TYLER MILL TRAILS:

A GUIDE AND NATURAL HISTORY

by

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PREFACE

This study of Tyler Mill open space has been undertaken to fulfill the requirements of the Wesleyan University Graduate Liberal Studies Program. Tyler Mill is an ideal subject of examination for several reasons. First, this publicly owned and accessible land is a one thousand acre parcel of forest, swamp, ridge, river, and meadow. It is an under-appreciated jewel, an rural oasis of forest and farmland in the middle of a suburban area. Second, studying Tyler Mill from a naturalist's perspective has allowed me to use what I have learned in various graduate courses, particularly field science classes. Finally, a guide to Tyler Mill's trails, habitats and history will be useful to the Wallingford community and to the increasing numbers of horseback riders, hikers, hunters, and mountain bikers who enjoy the area.

I have been hiking and horseback riding at Tyler Mill since 1979 and have observed the land and its plants and animals in all kinds of weather and in all seasons. I have been actively engaged in protecting and preserving the place--clearing trails, organizing National Trails Day celebrations, leading learning hikes, picking up garbage, and enlisting the Public Works Department to remove junked cars (photos 1 - 5). I am a member of the Town Conservation Commission and coordinator of volunteer projects at Tyler Mill for the Park and Recreation Department. My involvement has made me aware that this open space needs an interpreter who is an advocate for it as a natural place.

In the last twenty years, Tyler Mill's checkered reputation has varied from unknown to notorious to slightly too popular. Not so long ago, it was a place to be avoided because it was a site for motorcycle gang parties and a dumping ground for garbage, stolen cars, and even a dead body. Now, with increases in the population of south central Connecticut and the growing interest in outdoor activities, recreational use has

burgeoned (photos 6 - 8). Tyler Mill has become a popular recreation destination, and occasionally the uses conflict. Hunters and all other users are assigned to alternate days during hunting season, for example. Forest management policies are not always appropriate and are sometimes at odds with current use. A recent ill-conceived and poorly managed timber harvest damaged the forest and trails on 63 acres. Within the community, there are competing agendas for using the land: more ball fields, an additional reservoir, a municipal golf course, a trails system. Because of Tyler Mill's wealth of natural beauty and the fact that it is the largest municipally owned and publicly accessible open space in a rapidly developing town, I think its best use is to keep it as it is--a trail based recreation area.

It is my hope that this essay project will eventually be published in booklet form to guide recreational trail users and to help citizens and local officials understand Tyler Mill's value. If enough people in the community appreciate and enjoy this place as a unique natural resource, it is less likely to be improved upon by development into something else.

ACKNOWLEDGMENTS

My own enjoyment of Tyler Mill has been possible because of the good company of the friends with whom I have regularly walked and ridden there: Joanne Minion, Mary Lou Femniak, Paula Taylor, Gene Fontanella, and my husband, Henry Toman.

Help in preserving Tyler Mill's natural and recreational resources has come from all the Wallingford members of Trail Riders of the Shoreline, Planning and Zoning Commission Chairman William Austin, Wallingford Historical Society President Robert Beaumont, Environmental Planner Brent Smith, Conservation Commission Chairman Jeffrey Borne, Parks and Recreation Director Thomas Dooley, and Mayor William Dickinson. Inland Wetlands Commissioner James Heilman has been particularly generous in encouraging me to pursue this study and in serving as my project adviser.

I am indebted to Lynn Clements for allowing me to use some of her photographs of National Trails Day and Tyler Mill. The photos whose captions are marked "L.C ." were taken by her. All other photos are my own, and most of those have been taken within the last two years.

I am grateful to Robert Beaumont and Colleen Makepeace, descendants of the Tylers of Tyler Mill, for sharing with me their genealogical research and family photographs. Much of the information contained in the "Tyler's Mill" section of chapter III is from those private sources. Mr. Beaumont has done considerable research in municipal records of land ownership, births, and deaths, and he has perused gravestones in the various cemeteries of Wallingford and Northford.

Mr. Beaumont's information about the origins of the Tyler family at Tyler Mill contradicts some of the details to be found in Charles Henry Stanley Davis's History of

Wallingford, Connecticut, From Its Settlement in 1670 to the Present (Meriden, 1870). Davis states that the establishment of a mill at what is now Tyler Mill was late, probably around the mid-1700's. According to Davis, Daniel Tyler, grandson of one of the original founders of the town, was born at what is now Yalesville. Yalesville was then known as Tyler's Mill because one of the first mills in Wallingford was built on the Quinnipiac River there. Daniel moved to the southeast corner of town and established a new mill at what was to become Tyler Mill some time in the eighteenth century. This information may not be correct.

I believe that Mr. Beaumont's information is probably more accurate than Davis's. Since water power was of major importance, it is likely that there were many mills, and there certainly were many Tylers. It is possible that Davis received erroneous information or became confused about the land holdings of the various branches of the Wallingford Tylers. At any rate, I have used Mr. Beaumont's version of events because it seems well grounded in actual records of land sales transactions. Perhaps the original John Tyler of Tyler Mill can be forgiven for having been born in Northford.

