

Wildlife Resources

Introduction

The following discussion provides a brief overview of the major wildlife habitats found in Cornwall as classified and described in the Wildlife Division's Connecticut's Comprehensive Wildlife Conservation Strategy (2005), state lands and their management missions and general management recommendations to conserve wildlife habitat. The information is meant to provide a cursory overview of the habitat resources of the Town and does not represent a comprehensive assessment. It is highly recommended that if the Town desires a more in-depth comprehensive assessment that addresses wildlife management on private lands, a more in depth description of various habitat types and their associated use by wildlife and their status and location in town, that they hire the services of a well-qualified consulting biologist who could spend the time necessary to perform such an evaluation.

Wildlife Habitat

Wildlife habitat is said to be the complex of vegetative and physical characteristics that provide for all the requirements of wildlife, that is food, shelter, resting, nesting and escape cover, water and space. Generally, the greater the habitat diversity and degree of interspersion of various habitat types, the greater the variety of wildlife there will be using an area. Conversely, while there may be fewer wildlife species, large unbroken expanses of one habitat type provide important habitat for many species of wildlife including species that avoid edges. For instance, some species of migratory birds can only successfully nest in forest interiors well away from edges, where predation from a host of species and nest parasitism by the brown-headed cowbird tends to be higher. Some specialized species need large expanses of grasslands or brushy shrublands. Still others require thicket or edge type habitats which are found where the borders of fields are no longer mowed and the vegetation gradually transitions into mature forest or where stonewalls have been allowed to over grow into a tangle of shrubs, vines and small trees.

There are many factors to consider when determining habitat use and quality of an area for different species, including habitat types, size of habitat types and their quality, overall size of the study area, location, degree of isolation, diversity, and juxtaposition with other neighboring habitat types, etc. Generally, areas with a diversity of habitats can support a higher diversity of species, but patches of a single type of habitat can be very important habitat if they are of high quality, or very large, or contain a natural imperiled community or a unique habitat component, or perhaps are the only significant habitat remaining in a highly developed area. In general larger areas of habitat are much more valuable to wildlife because they can provide for the requirements of more species and a greater number of individuals of a particular species. They can also support species with large home ranges, while simultaneously accommodating those with smaller home.

Major Wildlife Habitat Types in Cornwall

The town of Cornwall lies in Litchfield County in Connecticut which remains fairly rural and is only lightly to moderately developed when compared too much of the rest of the state, which is highly developed, especially in the central and coastal regions.

Connecticut is the 29th most populated state in the country and the third smallest. The town of Cornwall is still largely unspoiled and not impacted by development and is characterized by large tracts of forestland interspersed with active and reverting farmland along with various types of wetlands including red maple swamps, shrub wetlands, herbaceous wetlands, forested wetlands, beaver flowages, wet meadows, vernal pools, brooks, streams, rivers, lakes and ponds. Because Cornwall provides extensive blocks of high quality forests interspersed with a diversity of other high quality habitats in a lightly developed setting, it provides excellent wildlife habitat. The habitat exists primarily in large blocks, making it highly desirable to wildlife, especially those with large territory needs.

The Housatonic River is a major waterway and forms the western boundary with the town of Sharon. The river provides an important travel corridor for wildlife, but is especially important to migrating birds during the spring, when they feed on the flush of insects produced in the aquatic and riparian habitat associated with the river. The river also provides important habitat for various invertebrates, fish, reptiles, amphibians and mammals on a year round and seasonal basis. This large river and its associated habitat along with the other diverse quality habitats in town combine to make Cornwall critically important in providing excellent wildlife habitat in the Northwest corner of Connecticut. Conserving as much wildlife habitat in the town as possible will help ensure that the town continues to provide for large expanses of habitat for a wide variety of Connecticut's wildlife from bears to butterflies. The value of the habitat in town is augmented by its location within the northwest corner of Litchfield County, where it is surrounded by other undeveloped diverse wildlife habitat of good to excellent quality in the region.

