditions, but each has difficulties in various settings. In more recent decades, true firs, such as balsam fir a northern New England/Quebec native, Fraser fir from the Smoky Mountain region, and Canaan fir from mountain regions in West Virginia, have become popular. To various extents, the true firs have had the greatest difficulties adjusting to Connecticut conditions. Because these firs have become market favorites in recent years, growers have had to learn to adjust growing conditions, especially soil environments, to better support them and, as it turns out, all of the other popular species, too.

Conifers grown as Christmas trees have all evolved in naturally shady forest settings where shallow, organic soils prevail. Such conditions neither lend themselves to efficient large-scale production strategies nor are they likely to be found in most of Connecticut’s crop production soils. Most of Connecticut’s farmland soils are either stony, less well drained glacial till soils found in most of the upland areas, or the deep, well drained, potentially droughty glacial outwash soils found in the large



K. KOGUT, CONNECTICUT CHRISTMAS TREE GROWERS ASSOCIATION

There are more than 500 Christmas tree farms in Connecticut.

Connecticut River Valley and similar smaller drainage basins throughout the state.

As with all woody plants, even though conifer roots are not necessarily growing actively during winter, they need to stay alive throughout that time and be ready to grow again in spring. Glacial till soils often hold more water during winter, limiting oxygen availability needed for good root health. Similarly, sandy outwash soils may become dry enough to affect root health during some of the driest times of summer. Over time, tree growers and researchers have found that some of the basic strategies employed in sustainable forestry programs have helped.

- *Rather than keep bare soil environments around trees, growers have learned to mulch newly planted trees with decomposed organic materials, such as aged wood chips or other bulky composts. This helps to not only create a habitat more similar to forest floors, thus maintaining cooler soil and root environments during the summer months, but also to improve drainage and avoid flooded soil conditions.*
- *To further this practice, growers have learned to plant non-competitive grasses or forbs between trees within rows and often in strips between rows. This simulates a forest floor environment that protects young roots. Alternatively, some growers allow native understory species to self-establish, affording a similar environment for healthy tree growth.*
- *Growers have learned to use minimal or no-till strategies rather than traditional plowing methods when establishing fields and take similar approaches when replacing harvested trees. This brings a tree plantation as close as it can be to a true forest environment by keeping the soil and forest floor environment stable.*
- *Growers now use pest management strategies that focus on minimal pesticide use, using the natural enemies that can occupy the forest floor environment.*

Visit the Connecticut Christmas Tree Growers Association website at www.ctchristmastree.org to learn more about the organization. You also will find locations of Christmas tree farms and helpful tips on farm visits, tree selection, and tree care.

Several members of the Connecticut Christmas Tree Growers Association contributed information for this article.

Secretive Marshbird Monitoring and Rail Nesting Success

Written by Min T. Huang, DEEP Wildlife Division

Among avian communities, marsh birds may be the most vulnerable to large-scale habitat stressors, including invasive vegetation, urban/suburban growth, changes in wetland hydrology/sea level rise, and/or other factors resulting from climate change. Marsh birds have long been recognized as a suite of species for which little is known about abundance, distribution, population trends, habitat relationships, or management

needs. These birds can serve as indicator species for wetland health and have high recreational value to birders. An increasing emphasis on marsh bird conservation and management in the past several years has resulted in important developments in the science of marsh-bird monitoring.

In Connecticut, a number of historic and current projects are assessing the distribution of these sensitive birds and trying to assess some of the critical demographic parameters that govern population dynamics. The Wildlife Division has reported on several past projects that were geared towards assessing distribution of secretive marshbirds. In 2004 and 2005, 47 sites were selected for surveys. Sites were classified as low, moderate, or high probability detection sites, depending on wetland size, known vegetation characteristics, and relative geographic isolation. Callback surveys were then conducted to determine presence/absence of target species at each site. Target species included black rail, clapper rail, king rail, sora, Virginia rail



P. J. FUSCO

Callback surveys include a passive listening period at the beginning of the survey at each survey point.

common moorhen (all in Family Rallidae), American bittern, least bittern, and pied-billed grebe. Target species were detected in high quality habitats. Relative densities of target species indicate that clapper and Virginia rails (0.49 individuals/100 acres of wetland) were the most common rallids. Sora (0.04) were relatively rare, as were pied-billed grebe (0.05). Common moorhen density (0.03 individuals/100 acres of wetland), king rail (0.01), least bittern (0.01), and American bittern (0.02) densities were also low.

The Wildlife Division recently initiated a multi-year project with the University of Connecticut and a number of other partners across the Atlantic Flyway to better identify critical areas for tidal marsh bird conservation, as well as which tidal marshes and species in the Northeast/Mid-Atlantic are the most sensitive to land and seascape change (see article in the May/June 2011 issue of *Connecticut Wildlife*). The second year of data collection for this project was recently completed.

As an additional component of this work, the University of Connecticut, in collaboration with the Wildlife Division, was just awarded a large grant to establish a sentinel monitoring program that will implement a comprehensive plan to monitor climate change impacts on key wildlife and ecosystem resources in Long Island Sound. Monitoring will focus on the estimation of multiple parameters for three priority sentinels: 1) metrics of abundance, distribution, productivity, and phenology for focal bird species that depend on tidal marshes, beaches, and mudflats; 2) documentation of avian community composition, presence of tidal marsh plant indicators, and tree mortality by survey of focal habitats (coastal forests, shrublands, grasslands) in zones where marine transgression is likely; and 3) sampling of areal cover, diversity, species composition, and phenology of dominant saltmarsh plants in conjunction with the bird monitoring, and at sites with past data. This project should lay the foundation for development of long-

term monitoring programs that will enable managers to prioritize and direct conservation actions where they will be most beneficial.

Work is also being conducted to assess nesting success of clapper rails in our coastal marshes. This work began in 2010 and concluded in 2012, although data was not collected in 2011 due to lack of staff. Research efforts were concentrated in six coastal marsh systems. Over the course of the work, researchers were able to find and monitor 10 clapper rail nests, along with 10 Virginia rail nests. Hatching success was 30% for clapper rails and 50% for Virginia rails.

Unlike beach nesting species, such as piping plovers and least terns, clapper rails, it seems, are less prone to losing nests to flooding. Rail nests were found in phragmites or *Spartina alterniflora* clumps, typically within 15 feet of tidal creeks. Most of the failed rail nests were due to predation, not flooding. However, flooding was a factor in nest failure at Roger Tory Peterson Wildlife Area in Old Lyme and Great Harbor Wildlife Management Area in Guilford. As sea levels rise, it is likely that, in the absence of extensive marsh migration, rail nesting success will decline as higher mean tides flood more nests.