I. INTRODUCTION TO TYLER MILL

ABOUT THIS GUIDE

This guide and natural history of Tyler Mill Open Space in Wallingford, CT, is intended as an introduction to its features, history, habitats, and trails. It should be useful to a variety of visitors to the area. The recreational trail user, whether meandering along on foot or flying by mounted on a horse or a mountain bike, will find the maps and guides to individual trails. Naturalists or parents introducing children to the natural world will be able to locate particular items, topics, or areas of interest. Teachers and Scout leaders may be inspired by this guide to organize field trips for their students, whether they are interested in identifying trees and flowers, examining rocks, observing small animals in their habitats, or considering the implications and impacts of human use of the natural world.

This study of Tyler Mill does not pretend to be a definitive ecological inventory. The serious student of wildflowers, trees, or wetland vegetation, for example, is advised to hike with a good field guide and perhaps a small hand lens. Those interested in birds should carry a guide and a pair of binoculars. Anyone who wants to learn more about the natural world and is curious enough to walk the same paths at different times should bring a pen and small notebook to record observations, such as when and where particular flowers bloom, animal sightings, bird behaviors, or water levels in swamps and streams. Children particularly like to make lists of things. Encouraging a child to look for wildflowers, to differentiate between tree leaves, or to count various birds and then record his or her comments will promote powers of observation and foster a life-long interest in the natural world.

A brief geological history will explain why the place looks the way it does today, with rocky ridges, an ancient swamp, fields, woods, wetlands and watercourses. A consideration of the human imprint on Tyler Mill provides an opportunity to understand the historical importance of the place within the context of the Wallingford community. The stone walls, cellar holes, and mill race that can still be seen are the undisturbed remainders of a vanished time and way of life. The account of Tyler Mill's more recent history provides insight into the evolution of public perception of open space. A parcel of land that was once regarded with indifference has come to be seen as a resource to be treasured. The vision of Tyler Mill that has come into focus in the late twentieth century will shape its future in the next millennium.

A wide variety of plants and animals can be seen at Tyler Mill, and this work is a guide to the diverse habitats in which they live. A consideration of individual habitats will help the visitor observe them, understand the differences between them, and appreciate the area as a whole. The trails themselves are described so that an observer on foot, mountain bike, or horseback can choose an interesting path or cover a specific distance. Maps will prevent almost anyone from being lost for very long.

A section on walking through the seasons at Tyler Mill gives some ideas about things to look for at different times of the year. Because of the development of central Connecticut, opportunities to "take a walk in the woods" are not as available as they once were. This part of the guide can help the visitor understand what he or she sees and to enjoy the outdoor experience. A guide to each major trail notes the location of trailheads, describes the trail, rates the difficulty, and mentions points of interest. There is a map of the trail network and maps of individual trails as well.

The final section comprises a vision for Tyler Mill's future. It includes a suggestion for a new name--Tyler Mill Conservation Area--that would reflect the place's best use as an area for trail based recreation and protected natural site. There are also some

recommended management policies aimed at protecting all of Tyler Mill's resources--natural, aesthetic, historical, and recreational.

It is my hope that this guide will help Town residents and municipal policy makers in particular to understand Tyler Mill and to appreciate it as an important natural asset and community treasure to be protected. Only by acting wisely and exercising restraint in managing these resources today can we be sure that our children and grandchildren will have them to enjoy in the future.

A DESCRIPTION OF THE PLACE

Tyler Mill is a municipally owned open space in the southeastern corner of Wallingford, Connecticut. It is located east of interstate route 91 and Woodhouse Avenue (route 150), north of the North Branford town line, south of MacKenzie Reservoir, and west of Northford Road. The area has been put together from a series of separate acquisitions. The largest of these is the 783 acre property along Tyler Mill Road and Tamarack Swamp Road that was owned by the New Haven Water Company from around the turn of the century until 1976. Also included are part of the 146 acre former Sartori property on East Center Street and the 40 acres on Tyler Mill Road formerly owned by the Smith family until 1984. The most recent acquisition (1999) is the 21 acres on Tyler Mill Road known as the Hall, Simpson, Beaumont property. In addition, there are other municipal open spaces adjacent to Tyler Mill. North of Tyler Mill across East Center Street is the 11 acre wooded Petrossi parcel purchased in 1999, about 20 acres of Town agricultural lease-back land, and the 10 acre Farnam Field belonging to the Wallingford Land Trust . South of Tyler Mill across Woodhouse Avenue is Bertini Park. North of Tyler Mill across Northford Road lies MacKenzie Reservoir and its associated watershed. Tyler Mill can be found on the Wallingford Quadrangle, number 81, of the United States Geological Survey map. (See map 1.)