General Descriptions of Wildlife Habitat

Under Connecticut's Comprehensive Wildlife Conservation Strategy (2005) habitats are classified into 12 major types. Of these, at least 9 occur in Cornwall. They include the following; Upland Forest, Upland Woodland and Shrub, Upland Herbaceous, Forested Inland Wetland, Shrub Inland Wetland, Herbaceous Inland Wetland, Sparsely Vegetated Inland Wetland, Freshwater Aquatic and Intensively Managed. The following is an overview and description of each type according to Connecticut's Comprehensive Wildlife Conservation Strategy (CWCS), Chapter 4. "Threats" to the various habitat types were also directly taken from Chapter 4 of the CWCS. (The plan is available on the DEP web site at

(<http://dep.state.ct.us/burnatr/wildlife/geninfo/fedaid/cwcs/home.htm>). Many specific references about habitat types and locations of important sub-habitats or imperiled communities come directly from Chapter 4.

Upland Forest:

Deciduous trees and evergreen or coniferous trees characterize this habitat, or mixed evergreen-deciduous trees with overlapping crowns forming between 60-100% canopy cover. This key habitat classification includes four sub-habitats identified as important to wildlife; two of these sub-habitats are found in Cornwall: Coniferous Forest, and Old Growth Forest.

Upland Forest habitat is the predominant (60%) vegetation in Connecticut and is currently dominated by mature trees in the 80-100 year old class. Hardwood forests make up about 80% of Connecticut's forests with oak/hickory accounting for 51% and northern hardwoods for 29%. Cornwall contains both, but mixed hardwoods dominate. Connecticut's forests are approximately 69% saw timber, 25% poletimber and only 6% seedling sapling. Connecticut's forests lack age stand and structural diversity that are beneficial to wildlife diversity. With the exception of some state forestlands that are more actively managed for forest and wildlife, most of Cornwall's forests are dominated by mature stands of trees lacking age class diversity, mirroring the condition of the rest of the state's forests.

Very good examples of upland forest (hardwood, evergreen and mixed hardwood/evergreen) can be found in Cornwall on state forestlands, some private lands, and in neighboring towns. Forested areas provide extremely valuable wildlife habitat for hundreds of species, especially large tracts of forests in generally good condition like those in town. Forests provide cover, food, nesting places, denning sites and roosting areas. Trees provide a variety of food in the form of nuts, berries, catkins, buds and browse. Trees, both living and dead (often called snag trees) serve as a home to a variety of insects, which in turn are eaten by many species of birds like woodpeckers, warblers and nuthatches. Trees with holes, dens or cavities provide nest sites and cover for species such as raccoon, mice, wood duck, fisher, barred owl, flying squirrel and chickadee to name just a few.

In addition to serving as habitat for a wide variety of well known birds and mammals, upland forest also serves as habitat for less visible and often overlooked reptile and amphibian species. For example, the common redback salamander spends its entire life cycle in upland terrestrial habitats in deciduous or coniferous forests or in openings under cover very close to forests patches. It breeds and deposits eggs beneath logs, under stones, inside rotten logs, and spends its adulthood under leaf litter.

Many other species of salamanders require temporary or vernal pools for breeding and then return to the surrounding forest to spend the balance of their time. That's why the connections between wetlands and vernal pools with upland forests are so important. Forests are also home to a wide variety of invertebrates including moths, butterflies, beetles, borers, flies and a host of others.

There are several examples of Old Growth Forest in Cornwall, although they are small and considered in ecologically poor condition by ecologists. They are however, the best

examples the state has of very old, large stands of trees that have had limited human disturbance. They include Gold's Pines Natural Area Preserve within Housatonic State Forest and the Ballyhack Preserve owned by The Nature Conservancy.

Coniferous or evergreen forests supply important sources of food from cones for small mammals and birds and provide cover for many species of wildlife to nest in, escape to and find shelter from bad weather. Conifer cover can be especially important during the winter, since temperatures tend to be slightly higher due to reduced wind speeds and finding food can sometimes be easier since snow depths are often less.

Cornwall provides some exceptional forest habitat due to the size of the forest blocks (greater than 500 acres), the fact that so much of it is protected and the town is still relatively undeveloped. The forested areas are made even more valuable because they are in close proximity to so much other undeveloped and protected forestland.