More information will be forthcoming on the Wildlife Division's coastal

bird projects in future *Connecticut Wildlife* articles as researchers continue to analyze data and finalize reports.



The cryptic plumage of an American bittern frequently allows this secretive bird to go unnoticed.



Recent research conducted by the DEEP Wildlife Division involved the monitoring of 10 clapper rail nests. The nests had a hatching success rate of 30%.



Providing Housing for Bluebirds One Box at a Time

Written by Geoffrey Krukar, DEEP Wildlife Division, photography by Paul Fusco

If you build it, they will come. Sounds simple, right? This common phrase is often used to describe situations with definite outcomes. Hang up a bird feeder and you get birds. Plant wildflowers and you get bees. Put up a bluebird nest box and you get bluebirds . . . well maybe. Truth be told, it may not be quite as straightforward as “build it and they will come.” Providing a nest box does improve your chances of attracting one of these colorful birds, but other actions like selecting the right location and habitat for the box, reducing predators, and evicting non-native birds, may ultimately be the factors that determine if bluebirds eventually inhabit your yard. Regardless, the key first step is putting up a nest box. But how do you get one?

The two most common ways of acquiring a nest box are to either purchase or build one. Fully constructed boxes

are available from some stores, such as home and garden centers. These boxes may seem appealing to time-pressed individuals or folks with few woodwork-

ing skills, but buyer beware. Many of these commercial boxes are not appropriate for bluebirds. To properly function as a bluebird nest box, it must be large enough (at least 4” x 4” at the base), provide a wide enough opening (1.5 inches in diameter), be accessible for routine nest checks, and made of durable material that will protect young chicks from inclement weather.

A better option is to build a bluebird nest box yourself so you can ensure it meets the correct specifications. The Wildlife Division has been supporting the construction of bluebird nest boxes for over 25 years by distributing rough-cut lumber to organized groups. This annual program has been highly successful in generating tens of thousands of bluebird boxes and helping restore bluebird populations statewide. The timber for this program comes from state forests and the lumber is milled at the state saw mill so it can be provided free-of-charge. Groups interested in participating this year should send an email to Geoffrey.Krukar@ct.gov. Be sure to include the group name, the group leader’s name, a mailing address for an informational packet, and



The Wildlife Division has been supporting the construction of bluebird nest boxes for over 25 years by distributing rough-cut lumber to organized groups. This annual program has been highly successful in generating tens of thousands of bluebird boxes and helping restore bluebird populations statewide.



the number of bundles requested. Each bundle of lumber yields approximately 15-20 boxes when cut up. The large size of each wood bundle has limited the availability of wood to groups only.

However, new for this year, a limited number of bluebird box kits are going to be available for individuals. These kits will be distributed in early 2013 on a first-come, first-serve basis. The dates and locations for pickups have yet

to be determined, but it will likely be on Saturdays at state-owned facilities. Be sure to regularly check the Wildlife Division's website (www.ct.gov/deep/wildlife) and Facebook page (www.Facebook.com/CTFishandWildlife) for more information. Each kit will come with instructions. Participants will need to provide their own hardware for assembling the box.

For those that have access to a lum-

ber supply and would like to build a nest box today, the directions for building two different styles of bluebird boxes can be found in the Eastern Bluebird Fact Sheet (www.ct.gov/dep/lib/dep/wildlife/pdf_files/outreach/fact_sheets/bbird.pdf). The fact sheet also contains information about the best places to locate bluebird boxes and how to go about checking them. Remember, if you build it, they may come.

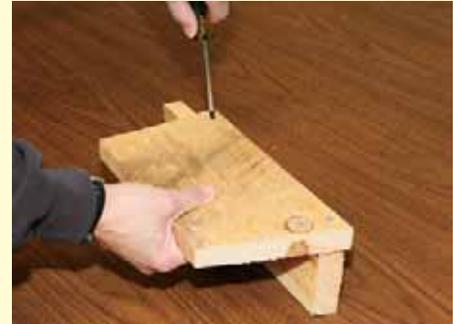
Step-by-step Guide for Building a Bluebird Nest Box



Lay out the pre-cut wooden pieces. See the Wildlife Division's Eastern Bluebird Fact Sheet for cutting dimensions.



Place one of the sides along the back piece. Be sure to leave a small gap at the top.



Attach the side using two screws.



Align the other side using the top piece as a guide to ensure the sides are even.



Attach the second side using two screws.



Insert and attach the floor piece approximately 1/2-inch above the bottom of the sides. Use two screws on each side and one in the back.



Attach the roof piece using at least four screws. Make sure the roof is set far enough back to prevent rain from entering the vent.



Make sure the front piece fits properly between the two sides. Leave a gap near the top of the front piece. Attach the front piece using two screws.



Place the screws near the top of the front piece and directly across from each other so that the front piece can swivel upwards for inspecting the nest.

What Does It Mean to Be a Land Steward?

Article and photography by Paul Fusco, DEEP Wildlife Division

As Connecticut's landscape has gradually changed over the years, we can take a look back at what it once was and where it may be going. Gone are the precolonial days of massive unbroken forest and gone are the settler days of cleared land and widespread farming. Connecticut is now in a transitional stage in more ways than one. The farmland that dominated the landscape in the 1800s and early 1900s has given way to forest succession and maturation, where the land is being reclaimed by forest. Concurrently, development in the form of 21st century progress has gobbled up land at an increasingly fast rate. Roads and suburbanization have cut into areas of the state that were once remote and hard to get to. Every town has its own plan for the future. How do these substantial changes affect the wildlife that call Connecticut home?

The maturing forests are becoming more and more suitable for species that were once extirpated or very rare 100 years ago. That includes such common species as white-tailed deer, wild turkey, and more recently black bear and moose. Deer were once so uncommon that a hunting season was not established until the 1970s. Bears are increasingly becoming problem animals as the population grows while people are attempting to adapt to their presence.

Forest succession has reduced the available habitat for early successional birds, such as golden-winged warbler and American woodcock, both of which have declined precipitously in recent years as breeding birds in Connecticut. The same holds true for our only native rabbit, the New England cottontail.

Forest species are being affected by forest fragmentation, which is a by-product of suburbanization and development. As roads are built and development spreads, formerly large forests are gradually being broken into smaller and smaller pieces, creating fragmentation. This affects many species of forest-dependent wildlife in a negative way. Land turtles, grouse, tanagers, and thrushes all have been impacted. Many species of common birds are in steady, long-term population declines because of habitat loss and degradation due to development.