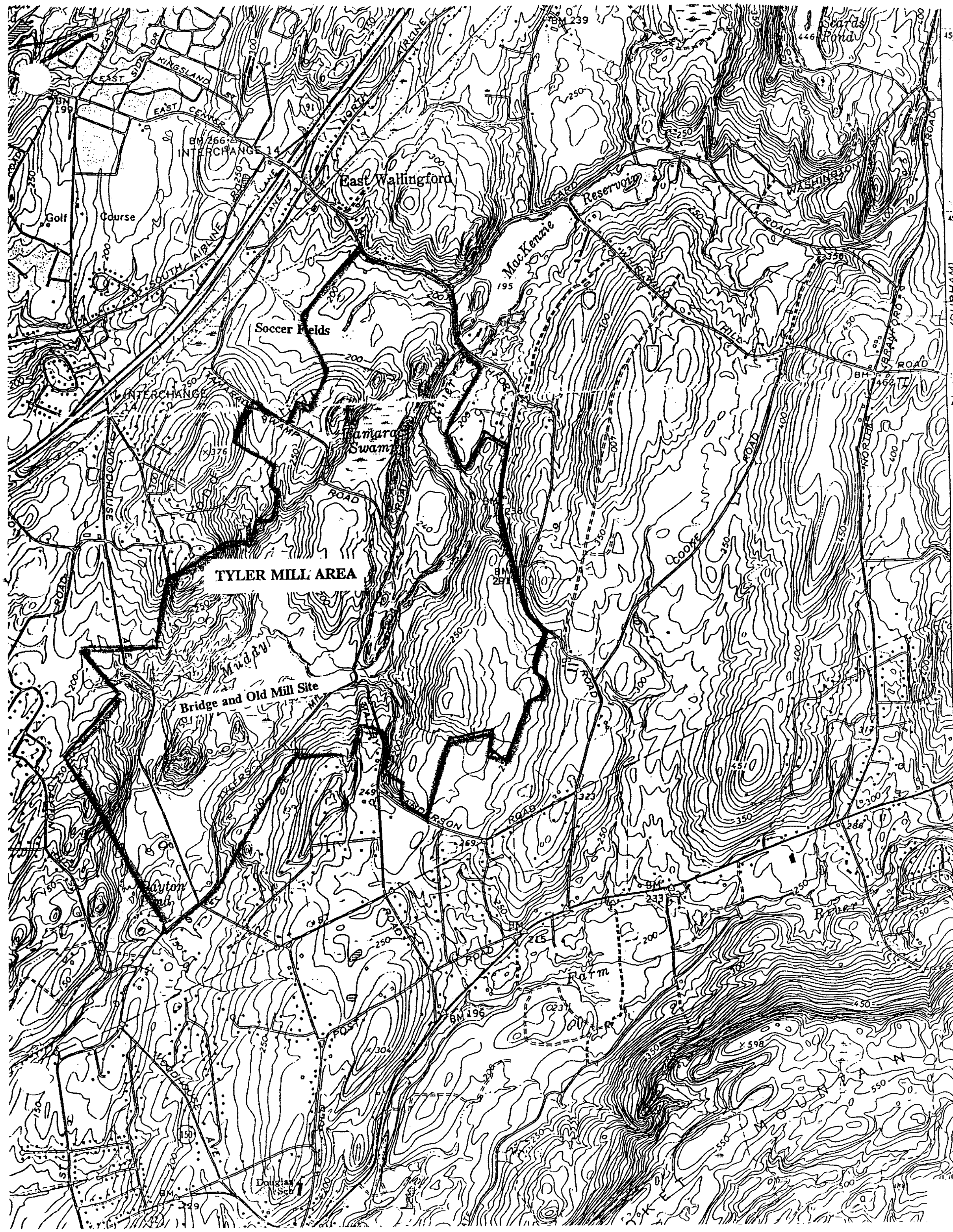
Not all of Tyler Mill is undeveloped. Some of the land has been dedicated to organized recreational use. There are soccer and baseball fields at Viet Nam Veterans Park along East Center Street and the Coyle-Carini soccer fields along both sides of Woodhouse Avenue (photo 9). Several acres at Viet Nam Veterans Park are devoted to plots for the Community Garden. Also, camping facilities for Scouts are located at Bertini Park. In addition to recreational development, approximately 100 acres are currently in use as cropland (mostly hayfields with several parcels used for corn and vegetables). In an

arrangement managed by the Parks and Recreation Department with input from the Conservation Commission, the agricultural parcels are leased to area farmers for $10 to $20 per acre annually for five year periods. Thus, useful agricultural land is maintained, a variety of habitats is preserved, and local farmers are encouraged to continue farming despite increasing land prices due to the pressure of residential development (photo 10).

The undeveloped portion of Tyler Mill, approximately 900 acres, contains a variety of terrain and habitats. It is an area of rugged topographic features, with elevations of valleys, hills, and ridges varying from 130 feet to 380 feet above sea level. Much of the area is covered with second growth forest, and there are about 260 acres of various types of inland wetlands (photo 11). The Muddy River, a tributary of the Quinnipiac River in North Haven, flows south through Tyler Mill (photos 12 & 13). The Muddy River has two major tributary streams in Tyler Mill; one drains the Tamarack Swamp and the other drains the pond in Bertini Park. There are several small seasonal streams and seeps as well as swamps and wetlands.