Threats to this habitat type statewide include:

- *Degradation of habitat from over-browsing by deer.*
- *Degradation of habitats by non-native invasive species*
- *Loss, degradation or fragmentation of habitats from development or changes in land use.*
- *Loss of very large forest blocks (e.g. 2000+ acres) with unbroken canopy structure*

Upland Woodland and Shrub:

Upland Woodland and Shrub habitats are characterized by open forests where tree crowns usually do not touch (between 25% -60% canopy cover). These woodlands are dominated by evergreen and/or deciduous trees with a variety of shrubs, herbs and non-vascular plants in the understory and ground cover. This key habitat classification includes three sub-habitats determined to be important to wildlife, one of which is likely found in the town, Red Cedar Glades. The overall status and distribution of Upland Woodlands and Shrub habitats in Connecticut is not well known at this time. Good examples of Red Cedar Glades can be found in the neighboring towns of Salisbury, Sharon, Kent and Canaan, but many of these have been impacted by limestone quarry activities.

These more open Upland Woodlands and Shrub habitats that are characterized by shrubs, scattered trees and lush growth of ground and mid story vegetation are generally favored by species that favor early successional or young forest and shrub habitat. These wildlife species generally favor high structural diversity and can often use thickets and edges in conjunction with these more open woodland/shrublands.

Examples of species that would use this type of habitat include New England cottontail, red bat, meadow jumping mouse, woodland vole, brown thrasher, chestnut-sided warbler, blue-spotted salamander, and wood frog along with various invertebrates such as the

phantom crane fly and eastern comma. The extent and location of these habitats in town are not well documented.

Threats to this habitat type statewide include:

- *Degradation of habitat from over-browsing by deer.*
- *Degradation of habitats by non-native species*
- *Loss, degradation or fragmentation of habitats from development or changes in land use.*
- *Lack of fire needed to maintain certain habitats.*
- *Loss of early successional habitats through natural selection.*

Upland Herbaceous:

Upland herbaceous habitats are characterized by herbaceous plants such as grasses, herbs and ferns that form 25% or more of the ground cover. Areas with scattered trees, shrubs and dwarf-shrubs are included as long as they provide less than 25% cover. This key habitat classification includes four sub-habitats important to wildlife, only one of which probably occurs in Cornwall: Grassy glades and balds found on top of hills such as Mine Mountain. All upland herbaceous habitats are scarce and declining in Connecticut. The best examples in the immediate area occur on Canaan Mountain, and Pond Mountain Natural Area (Pond Mountain Trust) in Kent.

While there are unique plants and invertebrates found in these habitats, the birds, reptiles, amphibians, and mammals found there would generally be those species using the forested areas surrounding these ridge tops.

Threats to this habitat type statewide include:

- *Degradation of habitats by non-native invasive species*
- *Loss, degradation or fragmentation of habitats from development or changes in land use.*
- *Impacts from human disturbance*
- *Lack of fire to maintain certain habitats*
- *Loss of early successional habitat through natural selection*

Forested Inland Wetland:

Forested inland wetland habitats are characterized by wetland soils and dominated by evergreen or deciduous trees with crowns forming 60-100% cover. Connecticut has about 100,000 acres of Forested Inland Wetlands, with red maple forests being the most common. This broad key habitat classification includes four sub-habitats determined to be important to wildlife, only one of which is noted to occur in Cornwall.

The only occurrence of a viable Black Spruce Swamp community in Connecticut is found at Mohawk Mountain Black Spruce Bog Natural Preserve in Mohawk State Forest, in Cornwall. This area is dominated by dense tree and shrub growth including black spruce, mountain holly, sheep laurel, and high bush blueberry.

Forested inland wetlands generally provide extremely important habitat because they bring water and high plant and structural diversity together in one place for wildlife to take advantage of. Standing trees, living, dying and dead, provide nest sites, food, and cover. Abundant insects, invertebrates, fish and small mammals provide prey for a wide variety of predators, such as hawks, owls, weasel, mink, fox, coyote, bobcat, and wading birds. Permanently flooded areas provide breeding sites and abundant food. Many species utilize these wetland sites including the big and little brown bat, black bear, hairy-tailed mole, black duck, woodcock, green heron, black-billed cuckoo, least flycatcher, Northern saw-whet owl, northern waterthrush, blue-spotted salamander, and the spotted turtle.