The DEEP Wildlife Division's Sessions Woods Conservation Education Center in Burlington was established in large part to educate Connecticut residents, especially landowners, about the principals and techniques of wildlife and habitat management.



Many wildlife species are threatened by forest fragmentation, including the two species of land turtles found in Connecticut, the wood turtle and eastern box turtle (above).

With these trends in land changes continuing into the future, it becomes even more important for private landowners and municipalities to be aware of land stewardship responsibilities and consequences for the state's habitat and wildlife. What does it mean to be a responsible land steward?

By definition, land stewardship is an ethic that incorporates responsible planning and management of land resources. With regard to habitat and wildlife, a land steward takes on the responsibility of continuing conservation to benefit both habitat and wildlife resources by making conservation-minded decisions to protect the resource.

The bottom line is that being a land steward is a personal decision for a landowner. It is up to each individual to be the kind of land steward that he or she is comfortable with being. Land stewards are not limited to being large property owners – even those with small backyards can affect the habitat on their property and in the surrounding area. Some people have dedicated and managed their entire property to benefit songbirds, while others have made decisions to provide a more mixed benefit that includes wildlife management and habitat conservation.

The biggest threat facing Connecticut's wildlife species is the loss of habitat. As more land is lost to development or degradation, there are less places where wildlife can live.



With forest being the dominant habitat type in Connecticut, many of our forest dwelling species, including the black and white warbler, are not only strongly represented in the state, but are dependant on Connecticut's forest habitat to maintain their populations.

With over 90% of Connecticut land in private ownership, the importance of responsible private land stewardship cannot be overemphasized. It is critical for the conservation and survival of wildlife and quality habitat in our state.

In the case of municipal and state lands, responsible land stewardship yields wildlife and habitat conservation for native species, economic boosts for local communities, and opportunities for the public to enjoy our natural heritage in the outdoors. Stewardship of these public lands is important because many of the properties are intact large blocks of habitat. Such large blocks are rare in private ownership in Connecticut. Many of these properties are found in relatively close proximity to residential areas, making the land easily accessible for public recreation.

Not to be forgotten is the stewardship of coastal habitat. With only a tiny proportion of Connecticut's shoreline protected as public land, the state relies on private landowners to be responsible stewards of coastal habitat, which is critical for healthy coastal ecosystems, fisheries, migratory birds, and some endangered species. Public coastal lands, particularly, should stress proper habitat management and conservation as part of routine operations.

In the end, it is up to all of us – private landowners, public land trustees, and outdoor land users – to be mindful of the responsibility for land stewardship and, with it, wildlife and habitat conservation. In a world with continuing habitat loss, conservation and land stewardship are becoming increasingly important. We are all today's stewards of tomorrow's natural resources.



Shoreline Stewardship for Migrants

Protecting habitat for migratory birds and other wildlife is one of the main goals of the Wildlife Division. In Connecticut, coastal habitats are probably the most critical areas for the conservation of migratory birds. In general, birds tend to congregate in greater numbers at coastal areas than at inland locations. Waterfowl and shorebirds are not the only birds that build their numbers along the coast — so do songbirds and raptors. Connecticut's geography tends to naturally concentrate migrating birds along the shoreline, especially in fall and winter. The protection of Connecticut's coastal habitats, large and small, is imperative to migratory bird conservation. But it doesn't end there. Not only is it important to protect habitats along the coast and close to the coast, but land stewards can play an important role in protecting smaller thickets and weedy fields further inland, as well.

Above: Many forest breeding birds migrate along and close to the Connecticut shoreline, making habitat in those areas invaluable to migrating birds, including this orange-crowned warbler.

Bowfin in Connecticut: A Nuisance or an Opportunity?

Article by Eileen O'Donnell and photos by Robert Jacobs, DEEP Inland Fisheries Division

Increasingly, anglers are reporting catching a strange-looking fish in the Connecticut River. The elongate snake-like body has a single long dorsal fin, no spines, an asymmetrical tail, tube-like nostrils, a large mouth with many sharp teeth, and a bony plate on the bottom of its lower jaw. Is this a living fossil? Not knowing what they are, many anglers mistake them for the infamous northern snakehead that has received much media coverage over the past few years. However, these fish are actually bowfin



Adult male bowfin have a dark spot with a light-colored halo at the base of the tail (top). This spot fades in females (bottom).

(*Amia clava*). The bowfin is an ancient species of fish that has remained largely unchanged since the Mesozoic era, and it is the only remaining species belonging to the family Amiidae. It is an interesting fish in that it can actually gulp air at the surface using a specialized swim bladder, thus enabling it to survive in waters with low oxygen. Bowfin are native to North America, ranging throughout most of the eastern United States from the Mississippi River drainage to the St. Lawrence River drainage in the north and from central Texas to Florida in the south. They are not native to the Atlantic coastal states north of Virginia (see range map); however, they have been introduced into some lakes and rivers from Massachusetts to New Jersey. Bowfin were illegally introduced in Connecticut into a private pond in Wolcott in 1976. Although this population was eradicated the following year, bowfins were caught in gill nets in Scoville Reservoir (Wolcott) in 1980, and a single specimen in Chapman's Pond, a cove of the Connecticut River (East Haddam) in 1987.

Bowfin prefer shallow, weedy lakes and slow-moving rivers. Spawning occurs in early spring when water tem-

peratures reach 60-66 F. Males guard the nest and young until they reach about four inches in length. Like many species that offer parental care, male bowfin are aggressive during this time and, consequently, are easier to catch on hook and line. Bowfin grow quickly, reaching 16 inches in about two years. Reports of catching 25- to 30-inch fish from the Connecticut River are becoming more and more common.

Starting around 2005, the numbers of bowfin in the Connecticut River began to steadily increase. Currently, bowfin seem to be common throughout the Connecticut River in most backwater coves and ponds, from Massachusetts to as far south

as East Haddam. Bowfin individuals captured in 2011 by DEEP Inland Fisheries Division electrofishing crews ranged from 10 to 25 inches, indicating that bowfin were reproducing and surviving, and creating several generations in the river.

It is unclear why this population has expanded over the past 10 years, especially after remaining at low numbers for

Native range of bowfin (green) with recent introductions (red).