Tyler Mill is valuable for its diverse habitats, which include forest, traprock ridges, agricultural fields, wetlands, watercourses, and the ecotones, or margins, between them. Tyler Mill and contiguous open space parcels form a major natural area and trail system in Wallingford and in all of south central Connecticut.

There are several ways to access the Tyler Mill area. Parking is available at the soccer fields on East Center Street or at those on Woodhouse Avenue. Vehicles hauling horse trailers can park at either place. It is also possible to drive directly to the bridge over the Muddy River along Tyler Mill Road either from Northford Road or from Woodhouse Avenue. A few parking spaces are located on both sides of the bridge. The bridge itself is blocked to cars, however, so no through traffic is allowed.


TYLER MILL AREA
Soccer Fields
Bridge and Old Mill Site
East Wallingford
Tamarack Swamp
MacKenzie Reservoir
INTERCHANGE 14
Golf Course
KINGSLAND
EAST CENTER
SOUTH AIRLINE
WASHINGTON
ROAD
(DURHAM)
BM 239
BM 266
Douglas Sch

II THE SHAPE OF THE LAND: A GEOLOGICAL HISTORY

THE BEDROCK

The shape of Connecticut today is due to geological events that took place hundreds of millions of years ago to shape the bedrock, that solid rock which is the earth's crust. In the less disturbed and undeveloped areas of the state, evidence of this past can still be seen. Glimpses of this geologic history are visible at Tyler Mill.

Tyler Mill is in a part of Connecticut known to geologists as the Central Valley, which began to take shape about 400 million years ago in the Ordovician Period. Plate tectonic theory tells us that at that time, all the earth's land mass was drifting together to form the supercontinent of Pangaea. None of today's familiar continental shapes were recognizable then. What is now Africa was jammed against North America adjacent to Connecticut for millions of years. Connecticut itself was located in a tropical region on the globe approximately where Bermuda is found today.

Eventually the constant, slow movement of the crustal plates caused cracks, or faults, to develop. Pieces of Pangaea began to pull apart at these seams about 200 million years ago at the end of the Triassic Period and the beginning of the Jurassic. One such fracture opened up between North America and Africa. As the two plates pulled away from each other, the gap between them was filled by the widening Atlantic Ocean. In central Connecticut, the straining crust developed two sets of north-south trending faults, not as deep as the one that separated North America from Africa, but significant nevertheless. In Connecticut these cracks ran from present day Granby to New Haven and from Somers to East Haven. Like rips in the fabric of the crust, the faults grew wider, longer, and deeper as the land between them was stretched by the same geologic forces pulling Pangaea apart.

Thus, over millions of years, a long valley opened and extended from Massachusetts to Long Island Sound: the Central Valley. This was to be a false rift; it simply stopped developing at a certain point and was never breached by the sea. Even as it was opening, the false rift valley began to fill with sediments from the highlands to the east and west.

This was a period of volcanic activity which looked much like that which is occurring in Iceland and Hawaii today. The deepening faults served as conduits for molten magma welling up from the earth's interior. Some magma poured out onto the surface of the land as lava, and some intruded into layers just below the surface. Lava at the surface hardened into basalt; intruded magma hardened into diabase dikes and sills. During the late Triassic and early Jurassic periods, there were three major periods of volcanic activity when lava flowed out of cracks and fissures in the earth rather than exploding out of volcanic cones. Between the volcanic periods were long millennia when dinosaurs walked the Central Valley. In this tropical environment, seasonal heavy rains washed sediments down from highlands onto the plain. The eroded rocks, gravel, mud, sand and silt gradually piled so deeply that pressure and time lithified them into sedimentary rocks, consisting of deposits of sandstone, conglomerates, and mudstone thousands of feet thick.

Stratigraphy chart of the Central Valley

time (in millions of years ago)	layer	composition	thickness (in meters)
155	Portland Formation	arkose sandstone	1,000
	Hampden Lava	basalt	50
	East Berlin Formation	shale	400
	Holyoke Lava	basalt	200
	Shuttle Meadow Formation	sandstone, shale	300
	Talcott Lava	basalt	100
190	New Haven Formation	arkose sandstone	1,200

(Liebe class notes)