Threats to this habitat type statewide include:

- ***Degradation of habitats by non-native invasive species and wildlife***
- ***Loss, degradation or fragmentation of habitats from development or changes in land use***
- ***Loss of wetland habitat from historic filling, dredging, and ditching.***
- ***Loss of habitat value due to hydrologic impacts from development, new roads, impervious surfaces and culverts.***

Shrub Inland Wetland:

Shrub inland wetlands are dominated by wetland soils and woody vegetation greater than 1.5 feet and less than 20 feet in height, arranged individually or clumped. The shrub layer generally forms more than 25% of the canopy cover, with whatever trees are present forming less than 25% of the canopy. This habitat includes shrub thickets, bogs, seeps and fens. Shrub thickets are variable in composition and include red maple sapling swamps, willow and alder thickets and high bush blueberry/swamp azalea swamps. Bogs and fens are natural peatlands that occur in topographic basins influenced by ground water. Spring fens are characterized by saturated wetland soils that receive groundwater discharge throughout the year. Of these, bogs and fens are most imperiled and these very special habitats are considered important to wildlife. There are several imperiled plants associated exclusively with these habitats. Mohawk Mountain Black Spruce Swamp is a good example of a bog. While bogs, fens, and seeps are found throughout Connecticut, they are not abundant. Other than the Black Spruce Bog at Mohawk, not much is known about the status and/or location of fens and seeps in Cornwall.

While not abundant, shrub swamps are located throughout Cornwall on private and state owned lands, in wetland areas that were formerly cleared for agriculture and sporadically pastured, areas too wet to support tree growth and areas recovering from beaver activity. Shrub wetlands are important because of the diverse plant growth, high structural diversity and abundant cover, food and nesting sites they supply. The presence of water on a year round or seasonal basis also makes these areas highly desirable for wildlife. Often shrub wetlands can be associated with herbaceous wetlands, forested wetlands or sparsely vegetated wetlands dominated by shallow open water. Species using these habitats include the northern water shrew, New England cottontail, alder flycatcher,

woodcock, Northern waterthrush, willow flycatcher, blue-spotted salamander, eastern box turtle, Eastern ribbon snake, wood turtle, and bog copper, along with many others.

Threats to this habitat type statewide include:

- *Degradation of habitats by non-native invasive species and wildlife*
- *Loss, degradation or fragmentation of habitats from development or changes in land use.*
- *Loss of wetland habitat from historic filling, dredging and ditching.*
- *Loss of habitat value due to hydrologic impacts from development, new roads, impervious surfaces, and culverts.*
- *Nutrient input from surrounding development and beaver impoundments*

Herbaceous Inland Wetland:

Herbaceous Inland Wetland habitat is dominated by an herbaceous layer of grasses, forbs and ferns and includes less than 25% of scattered tree, shrub and dwarf-shrub cover. This key habitat classification includes two sub-habitats determined to be important to wildlife: Calcareous Spring Fens and Freshwater Marshes. The condition of Herbaceous Inland Wetland habitats is poor and declining in Connecticut and the extent and condition of these habitats in Cornwall is not specifically known.

Threats to his habitat type statewide include:

- *Degradation of habitats by non-native invasive species and wildlife*
- *Loss, degradation or fragmentation of habitats from development or changes in land use.*
- *Loss of wetland habitat from historic filling, dredging, and ditching*
- *Degradation of habitats by non-native invasive species and wildlife*
- *Loss of habitat value due to hydrologic impacts from development, new roads, impervious surfaces and culverts.*
- *Loss of early successional habitats through natural selection*

Sparsely Vegetated Inland Wetland:

The Sparsely Vegetated Inland Wetland habitat is characterized by open water or open mineral substrates with scattered if any, plants. This key habitat includes two aquatic communities determined to be important to wildlife: Surface Springs and Vernal Pools. While many vernal pools and springs no doubt exist on both state and private lands in Cornwall, the extent and condition of these habitats in Cornwall is largely unknown.

Threats to this habitat type statewide include:

- *Loss, degradation or fragmentation of habitats from development or changes in land use.*
- *Loss of habitat value due to hydrologic impacts from development, new roads, impervious surfaces and culverts.*
- *Degradation of habitats by non-native invasive species and wildlife*

- *Impacts from development to upland migration corridors associated with vernal pools.*
- *Impacts from development in upland buffers.*
- *Degradation of habitats by non-native invasive species.*

Freshwater Aquatic:

Freshwater Aquatic habitats in Connecticut encompass a variety of bodies of water including large rivers, streams, lakes and ponds. These include both vegetated shorelines and non-vegetated habitats. The vegetative may be either emergent or submerged. There are 15,000 miles of rivers and streams and 6,000 lakes and ponds in Connecticut. This key habitat classification includes six sub-habitats determined to be important to wildlife, five of which occur in Cornwall: Large Rivers and Streams and their associated riparian zones, Unrestricted free-flowing streams, Cold water streams, Head-of-Tide, and Lakes and their Shorelines.