Young bowfin have a dark reticulated pattern on their sides and a dark spot with a light-colored halo at the base of the tail.

the previous 15 years. It is possible that conditions in the river have changed to favor the bowfin. For instance, the water in the river is much clearer now than in the past, which has helped to increase the extent and quantity of aquatic vegetation in the river. The increase in vegetation could be adding more suitable habitat for bowfin. Additionally, there has been an increase in the frequency and height of spring flooding events, which may have resulted in improved or increased spawning areas for bowfin.

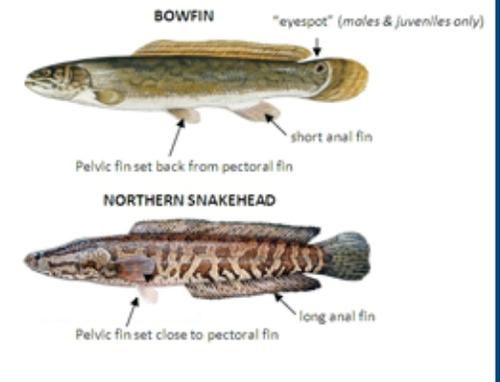
Historically throughout its native range, the bowfin has been considered an inferior game fish, “trash” species, or “rough” species. Originally, anglers felt that bowfin were “voracious top predators” that would either feed on and/or out-compete the more popular game fishes, like largemouth bass, smallmouth bass, and walleye, and thus

harm recreational angling. Recent studies on the food habits of bowfin have shown their diet to consist of primarily small fishes and crayfish; these data have exonerated them to some extent. Given a river system with abundant forage, like the Connecticut River, the presence of bowfin should not significantly impact other game fish populations.

Anglers’ attitudes about bowfin may be changing. Throughout the country, many anglers are coming to appreciate the aggressive nature of the bowfin and are considering it a “worthy” sport fish. In fact, Connecticut River anglers are now regularly targeting bowfin with reports that they put up an excellent fight and are fun to catch.

So, are bowfin in Connecticut “a nuisance or an opportunity to diversify

Differences between bowfin and snakehead



angling?” The jury is still out. There were no anglers specifically targeting bowfin in the Connecticut River during the 2008-2009 angler survey. However, as Connecticut anglers become more familiar with this resource, they may find that they enjoy fishing for bowfin and begin to actively target this species. The Inland Fisheries Division will continue to monitor bowfin in the river to assess any impacts caused by this fish, as well as consider a suggestion to modify the current regulations which list bowfin as a “prohibited species,” making possession of live bowfin illegal.

To learn more about bowfin, visit www.bowfinanglers.com. This website contains fishing tips, recipes, scientific information, and much more.

How to Fish and Prepare Bowfin

Fishing techniques for bowfin are similar to largemouth bass.

- Seek out areas with shallow water containing weeds, rocks, and/or downed trees.
- Use spinnerbaits, crankbaits, plastic worms, live-bait, or cut-bait. Bowfin use scent to find prey, so cut-bait will usually work better than artificial lures.
- At least 10-pound test line with a wire leader is suggested because of the bowfin’s numerous sharp teeth.
- Fishing is best in early morning and late evening during the open water season. Bowfin are readily caught through ice in winter.
- Bowfin flesh is good to eat, if cooked properly. Unlike most fish, the meat is dense, not flakey.
- The bowfin is one of only three species of North American fish (including paddlefish and sturgeon) whose eggs can be used to produce caviar.

Squid: One of Long Island Sound's Stealth Species

Written by Penny Howell, DEEP Marine Fisheries Division

Most people are unaware that one of the most common species swimming in Long Island Sound is the long-finned squid. Squid are a major component of the Sound's forage base, especially for popular sport fish such as striped bass and bluefish. Anglers know squid as preferred bait for these game fish. Squid are also harvested commercially, showing up on our dinner plates most often as calamari. The Sound is an important nursery and feeding ground for squid. It provides protected waters where squid can flourish spring through fall before moving out to the continental shelf to overwinter.

Although movies have been made about frightening giant squid found in deep ocean waters, the Sound's long-finned squid rarely exceed 19 inches (50 cm) in length. More visible than adult squid are squid eggs, which sometimes wash up on local beaches. Squid lay their eggs in gelatinous finger-like strands, often attached together in large masses and given the old fashioned name of "sea mops." The squid's apparent primitive reproduction and simple rocket shape belie a very advanced anatomy and behavioral repertoire. It swims by muscular jet propulsion and often escapes by jetti-



Squid are often captured in the DEEP Long Island Sound Trawl Survey (LISTS), along with sand eels and other important forage species. The squid's large eye is one of its many advanced organs.

soning a cloud of black "ink" – moves that would make well-equipped international spies proud.

The squid's speed can be attributed to a giant nerve axon that can reach up to a quarter the length of its body. Decades ago, marine biologists, most prominently working at the Marine Biological Laboratory at Woods Hole, Massachusetts, realized that this giant nerve cell was perfect for research into how nervous systems work. Because nerve functions are similar in all animals, the nerve transmitting mechanisms studied in squid have been applied to deciphering basic biological functions such as vision and hearing, as well as human medical issues like degenerative nerve diseases.

Evolutionarily, the squid's large nerve is an ingenious survival tool. Lightning quick nerves are essential for this soft-bodied, shell-less creature to hunt and avoid predation. Its nerve cells can send extremely fast and accurate messages to the "chromatophores" covering its skin; these cells light up and give the squid its famous iridescent appearance, as well as enable it to change colors quickly so it can match its surroundings in minutes. Although it is rarely seen by anglers or swimmers in its natural habitat, the long-finned squid is just one of the many species that make up the extraordinary diversity of Long Island Sound's marine community.



Long-finned squid caught in the Long Island Sound Trawl Survey rarely exceed 12 inches (30 cm) in length, not including its long tentacles used to capture prey.

CT DEEP MARINE FISHERIES DIVISION (2)

Coastal Sand Dunes

Written by Tyler Mahard and Laura Saucier, DEEP Wildlife Division

Background

Connecticut's coastal dunes may appear to be simple mounds of sand with drab vegetation, dwarfed by the spectacular dunes of Cape Cod. Most beachgoers probably do not give these small eminences much thought as they clamber over them on their way to the waterfront. However, upon closer investigation, one would find Connecticut's dunes to be dynamic geological entities of great importance that support complex ecosystems involving fascinating diversities of life. These environments can only be found on the landward sides of sandy beaches, which make up less than 20% of the state's coastline. This scarcity of habitat is reflected by the scarcity of flora and fauna that specialize in living or breeding in these areas.