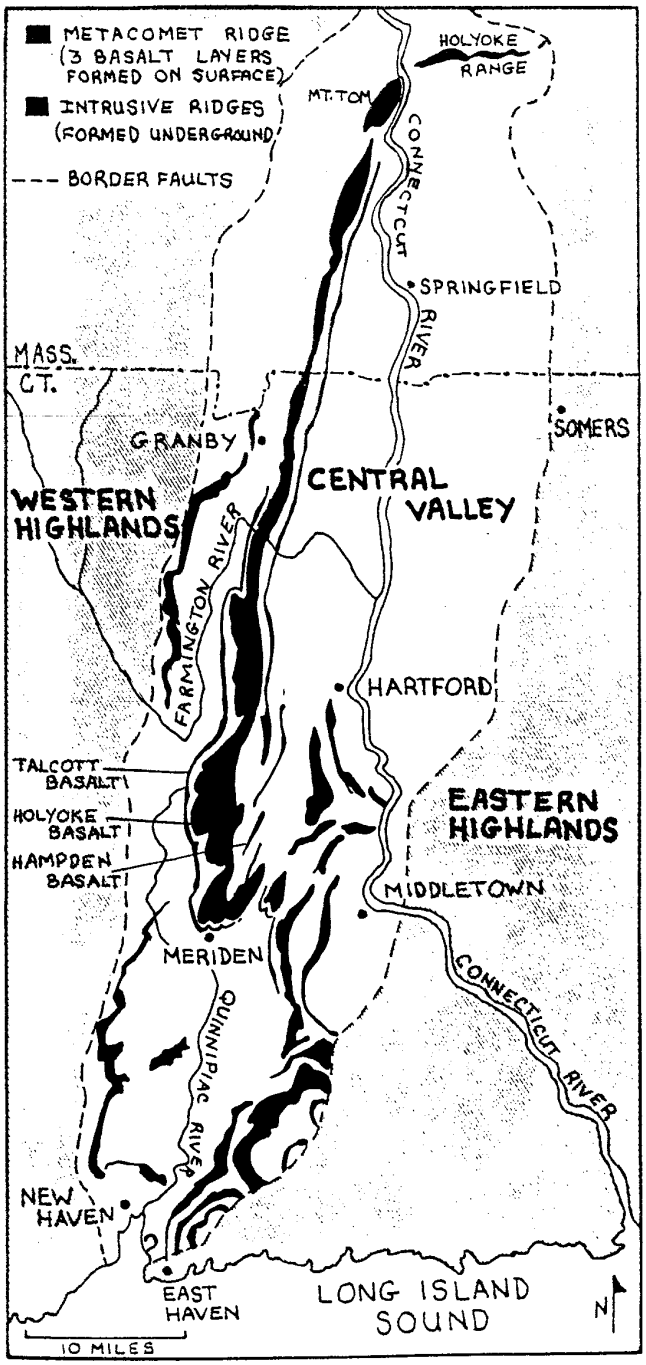
Between 190 million years ago and 155 million years ago, the Central Valley filled with three distinct lava flows interbedded with four sedimentary units. The earliest arkose sediments of the New Haven Formation were covered by Talcott Lava, which was in turn covered by Shuttle Meadow sandy sediments. These were covered by Holyoke Lava, which was then buried under East Berlin Formation sediments. The third and final lava flow, the Hampden Lava, was topped by the fourth sedimentary layer, Portland Formation arkose. Much later, the Central Valley fractured again and was tilted to the east, thus turning this layer cake of sediments and lavas up at an angle. For the last 150 million years, erosion has been eating away at this bedrock, but the volcanic traprock, much more resistant than the surrounding sedimentary rocks, has eroded more slowly. Thus traprock layers rise today as ridgebacks above the surrounding valleys. (See map 2.)

Because the landscape of Tyler Mill has been relatively untouched by recent human activity, evidence of the ancient geological past is still visible in bedrock outcrops here. Owl Ridge Trail, parallel to Tyler Mill Road, follows a kind of traprock ridge that is the eroded remnant of a volcanic dike, a stream of hot magma that intruded forcefully across bedding planes in sedimentary rock and then slowly hardened into huge traprock lumps. Other ridges formed this way are Sleeping Giant, East Rock, and West Rock. These intrusive traprock ridges are similar in appearance to the Metacomet Ridge, which consists of basalt layers formed on the surface. Nearby are such Metacomet Ridge elements as Bluff Head in Guilford and Mount Higby and the Hanging Hills of Meriden. (See map 3.) Such typical traprock ridges are formed of molten magma that rose to the surface and flowed out across the landscape as lava. The lava flows hardened into a dark, heavy, grey rock called basalt and were later tilted by movements of the earth.