Cornwall, like the rest of Connecticut, contains a wide variety of freshwater aquatic habitats. The Housatonic River is an outstanding example of a large river system and provides habitat for a variety of wildlife species including the crayfish, green frog, snapping turtle, muskrat, otter, mink, beaver, common merganser, Canada geese, black duck, mallard, and great blue heron, to name just a few.

Threats to this habitat type include:

- *Loss, degradation or fragmentation of habitats from development or changes in land use.*
- *Degradation of habitats by non-native invasive species and wildlife.*
- *Degradation, alteration and loss of habitat due to stream channel modifications, channelization, filling, dredging, development, and vegetation control and shoreline modification.*
- *Fragmentation of populations and loss of access to upstream and spawning habitat due to impediments to fish movements, such as dams, barriers, culverts and tide gates.*
- *Impacts of water diversions that reduce stream flows, resulting in fish mortality, loss of habitat and interference with migration.*
- *Impacts of point and non-point source pollution.*
- *Loss of habitat value due to hydrologic impacts from development, new roads, impervious surfaces and culverts.*
- *Impacts to and loss of riparian habitat for wildlife corridors and insufficient buffer requirements to protect streams.*
- *Instream flow alterations and increasing temperatures caused by consumptive withdrawals of surface or ground water and wetland loss.*
- *Impacts to fish habitats due to ineffective or insufficient land use regulations among towns.*
- *Loss of coldwater habitat due to decreased groundwater input or increased warming (e.g. filling of wetlands, impoundments, removal of riparian vegetation).*

- *Impacts to coldwater habitats from beaver dams that result in ponding and warming, fragmentation of habitat and increased sedimentation and nutrient loading.*

Intensively Managed:

Intensively managed habitats have various vegetative cover and hydrology. Their common characteristic is the need for substantial human maintenance through activities such as clearing, grazing, burning or mowing. Without this maintenance, they would succeed or naturally grow into young and then mature forest. This successional process however, often favors invasive species. This key habitat includes three sub-habitats determined to be important to wildlife and available in Cornwall: Early Successional Shrublands and Forests, Cool Season Grasslands, and Wet Meadows. Many different types of these managed habitats are found in town and provide extremely important habitat to a wide variety of wildlife, many of which were mentioned in the descriptions about early successional habitats previously (i.e. Open Woodlands and Shrublands, Upland Herbaceous).

Early successional shrublands and forest generally include shrubs less than 0.5m tall with individuals or clumps overlapping but not touching. This forms less than 25% canopy coverage. Tree cover also is less than 25%. Early Successional Forest stands contain trees less than 4.9 inches dbh (diameter at breast height) and are generally dominated by regenerating stands of late seral (stage) species (i.e. oaks, maples, etc). Early Successional Shrublands and Forests may be either seasonally flooded or non-flooded. (Shrub dominated wetlands were described previously and would provide habitat for a different assemblage of species than upland early successional communities, although there may be some overlaps with certain species).

This Intensively Managed habitat is comprised of shrubs, such as alder and dogwood species, as well as seedling to young sapling forest stands. Early Successional Shrublands and Forests generally occur when mature forest canopy is disrupted, allowing sunlight to reach the ground, which promotes the growth of herbaceous and woody vegetation. The tornado that touched down in Cornwall in the late 1980's and forestry clear cutting or regeneration cutting are examples of the type of disturbance required to create this habitat. These habitats are distributed statewide and throughout Cornwall and include abandoned fields, power-line-rights-of-ways, abandoned beaver flowages, and areas where timber harvesting activities or other management activities are creating and maintaining this habitat.

Cool Season Grasslands include hayfields and other managed grasslands consisting primarily of naturalized European species, such as timothy, orchard grass, red clover, and red fescue as well as a mix of other herbaceous plants and flowers. Cool Season Grasslands require active management to remain open and grassy. Most are maintained through active agriculture, pasturing of animals or periodic brush mowing.