As an additional consequence, most of the state's urban coastal communities are deprived of the benefits offered by natural shorelines. Dunes and associated salt marshes act as ocean buffers, protecting homes from storm surges and coastal flooding. As a bonus, these places have great aesthetic and wildlife value under natural conditions and can encourage tourism while increasing the overall appeal of a coastal town.

Natural dune systems make for beautiful landscapes. Large expanses of beach grass sway in unison with gusts of ocean wind. Flowering seaside goldenrod, beach plum, bayberry, sedges, and red cedar create attractive scenery with a natural and rugged feel. Seabeach sandwort, a rare plant that visually brings to mind a wild coastal version of pachysandra, can also be found on dunes; it is currently listed as a species of special concern in Connecticut. Elegant shorebirds and wading birds, such as great and snowy egrets, piping plovers, and American oystercatchers, can be seen on surrounding beaches or foraging in wetlands, while eastern cottontails will browse directly on the dunes near areas of thick vegetation. As the sun begins to go down, these birds and small mammals attract the occasional fox, raccoon, opossum, or coyote.

In late spring, diamondback terrapins use dunes and sandy upland areas bordering salt marshes for digging nests and laying eggs. These turtles are unique in that they live in brackish, estuarine environments and are the only turtles in North America to exclusively do so. The sand dune nesting sites for terrapins must be above the high tide line so that buried eggs are not uncovered and washed away. Dunes are also necessary for protecting the salt marshes where the turtles live from erosion by oceanic processes. Diamondback terrapin populations are threatened by the loss of nesting habitat (dunes), road mortality, collection as a food item, and high nest predation rates. Conservation of dune



Pristine dune ecosystems are rare in modern Connecticut. Dunes and associated salt marshes act as ocean buffers, providing protection from storm surges and coastal flooding. These places have great aesthetic and wildlife value under natural conditions and can encourage tourism.

habitat helps terrapin populations by providing critical breeding and nesting areas.

State threatened piping plovers and least terns do not typically lay their eggs directly on sand dunes, but nest instead in the flat or gently sloped area in front of the dunes, also referred to as the "foredune." Dune grass and sparse vegetation are readily used by the chicks of these species to hide from predators and escape the heat during the hottest part of the day.

Building a Dune

Pristine dune ecosystems are rare in modern Connecticut. To preserve or manage these ecosystems, it is important to first understand the basic geomorphological processes that are responsible for their creation and destruction. Natural coastal landscapes are constantly altered by the forces of wind and water. In the case of dune formation, the process begins with water. Waves sloshing up on the beaches deposit sand from the bottom of Long Island Sound. On-shore wind currents and storms then push that sand further inland to the upper beach where it can be colonized by dune-building vegetation, such as American beach grass. The spreading rhizomes and grasping roots of this plant hold sand in place, while the shoots slow down wind, further minimizing erosion. The reduction in air velocity also causes wind-entrained sand particles from the lower beach to be dropped. As more sand is collected, the beach grass continues to grow and spread, creating a dune-expanding system. Eventually, larger shrubs, and even small trees, may take root, making for a well-stabilized mound of sand.

Human Impacts on Dunes and Beaches

When beachgoers tread on dunes and disrupt the growth of vegetation, the dune system falls to the mercy of the wind. For example, at Long Beach in Stratford, the upper dunes are bisected by footpaths stemming from a large established walkway. This barrier beach stretches nearly two miles, protecting the town's largest salt marsh and the airport built on top of it from erosion by the wind and waters of Long Island Sound. However, constant use of footpaths through the dunes suppresses the growth of plants and their binding roots, allowing for increased wind erosion. The established walkway prevents vegetation growth on top of the dune, inviting human activity which disturbs wildlife that would otherwise take refuge in the surrounding vegetation.

As Connecticut's shoreline has become increasingly urbanized, coastal wildlife species have experienced a drastic reduction in the amount of available habitat. Current aerial photographs of Connecticut's coast show few remaining natural and wild areas. Dune habitats have been completely removed in many areas along our coast. Houses have been built directly on top of what used to be dune habitat, in many cases less than 50 feet from the water's edge. This lack of space allows little room for natural systems to function. The channelization of our rivers minimizes inland erosion, depriving ocean-bound waters of sediments needed to replenish beaches after wind and sea erosion. Numerous dams trap much of the earthen materials contained by rivers. As a temporary solution to this interruption of sediment recycling, "groins" have been constructed to keep beaches from eroding. Groins are jetties of piled boulders that jut out from the coastline to trap sand on the side where the longshore current drifts into. However, erosion is usually worsened on the opposite side of the groin. To combat this, the structures are often constructed in a series. This engineering feat has allowed for the development of high density residential areas directly on the waterfront, encouraging intensive human use of the entire coastline. Bluff Point Coastal Reserve in Groton, east of the mouth of the Thames River and north of Fisher's Island, is one of the few places in Connecticut where the shore is devoid of human settlement and engineering. This reserve

boasts one of the most diverse communities of coastal birds in the state, including species of songbirds, shorebirds, seabirds, wading birds, marsh birds, and birds of prey.

Sea Level Rise and Future Outlook

Between 1964 and 2006, the National Oceanographic and Atmospheric Administration (NOAA) measured sea level rise at a rate of approximately nine inches per 100 years in New London and at about 10 inches per 100 years in Bridgeport. Most qualified sources indicate that the sea level is continuing to rise. Satellite imagery from the National Aeronautics and Space Administration (NASA) and current studies by NOAA provide indisputable evidence that Arctic land ice has been continuously melting since the third quarter of the last century. The Intergovernmental Panel on Climate Change (IPCC) indicates in the IPCC Fourth Assessment Report that the global average temperature will continue to rise. This contributes to melting land ice that runs into the sea, as well as thermal expansion of ocean waters. The end result is an increased volume of ocean water and higher average sea levels. You can see how this would affect coastal towns by looking at an interactive map of sea level rise models at http://cteco.uconn.edu/help/ctcoasthaz_data.htm.

In light of rising sea levels and considering recent storm destruction to coastal areas, communities constructed on top of sand dunes and other natural coastal systems, rather than slightly inland, may experience more flooding and destructive events. Dunes are capable of blocking large storm surges, while wetlands are able to accommodate great influxes of water by spreading them over vast areas. Nature offers far better defenses against storm tides than most levees and residential fortifications. Connecticut's coastline presents a complicated situation, with many landowners and competing interest groups. It is a highly modified environment where natural ecosystems are struggling to persist and residents are at high risk of property damage from weather events. By reclaiming space for dunes and saltmarshes and allowing the geological processes that form them to happen, shorelines can revert back to the beautiful and protective entities they once were.