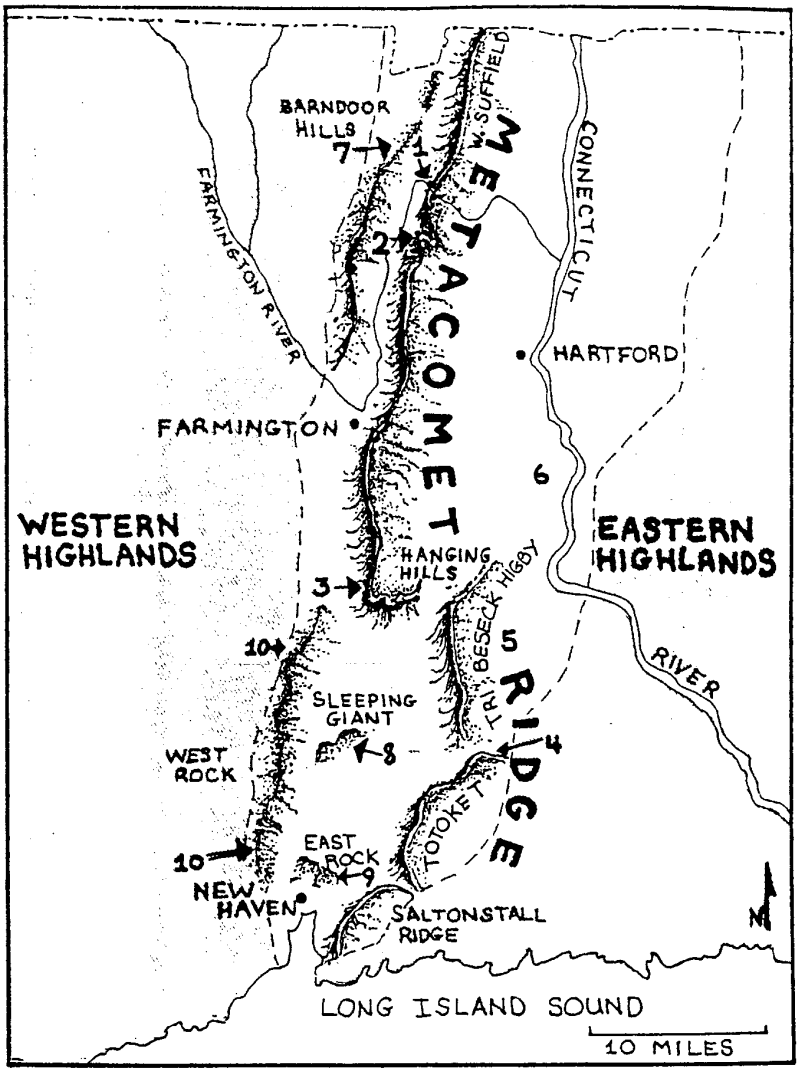
Evidence that Owl Ridge is not a typical traprock ridge can be seen in two ways. First, notice that there are talus (loose, eroded rock) slopes on both the eastern and western sides of the ridge (photo 14). Traprock ridges in this vicinity usually have a talus slope on

the west side and a gently angled and forested eastern slope. Second, a close examination of the rocks themselves is revealing. A freshly broken piece of rock found on this talus slope shows visible crystals. This rock is diabase. Because the magma cooled underground, it cooled slowly and had time to develop crystals large enough to be visible. Basalt, on the other hand, is from lava exposed at the surface. It cooled quickly into a more finely grained rock, and its crystals are too small to be visible without magnification. Now examine the gravel on Tyler Mill Road. Chances are good that a piece of basalt from a nearby source, perhaps the Tilcon-Tommaso quarry on route 68, may be found in the crushed stone used as surface material.

Moss Rock, a high stony knob located where the Muddy River crosses Woodhouse Avenue, is another outcrop of diabase bedrock. This is a remnant of volcanic plumbing, a magmatic conduit or dike from deep below the surface. It can be seen by ascending the Moss Rock Ridge Trail.



Central Valley of Connecticut and Massachusetts, showing traprock ridges. (Wetherell back cover)



OUTING LOCATIONS

1. Tarriffville Gorge
2. Talcott Mountain
3. Hanging Hills
4. Bluff Head
5. Wadsworth Falls
6. Dinosaur State Park
7. Barndoor Hills
8. Sleeping Giant
9. East Rock
10. West Rock

Detailed map of southern Connecticut traprock ridges.
(Wetherell front cover)

THE SURFACE: GLACIAL SCULPTING

Some bedrock is exposed at the surface of the earth, but most of the visible landscape is the result of surficial geology, a term that refers to the unconsolidated material overlying the bedrock. Erosion has continued to shape and reshape the surface of the Central Valley during the Cenozoic Era, from 60 million years ago to the present. However, the relatively recent Pleistocene Ice Age, which began about two million years ago and ended only 20,000 years ago, introduced a new sculpting force: glaciers.

Ice, which covered Connecticut at least twice, reconfigured the landscape using two agents--erosion and deposition. Erosion took place as the glaciers advanced. Vast sheets of ice more than a mile thick scoured bedrock, shaped hills and valleys, and stripped away rock, sand, and silt. When the climate warmed and the glaciers began to retreat, deposition occurred. Melting ice created glacial streams that carried off the rocky debris accumulated by the advancing glaciers. As the glaciers melted, much of the rocky material collected from the surface of the earth was dumped far from its point of origin in loose deposits called glacial till. Till consists of a heterogeneous mix of rocks, gravel, sand, silt, and clay; it is the material on, in, or under a glacier which was left behind when the glacier melted. There are also areas of ice contact deposits in lowlands on this property where glacial meltwater streams left their particulate load in stratified, sorted layers. These glacial outwash deposits of sand and gravel vary here from one to twenty feet deep (Grant Application, 1977, 7).