Wet Meadows include a variety of temporarily flooded grasslands. Wet meadows are typically created in grass dominated areas where water seasonally pools or floods, or where the water table is close to the surface. Periodic mowing, haying or sometimes pasturing has historically maintained this habitat. Many of these areas have limited agricultural value, but provide excellent wildlife habitat.

These open, early successional type habitats provide extremely important habitat for a vast number of species here in Connecticut, many of which are listed as threatened, endangered or of special concern here in Connecticut (2004). Many of the species are declining because the habitats they depend upon have decreased due to development of historically open areas, intensified agriculture, natural succession and a disruption of natural disturbances across the landscape. Species such as the bobolink, Savannah sparrow, grasshopper sparrow, American kestrel, and meadowlark are considered grassland specialists that require large areas of grasslands in which to breed and forage. While bobolinks may nest in open fields as small as 5 acres, the grasshopper sparrow requires fields of 30 acres or more. These birds also require long nesting periods, at least until July 15th, to ensure completion of the nesting cycle. Since most active agricultural hay fields are mowed two and three times per year beginning in May, these birds don't have a chance to successfully nest even if there are large enough areas to be attractive. Typically these birds are only successfully nesting in areas that are not being intensively farmed and are large enough to be attractive and those that are specifically being managed for them.

Early Successional Shrublands and Forests (seedling/sapling areas, old fields) and Wet Meadows are important for a variety of wildlife including woodcock, ruffed grouse, wood turtle, smooth green snake, eastern racer, field sparrow, eastern towhee, whip-poor-will, yellow-billed cuckoo, indigo bunting, gray catbird, spicebush swallowtail and regal fritillary. All these habitats require disturbance and/or active management to create or maintain them. Because Cornwall is only lightly developed and still has land in town being actively farmed and old agricultural land still in the process of reverting to forestland, it currently provides some high quality early successional habitats. The actively managed state forestlands and wildlife management areas also helps to increase the supply of this important habitat type. It is critical to encourage the creation and maintenance of this type of habitat for the long-term conservation of all native species of wildlife.

Threats to these habitats include:

- ***Loss, degradation or fragmentation of habitats from development or changes in land use.***
- ***Degradation of habitats by non-native invasive species***
- ***Impacts from human disturbance.***
- ***Lack of fire to maintain certain habitats.***
- ***Loss of early successional habitats through natural selection.***
- ***Degradation of habitat from over-browsing by deer.***

General Forest Management for Wildlife

In the Northeast, our forests are predominately the same age, around 60 to 80 years old, (containing mostly saw timber size tress), because of our history of clearing for agriculture and charcoal in the late 19th early 20th century. In the northeast, we lack old growth forest (trees at least 100 years old) and young forest (seedling/sapling and brushy/shrubby growth). In the northeast, 77 % of the bird species and 88% of the mammal species use various combinations of tree size classes, that is seedling/sapling, pole and saw timber size (Scanlon 1992). In general, most species of wildlife, be it bird, mammal, reptile or amphibian, need a variety of tree size classes or age classes to ensure their survival.

Some species of wildlife require large unbroken expanses of forest habitat because they are prone to predation and/or nest parasitism or have large territory requirements. For example Neotropical migrant birds like the ovenbird and wood thrush, are considered "area sensitive," meaning they need large blocks of mature forest (500 to 1000 acres) in order to produce successful nests/fledglings, which in turn provide for a viable population of these species. However, many of these area sensitive birds show stable trends in Connecticut and declines for specific species are often caused by loss of habitat on their wintering grounds in central and South America.

Conversely, many species that require early successional habitats that include seedling sapling stands, shrublands, old fields, wet meadows and grasslands have shown marked declines. Researchers have drawn a clear link between species declines and the declines of the habitat they are dependent on. Much of the early successional habitat has simply been replaced by development along our coastline and major river systems and conservationists agree if we are going to conserve these native species, we will need to do it where and when we still have the opportunity to do so. The most feasible opportunities exist on non-prime agricultural lands and by conducting professional, sustainable forestry operations within the large amount of forestland we have. We also need to try and direct development away from the best open early successional sites, where it is often placed due to ease of building.