P. J. FUSCO (2)



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Sand Dunes and Superstorm Sandy

The *Coastal Sand Dunes* profile was selected for this issue long before Superstorm Sandy hit the state at the end of October. Because of that storm and Tropical Storm Irene in 2011, the role of sand dunes and restored salt marshes in protecting the coastline from tidal surges and storm damage has been brought to the forefront. DEEP biologists and local conservation organizations are concerned about the potential impacts of storm damage on critical shorebird nesting areas. Impacts are currently being assessed, although much may not be apparent until spring when piping plovers, least terns, and American oystercatchers return to our shoreline to establish nesting territories. The tidal surge from Sandy caused significant overwashing of sand dunes at several nesting areas. Some of these areas have experienced major erosion and are lower than before, leaving them vulnerable to flooding during high tides and subsequent storms. Overwashing in other areas actually created new dunes and scoured the vegetation, providing suitable nesting habitat that didn't exist before.

The Audubon Alliance for Coastal Waterbirds posted a series of photographs on its Facebook page depicting changes to several key shorebird nesting areas. According to the group's assessment, dunes were overwashed with sand and scoured of vegetation at Sandy Point and Morse Point in West Haven, Long Beach in Stratford, and Pleasure Beach in Bridgeport. These conditions should make great tern and plover habitat next season. Because of Storm Sandy, Griswold Point in Old Lyme is now "Griswold Island." The marshes at Great Island have become even more vulnerable to erosion from tides and surf. The full impact on nesting habitat for plovers, terns, and oystercatchers has not yet been assessed. The sand dunes at Bluff Point State Park in Groton have undergone some extreme changes, and it currently is difficult to determine what the new elevations are and how the area will fare during any future storms.



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Recap: 2012 CT Hunting & Fishing Appreciation Day



The Friends of Sessions Woods, a major sponsor of CT Hunting & Fishing Appreciation Day, provided information and sold bluebird nest boxes (as a fundraiser) that were constructed and donated by Master Wildlife Conservationist Rick Vanderslice.

DEEP Wildlife Division biologist and Conservation Education/Firearms Safety Instructor Mike Gregonis assists a participant at the .22 shooting range.

Lorrie Schumacher of Talons! A Birds of Prey Experience shows off a Eurasian eagle owl during a live raptor presentation.

DEEP Wildlife Division biologist Paul Rego shows interested children how a bear trap works.

DEEP Seasonal Resource Assistant Melissa Ruszczuk demonstrates how to shoot a tranquilizer gun. Biologists shoot darts from this type of gun to immobilize wildlife for research or capture.

Kids enjoyed making crafts, like fish prints, wildlife magnets, paint a rock or butterfly, and wildlife tracks. The craft tent was staffed by Lyman Hall High School student volunteers, Wildlife Division staff, and Master Wildlife Conservationists.

DEEP Commissioner Dan Esty poses with Foxy the Fox (played by student volunteer Emily Herz). Foxy also had her picture taken with many happy kids who attended Hunting & Fishing Day.

Several volunteer Conservation Education/Firearms Safety instructors helped participants try their hand at the archery range.

More photographs from the 2012 CT Hunting & Fishing Day are featured on our Facebook page at www.Facebook.com/CTFishandWildlife.

Photos by Paul J. Fusco





www.facebook.com/CTFishandWildlife

P. J. FUSCO (3)

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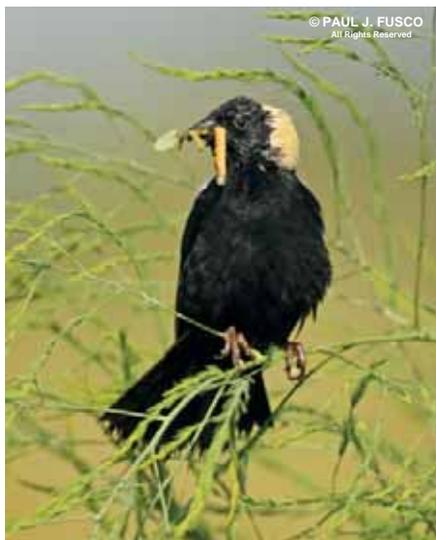
Grassland Bird Surveys

The DEEP Wildlife Division continued to monitor grassland bird populations at select sites across the state. Grasslands that support breeding populations of the upland sandpiper, horned lark, eastern meadowlark, and grasshopper sparrow are rare in Connecticut. These bird species are dubbed “area sensitive” because they only successfully breed in areas of expansive habitat. The rarity of large grasslands and subsequent rarity of these species is why they are included on Connecticut’s List of Endangered, Threatened and Special Concern Species. Annual surveys are conducted to determine if these birds are indeed successfully breeding and hatching young. Juveniles of all but the eastern meadowlark were observed this past field season. The Division is fortunate to have enthusiastic volunteers who conduct surveys and submit their results for other sizeable grassland sites. We would like to extend a big thank you to our dedicated volunteers for their efforts!

Laura Saucier, DEEP Wildlife Division



Upland sandpiper
Grasshopper sparrow (top)



Bobolink

Bureau of Natural Resources Staff Notes

The Wildlife Division’s Wetlands Habitat and Mosquito Management (WHAMM) Program recently welcomed two Maintainers to the Housatonic River Phragmites Project. Stephen Chowanec and Adam Hendrick, both long-time seasonal employees with the WHAMM Program, are familiar with the specialized equipment used to restore and enhance wetland and marsh habitat. They also have experience in diagnosing problems in the field, as well as performing maintenance on the equipment.

The Inland Fisheries Division recently welcomed Mike Beauchene to the Connecticut Aquatic Resources Education (CARE) Program. Before assuming his new responsibilities, Mike served a long tenure with the DEEP’s Bureau of Water Protection and Land Re-use. Mike also has assumed a new assignment as Contributing Editor from the Inland Fisheries Division for *Connecticut Wildlife* magazine. We welcome Mike to his new position and look forward to his contributions to the magazine.

Art Contest for 2014 Duck Stamp Image

Artists are invited to enter an original piece of artwork that depicts a waterfowl species (duck, goose, or brant) that occurs in Connecticut in a contest to select the image for the 2014 Connecticut Duck Stamp. Paintings that include a Connecticut scene or landmark in the background are preferred. The contest is open to all artists, regardless of residence, age, or experience. Artwork may be in any full-color medium, including acrylic, oil, colored pencil, and watercolor. Entries will be judged on originality, artistic composition, anatomical accuracy, general rendering, and suitability for reproduction. Contest entries must be received in person or postmarked on or before March 15, 2013, to be eligible. Visit the DEEP website to obtain the full contest rules, judging criteria, and where to submit entries (www.ct.gov/deep/CTDuckStamp).