Boulders later to be the bane of New England farmers were scattered across the landscape by retreating glaciers, and can be seen today in the many stone walls throughout Tyler Mill (photos 15 & 16). Farmers picked them up by hand to clear fields for planting and pastures. Building these walls not only removed the rocks but kept animals out of cultivated fields and defined boundaries between neighbors. A close examination of the

stone walls is interesting because they indicate the bedrock of the vicinity. These walls contain igneous rocks of diabase and basalt as well as such sedimentary rocks as sandstones and conglomerates (photos 17 - 19). There are also boulders of metamorphic gneisses and schists as well as occasional quartzite boulders from farther north. A few boulders, often quite large, are called glacial erratics because they were carried far from their points of origin by the advancing glaciers and then dropped randomly when the glaciers melted. It is unlikely, however, that the farmers who built these walls were much concerned with geology. They were probably only intent on clearing a place to plant their crops or pasture their animals.

A second place to look at interesting rocks is at the site of the Tyler mill. Elements of the mill foundation and its mill race are evident near the bridge over the Muddy River. Most of the large stones used in these constructions are arkose sandstone blocks that were carefully cut and shaped to fit tightly together (photo 20).

Another tantalizing trace of the Ice Age can be found at Tamarack Swamp near the junction of Tamarack Swamp Road with Tyler Mill Road. This swamp lies in a deep basin carved out by glacial scouring. The hard traprock ridges east and west of the swamp channeled the moving glacial ice through the notch between them (Kapur et al, 4). When the climate warmed and the glacier began to melt from the top down, the ice in the Tamarack Swamp basin was partially protected from the sun by the surrounding ridges. This ice lasted longer and melted more slowly than more exposed ice. Eventually it melted into an isolated glacial lake about 25 acres in size and up to 30 feet deep (Kapur et al, 5).

This lake probably existed for 10,000 years, but it gradually filled with organic sediments that formed peat from the shallow edges toward the deeper center. The swamp we see today is the ancient glacial lake transformed by time and eutrophication into a peat bog. The tamarack (or eastern larch) trees from which the swamp and the nearby road take their name are a remnant population now rare in southern Connecticut. This deciduous

conifer is common in colder, more northerly regions of the northeastern United States and Canada, but it exists here beyond the southern limit of its range. The few mature tamaracks still growing in the moist, deep center of the swamp are the last relics of an older, colder age and of a glacial lake that filled to become a peat bog.

CHANGES TODAY: EROSION AND WEATHERING

There are no longer any lava flows or glaciers marching across the face of southern Connecticut, yet the landscape continues to change today. Some of the alterations are due to human activities; others are simply natural processes which usually take place so slowly that we hardly notice the changes from one year to the next. In some parts of town, quarry operations have removed mountains and ridges. In other places, development has leveled hills, filled lowlands, and in the past, altered the course of streams. Although these activities have not occurred at Tyler Mill, the landscape there still changes, albeit very slowly and almost imperceptibly. Weathering, running water, and crustal movements produce changes in topography over time. Precipitation and the action of the Muddy River and of various small streams continue the work of natural remodeling. Moving water grinds rocks into sand, mud, and silt, and it carries these sediments downstream. The seasonal cycles of freezing and thawing, soaking and drying, contribute to weathering by breaking down rock and moving soil. Running water and ice break the traprock cliffs into boulders that crash down the slope and break into smaller and smaller pieces (photo 21). Even the wind also moves particles of soil from one place to another.

Human activities, even seemingly innocuous recreation, can sometimes have a destructive impact on the land. Motorized vehicles of all types are prohibited at Tyler Mill because their large, power driven wheels destroy trails and churn wide, muddy wallows in wet areas. When all-terrain vehicles are run up and down steep slopes, they strip hillsides bare of protective vegetation and create vertical ruts which quickly erode into ditches in the rain (photo 22). Horseback riders, hikers, and mountain bike riders are welcome at Tyler Mill, but they are required to stay on established trails so that streams are not muddied and trails through swampy areas do not become wide swaths of disturbance. Evidence of trail

erosion from improper or excessive use can be seen on the Tyler Trot Trail; several deep washouts created by illegal four wheel drive use in the past regularly fill with water and mud.

Sometimes legitimate land management activities can cause problems. Parts of the Moss Rock Run Around, Back Side Run, and Powers Trails were damaged by heavy equipment used in a managed timber harvest in the fall of 1998 (photos 23 & 24). The removal of trees and vegetation from the hillside on both sides of Powers Trail caused immediate erosion, and corrective measures had to be undertaken. Because of the collateral damage to trails, soil, and vegetation during the timber harvest, the forest management policies for open space recreation land have been reconsidered. Although the processes of change are inevitable in the natural world, changes caused by human impact must be carefully monitored and assessed to minimize detrimental effects on the land and its habitats.

III THE HUMAN IMPRINT

Today only stone walls, a mill race, and a few cellar holes remain as evidence of the Nineteenth Century mill and farms in the neighborhood of Tyler Mill. The purchase of the property around the turn of the century by the New Haven Water Company for possible use as a future reservoir effectively suspended time there. The few houses were removed by the mid 1920's; some being relocated to other parts of town. Fields and pastures grew up in shrubs and saplings that became trees. The dirt roads deteriorated into trails. The land around Tyler Mill lay dormant for years, appreciated mostly by horseback riders, fishermen, and hunters. Others were deterred from exploring this remote area by its unsavory reputation as a site for motorcycle gang parties, illegal dumping, and disposal of stolen cars (photo 25). Even a murder victim's body was left there!