A highly feasible and environmentally sound way to create early successional habitat and forest diversity is through forestry operations. The two basic forestry silvicultural methods used in Connecticut are "uneven-age management" and "even-aged management". Even aged management is generally applied where the goal of forestry is to regenerate shade intolerant trees or trees that will not grow in shade and uneven-aged management can be conducted with trees that are shade tolerant. Each system produces various benefits and impacts for wildlife species. Under the uneven-aged management system, certain trees are selected, creating small, temporary gaps in the forest, which can be beneficial for some wildlife generalists like turkey and deer, but it does not generally produce the early successional seedling sapling forest in enough quantity to provide for the needs of the early successional or shrubland/thicket specialists. Under the even-aged management system, all the trees in an area are cut and a new forest is grown from existing sprouts/seedlings and new sprouts that occur after cutting. This produces the

lush growth of seedling/sapling habitat that is so important for many species of declining wildlife such as, golden-winged warblers, blue-winged warblers, ruffed grouse, hognose snake, and woodcock.

General Management Recommendations for Managing Early Successional Habitats

Early successional habitats include hayfields, grasslands, old fields, shrublands, and seedling sapling forests. These habitats are rapidly declining due to natural plant succession, fragmentation, loss of farmland, development and the absence of fire and other natural disturbances within the Connecticut landscape. They are also being degraded due to invasion by non-native plant species. Yet these habitats are extremely important to a wide variety of wildlife, many of which are considered rare or declining in Connecticut. These species include the state listed Savannah sparrow, meadowlark, bobolink, American kestrel, golden winged warbler, American woodcock, ruffed grouse, hognose snake, eastern box turtle, bronze copper and regal fritillary.

Management of early successional habitats can generally be thought of as management to create early successional habitats and management to maintain the habitat type in certain seral or growth stage by conducting management activities. Forestry operations carried out under the auspices of a professional forester are an effective and efficient method to create early succession seedling sapling habitat in appropriate areas where mature forest not stands. Using specialized equipment such as a Brontosaurus cutting head mounted on an excavator is commonly used on state land habitat management projects to cut and mulch larger encroaching trees and/non-native species from old fields and shrublands to both create and maintain these habitats. This equipment can also be used to clear all the woody vegetation if the desired goal is to create grassland for grassland specialists.

Mowing with a brush hog or flail mower pulled behind a tractor is generally used to maintain fields in an open condition by cutting down small woody vegetation before it has a chance to take over. This can be done periodically every 3 to 5 years depending on how fast woody vegetation encroaches on the site and what species of wildlife you are trying to favor. Some species prefer more open early successional conditions such as bluebirds, while other species like the chestnut-sided warbler prefer shrubby or seedling sapling growth for cover (but would not be found in mature forest). Mowing should be done before March 15th and after October 1st to avoid nesting wildlife.

Burning can be a preferred option for grasslands management over brush mowing because it removes the thatch layer, which is detrimental to most birds. Unfortunately burning is not a very feasible management option for private landowner since volunteer fire departments don't always have the resources to carry out a prescribed burn.

Management of early successional habitats is extremely important as these habitats are in shortest supply and are not being created on the landscape like they were historically due to man's influence across the landscape and on ecological processes.

General Recommendations for Habitat Management for Wildlife

- Large blocks of a habitat type are generally more valuable to wildlife than smaller areas, so when possible, encourage larger private land holdings and protected areas.
- Connect protected lands via protected corridors of habitat (through easements, outright purchases, short-term agreements, etc.) whenever possible.
- Riparian buffers should be a minimum of 100 feet, if residential development must occur near them. But, the larger or wider they are, the more valuable they are.
- Manage for diversity of forest classes by considering the needs of area sensitive species and species that need seedling sapling or other early successional habitats, in balance with the amount of habitat available.
- Where possible, manage private land in conjunction with surrounding landowners.
- Retain a professional forester when carrying out silvicultural operations on private land.
- Use best management practices for forestry operations.
- Use forestry practices to benefit both forest health and wildlife.
- Leave snag trees (a standing dead or dying tree) at a distribution of 3 to 4 per acre.
- Leave den trees (a large diameter tree-15 inches or greater dbh-with a cavity in it) at a distribution minimum of 1 per acre.
- Concentrate on managing larger grassland blocks (greater than 5 acres, preferably over 30 acres).
- When managing larger grassland or old-field complexes, mow sections in alternate years so that a variety of cover heights and densities is available
- If managing hay fields or grassland for wildlife, mow after the nesting season – July 15th, ideally August 15th if possible, but before April 15th of the following year.