Chimney Swift Update

Thanks to the generosity and hospitality of several Connecticut chimney swiftlords, DEEP Wildlife Division staff had the opportunity to peek into a number of nesting chimneys this year. Unfortunately, from these observations, as well as reports from homeowners, nesting success for chimney swifts was significantly lower in 2012 than it was last year. From 22 nest reports received by early September, 50% reported nest failure. An additional 18% reported that the swifts never returned to their nest chimney. The majority of nest failures (73%) appeared to be some sort of abandonment of chicks or eggs. One quarter of the swiftlords that had abandoned nests also had interesting observations of adult swifts that somewhat implied that other adult competition may have played a role in nest failure.

This year's nesting results are very poor compared to last year when 68% of reported nests were apparently successful. It also was noticed that numbers at the roosts during the prime breeding season seemed higher than last year, which also would imply that birds were not breeding successfully. More analysis needs to be done to determine why results from this year were so different. Division staff will look at differences in weather and potentially differences in what the swifts might have been eating to see if either of these factors might have affected nesting success this year.

More information about the Division's chimney swift efforts is available on the DEEP website (www.ct.gov/deep/wildlife), such as how to find roosts and monitor nests, as well as a color brochure on chimney swifts.

The Wildlife Division would like to thank all of the chimney swift volunteers and swiftlords for their efforts this past nesting season!



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P. J. FUSCO / MOUNT VERNON SONGBIRD SANCTUARY

New Osprey Pole/Platform Installed by United Illuminating

An osprey nest built on a utility pole in Milford last summer made the news several times over the nesting season. In early May, there was public concern that the nest would be removed from the pole. However, United Illuminating (UI) decided not to remove the nest, but instead placed a sleeve around it to provide protection. Unfortunately in late July, shortly before the young ospreys were due to fledge, the line was hit by lightning and the nest and chicks were lost.

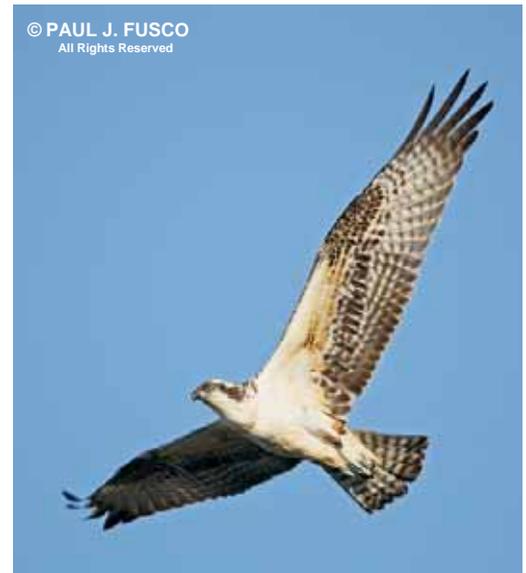
Osprey nests on utility poles have been presenting challenges for both UI and Connecticut Light & Power in some of their service areas. The large, stick nests can cause fires and power outages. But, nest removal also presents its own set of problems. Nest removal, especially when eggs or young are in the nest, usually sparks a large public outcry. Ospreys are protected by both state and federal laws and, as a general rule, a native migratory bird nest containing unhatched eggs cannot be moved unless it presents a potential danger to human health and safety. However, under certain circumstances, nests may be moved, and only if the proper permits are obtained from the DEEP. Nests that are heavily entwined with their surroundings are more likely to be damaged during removal. Any effort to relocate or remove an osprey nest is a coordinated effort between the utility company and either the DEEP or the U.S. Fish and Wildlife Service.

Knowing that ospreys typically return to the same nesting area each year, UI took the initiative this past September to install a new pole and osprey nesting platform at the corner of Anderson Avenue and Quirk Road in Milford, across the street from the utility pole where the nest was destroyed. DEEP would like to thank United Illuminating, Milford officials, and osprey volunteer and Master Wildlife Conservationist Carol Dunn who worked with the agency on this project to provide a safer nest site for the osprey pair next nesting season.



UI installed a pole and osprey nesting platform in Milford, across the street from the utility pole where an osprey nest was destroyed by lightning last year.

PHOTOS BY UNITED ILLUMINATING (above), P.J. FUSCO (OSPREY)



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Waterfowl Hunter Water Survival Tips

Why do some waterfowl hunters lose their lives by drowning? Drownings occur because the victim made the wrong decision; did not realize the dangers of boating in rough, cold water; was not properly prepared; had the wrong equipment; or failed to wear a life jacket, also known as a personal flotation device (PFD).

Small boats are extremely unstable. Often, the victim of a small boat accident didn't realize just how unstable his craft was. Add to this, cold, rough water and the chances for survival for the sportsman fallen overboard are slim. Cold water kills – even those in excellent condition who know how to swim.

Four main causes of water deaths are:

- **Hypothermia** – the rapid loss of body heat in cold water.
- **“Dry” drowning** – constriction of the throat and the resulting suffocation due to a sudden inrush of cold water.
- **“Wet” drowning** – the displacement of air in the lungs by water.
- **Massive heart attack** in older, out-of-shape, non-swimmers in cold water.

Most boating fatalities are the result of capsizing or falls overboard and they usually occur in small, open boats on small inland bodies of water. A little knowledge, a good lookout, and common sense and courtesy could prevent many accidents. Approximately 90% of the fatalities are the result of drowning. The vast majority of those who die in boating accidents were not wearing a PFD. Most accidents are a sudden, unexpected occurrence. Victims have little, if any, warning ahead of time to prepare. A PFD could save a person's life, but it will be of little use if it is not worn and does not fit properly. Connecticut boating law states that anyone on board a manually propelled craft between October 1 and May 31, must be wearing a life jacket at all times. The life jacket must be a Type I, II, III, or V-Hybrid. The DEEP recommends that anyone on cold waters wear a life jacket.

Capsizing and Falls Overboard

In a small boat, the weight of the passengers is greater than the weight of the boat. Therefore, movements of passengers have great effects on boat stability. Do not exceed the boat's capacity. Load the boat evenly fore and aft and side to side, keeping

the weight low. An overloaded or overpowered boat is less stable and more likely to capsize. Should the boat capsize, grab a PFD if you are not wearing one (although you should be!). Do not try to swim to shore; instead, stay with the boat until help arrives. The shore is usually farther away than it looks and most boats have flotation. It is easier for rescuers to spot an overturned boat in the water than a swimmer. Only leave the safety of the boat as a last resort and after carefully assessing the situation.

Do not stand up in a small boat. This is dangerous, making a fall overboard more likely. If you need to change position in the boat, hold on to both sides and keep your weight low.

As a side note, it is important that before you venture out on the water, you inform someone where you are going and file a float plan. You never know when an accident might happen.

Hypothermia

Hypothermia is a condition in which the body loses heat faster than it can produce it. This causes a dangerous reduction of the body's inner temperature. Hypothermia results from exposure to wind and wetness. A victim of hypothermia will start to shiver violently. This may give way to muscle spasms and even loss of the use of arms and legs. Confusion and “drunken” behavior also indicate that a person may be hypothermic.

To protect yourself from hypothermia, avoid the conditions that cause it. Dress warmly and stay dry. Wear a hat. Put on rain gear before it rains and wear a wool jacket. Wool traps body heat even when wet. There also has been significant advances in clothing

technology. Consult a retail store, local club, or organization for the latest clothing options. Know the effects of wind with cold weather. It may be 40 degrees F outside with the sun shining, but a 10 mph wind lowers the windchill temperature to 28 degrees F.

How long can one survive in cold water? Survival in cold water depends on many factors. Temperature of the water is only one. Others include a person's body size and condition, and activity in the water, to name a few. When a person falls into cold water, there are ways to increase the chances of survival. Do not discard clothing as it helps to trap the body's heat, and do not move around unnecessarily. By swimming or treading water, a person will cool about 35% faster than when remaining still. An “average” person, wearing light clothing and a PFD, may survive two-and-a-half to three hours in 50 degrees F water by remaining still. This survival time can be increased considerably by getting as far out of the water as possible and covering the head. Getting into or onto the boat or anything else that floats can be a real lifesaver.

Consumption of alcohol affects the many reflexes of the human body, one of which is keeping the core body temperature warm in cold weather. The decreased core body temperature brought on by intoxication could lead to hypothermia. Alcohol intensifies the disorientation that a person experiences. When a person who has been drinking is immersed in water the chances of drowning become higher.

Boating Education

Those who operate boats in Connecticut that are required to be registered, documented,

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Conservation Calendar

Jan. 13 **Seal Search Walk at Hammonasset Beach State Park**, starting at 2:00 PM. Come stroll the beautiful trails of Hammonasset Beach State Park in Madison and see if you can spot some seals sunning offshore. A guided walk for all skill levels. Meet at Meigs Point Nature Center. No dogs please! Contact Ranger Russ Miller for more information (rangermpnc@gmail.com).

Feb. 19 **Bald Eagles of Connecticut at Kellogg Environmental Center in Derby**, starting at 7:00 PM. The recovery of the bald eagle is a wildlife success story in our state and across the country. Laura Saucier, with the DEEP Wildlife Division, will present a program about the bald eagle's status in the state, its life history, and its population decline and recovery. This program is sponsored by DEEP and the Naugatuck Valley Audubon Society. A donation of \$4/adult and \$2/ student is suggested. For more information, contact Donna Kingston, of Kellogg Environmental Center, at 203-734-2513. Kellogg Environmental Center is located at 500 Hawthorne Avenue, Derby.

Programs at the Sessions Woods Conservation Education Center

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

Dec. 15 **Meet & Greet Reception**, from 2:00 to 4:00 PM. Visit Sessions Woods for an open house to meet photographer and Master Wildlife Conservationist Gary Melnysyn and view his award-winning photography. Gary is an avid outdoor enthusiast and has been interested in wildlife from a very young age. A self-taught photographer, Gary's travels have taken him from the far reaches of Alaska, across the Canadian tundra, through the wilderness of Montana and Wyoming, southwest to the shores of the Sea of Cortez, through the Great Divide, and into the deep woods of Maine. Gary's passion for photography, combined with his wildlife background, results in stunning, wildlife images. If you like bears, birds, and breath-taking scenes, you won't want to miss this unique opportunity.

Shepaug Bald Eagle Observation Area to Open on December 29

The Shepaug Bald Eagle Observation Area, in Southbury, opens for its 28th season on December 29, 2012. The Observation Area is run by FirstLight Power Resources, a GDF SUEZ Energy North America company, which owns and operates several hydroelectric facilities along the Housatonic River. Observation times are Wednesdays, Saturdays, and Sundays between 9:00 AM and 1:00 PM from Wednesday, December 29, 2012, through mid-March 2013. Although admission is free-of-charge, advance reservations are required and will be taken beginning Tuesday, December 7. To make reservations for individuals, families, and groups, call toll-free at 1-800-368-8954 between 9:00 AM and 3:00 PM on Tuesdays through Fridays.

The Shepaug Observation Area is one of the top eagle viewing locations in New England. It is a popular spot for eagles in winter when the turbulence below the dam keep the water from freezing, and the fish below the dam provide a ready food source. Specialists will be on site with high-powered telescopes to help visitors see the eagles in action and to answer questions. Visitors are encouraged to dress warmly because the Observation Area is unheated, and to bring binoculars, if possible, given the limited number of on-site telescopes.

Water Survival Tips

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or numbered, must obtain a Safe Boating Certificate. In order to meet the requirements for a certificate, an individual must have successfully completed an approved basic boating course or received a passing grade on an equivalency examination administered by

the DEEP. To find out what boating education courses are available near you, go to the DEEP website at www.ct.gov/deep/boating or call the DEEP Boating Division at 860-434-8638. To obtain a copy of the *Connecticut Boater's Guide*, you may also go to the DEEP's website or call the Boating Division. The Guide is a handbook of boating laws and regulations, registration information, and guidelines for

safe boat operation.

For those who operate canoes and kayaks, it is recommended that you take canoe and kayak safety classes offered by the DEEP Boating Division. These classes are designed for beginning paddlers, whether or not they have taken other DEEP boating courses. The classes are voluntary, and are about two hours long.

Connecticut Wildlife



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P. J. FUSCO



Migrant flocks of canvasbacks begin to appear in Connecticut in late November, increasing in numbers through December into early January. Canvasbacks are mostly found in the brackish waters and marshes at the mouths of tidal rivers in Connecticut. They also use large freshwater reservoirs and sheltered inlets on the coast.