State Lands in Cornwall/State Lands Management

State Forests –

Cornwall hosts several major tracts of the Housatonic State Forest including the Music Mountain Block, Cream Hill Block and the Mine Mountain Block, along with others. It also has a small block of Wyantenock State Forest and a major portion of Mohawk State Forest. The Division of Forestry is responsible for state forest lands management and seeks to develop vigorous, resilient, forest environments capable of sustaining the wide range of demands that the public places on these lands. These demands include a variety of recreational experiences, natural diversity (including threatened and endangered species), and the preservation of unique sites (both geologic and archeological), the

provision of raw materials such as forest products, and the maintenance of wildlife and fisheries habitats. The Division's professional foresters work to insure that these forests remain healthy and vigorous while serving the needs of the citizens of Connecticut (DEP Forestry Division). (For further information see the DEP website www.ct.gov)

Natural Area Preserves-

As stated before, there are several Natural Area Preserves within Cornwall. These lands are given special designation due to their unique natural communities or features.

Wildlife Management Areas –

- a. Two small portions of the Housatonic River Wildlife Management Area (WMA) are contained in the town of Cornwall along the Housatonic River. The WMA is 558 acres and the major parcel is located in Kent, just south of the Cornwall town line. This management area contains riparian habitat, agricultural fields, old fields, forested wetlands, shrublands, and upland forestland.

WMA's are managed primarily for the conservation and enhancement of wildlife habitat and to provide opportunities for fish and wildlife-based recreation. The Wildlife Division is responsible for managing 88 WMA's statewide, totaling over 25,000 acres. The goal of the DEP Wildlife Division is to maintain stable, healthy and diverse wildlife populations on all suitable habitats across the state in numbers compatible with habitat carrying capacity and existing land use practices. Acquiring and managing wildlife management areas are one mechanism for accomplishing this goal.

Management techniques employed at the Housatonic WMA are typical of those used in many other management areas. These include silvicultural operations such as even aged and uneven aged forest management, early successional creation and management through the use of a specialized equipment (brontosaurus mowing head mounted on an excavator), brush hogging with a tractor, treating non-native invasives, planting warm and cool season grasses on fields no longer being actively used for farming and installation of various types of wildlife nest boxes. The Wildlife Division also leases some areas of agricultural land on some of its WMA's to area farmers who get to use the land in exchange for goods (like mulch hay) and services such as brush mowing designated wildlife areas. Several fields at the WMA are leased to local farmers.

State Leased Area –

There is one tract of private land enrolled in the state's leased land program. Under this program willing private landowners may lease their land to the state for a small per acre fee and in return the state can offer more areas for public recreational hunting. The Wickwire Property is located on Lower River Road and is a mix of overgrown fields, pine plantations and some forestland. The area remains a popular small game-hunting destination.

Summary

Cornwall currently provides excellent wildlife habitat because it provides large blocks of quality habitat composed of forests, wetlands and farmland relatively unfragmented by heavy development or major highways. Its value is augmented because it is adjacent to thousands of acres of the similar, complementary habitat. In addition, a major portion of land within the town is protected in perpetuity because they are owned by the State of Connecticut and/or a handful of private conservation organizations including the Cornwall Conservation Trust. Cornwall is fortunate in that it still has time to conserve the critical resources it has stewardship responsibility for. Development is by far the biggest threat facing the habitat resources in Cornwall, as it is the biggest threat continuing to face the remaining undeveloped critically important habitat in the state. By carefully planning how and where the town is going to be developed, Cornwall has the opportunity to maintain its character and the excellent wildlife habitat it currently provides for a vast array of Connecticut's wildlife species, including many rare state listed species.

Resources

- Connecticut's Endangered Threatened and Special Concern Species 2004. State of Connecticut Department of Environmental Protection.
- McCarthy, G. D.K. Leff, E.C. Parker. 2005 Connecticut's Comprehensive Wildlife Conservation Strategy. Chapter 4. pp 4-1-89.
- Scanlon, J.J. 1992. Managing Forests to Enhance Wildlife Diversity. Transactions of the Northeast Section. The Wildlife Society. Vo. 49. pp.1-9.