Then, in the 1980's and 1990's, things changed. Residential development in Wallingford burgeoned as people were attracted to the town's enticing combination of good schools, jobs, and proximity to highways along with its country atmosphere and agricultural ambiance. The Town of Wallingford bought the Tyler Mill land from the New Haven Water Company in 1976 with a State grant for the purchase of recreational open space. The town had playgrounds, ball fields, and parks, but Tyler Mill had the only trail system in a natural area. It continued to attract hunters, fishermen, and horseback riders, but more hikers and mountain bikers were drawn there as other open space on private property was consumed by development.

Thus, Tyler Mill has sprung from a long period of dormancy and obscurity into a new role: It is now Wallingford's premier trail-based recreation area. This is the place where people can come to hike, to explore the natural world with their children, to trot their horses, or to skim along on mountain bikes. It is a place where the murmuring of the

Muddy River or the song of an oriole is not drowned out by the clamor of traffic. At Tyler Mill, visitors can see and hear and touch the natural world (photos 26 - 30).

Let's consider the history of human activity at Tyler Mill by imagining that we can travel back to the past in a time machine. This way we can take a look at a few of the crucial moments in Tyler Mill's history.

NATIVE AMERICANS

The first humans to use Tyler Mill were Native Americans. Our time machine arrives in a mixed hardwood forest that looks much like Tyler Mill today. There is an Indian hunting party of several men carrying a freshly killed deer across the Muddy River to a small camp where a few women are cleaning animal hides and drying meat. Children in a nearby clearing pick blackberries to fill their birchbark pails.

Paleo-Indian tribes hunted in Connecticut at least 9,000 years ago (Bell, 167). By the time of European settlement in New England in the early 1600's, the area was thinly populated by small groups of woodland Indians. There may not have been more than 20,000 Indians scattered throughout the whole region (Verrill, 36). The tribes in what was to become Connecticut belonged to the Algonquian-speaking group. Tribal names such as Mohican, Pequot, Mattabesee, Nehantic, Quinnabog, Quinnipiak, Totoket, and Shepaug linger as place names on the state map and bear witness to Connecticut's Native American heritage. The Indians in the hunting party at Tyler Mill belong to the Quinnipiak tribe.

The Quinnipiaks were a small tribe of about 46 warriors plus women and children (De Forest, 164). A peaceful agricultural people, they cultivated gardens of maize, pumpkins, squash, and beans in a village east of what is now New Haven harbor. The Quinnipiaks lived in dome-shaped or rectangular wigwams housing two or more families apiece. These wigwams were grouped around a central space used for public business or socializing and were surrounded by a palisade of tree trunks to protect against attacks by the aggressive Pequots and Mohawks. To supplement the food they grew along the Quinnipiac River, the Indians gathered shellfish at the shore, caught saltwater and freshwater fish with hooks, spears, and nets, and ranged inland to hunt. With bows and quartz tipped arrows, spears, and clubs, they took deer, elk, moose, bear, rabbits, squirrels, raccoons, pigeons, quails, turkeys, partridges, ducks and geese (photo 31).

Meat not needed for immediate consumption was dried for storage. Otter, beaver, bobcats, wolves, and foxes were taken for their fur. The Quinnipiaks also gathered wild fruits, mushrooms, acorns, nuts, onions, and various berries whenever they were available.

The Tyler Mill area would have been a good hunting ground. The Quinnipiaks could have traveled up the Quinnipiac River by canoe, or they could have come on foot over an Indian trail approximately where route 5 is today. Although they did not live here permanently, they would have come periodically to hunt. They may sometimes have moved to these sheltered inland valleys with plentiful firewood if the winter along the coast was too harsh.

The Quinnipiaks lived a rather settled existence. Their bark and skin covered lodges were comfortable and even furnished with beds. They made tools and weapons from wood and stone. They had such utensils as wooden bowls and spoons, baskets of rushes or woodsplints or grass, clay pots, and birchbark pails with handles. They made clothing and moccasins from animal skins and fur. At Tyler Mill the Quinnipiaks could find many of the resources they needed to survive.

COLONIAL SETTLERS

The next stop in our time machine is shore of Long Island Sound in 1638. We can see several Quinnipiaks talking with two white men. One of the Indians marks a piece of paper with his totem sign, while one of the white men gestures to a pile of coats and metal implements.

Europeans began to arrive in New England in the early 1600's and settled first along the coast of Massachusetts. As increasing numbers of immigrants arrived from England, they sought new lands farther away from the early settlements. Theophilus Eaton and John Davenport, English planters from Boston, came to the New Haven area in 1638. They were well received by the Quinnipiacks, who hoped that these powerful newcomers would protect them from incursions by the warlike Pequots and Mohawks. Eaton and Davenport bought land from Momauguin, a sachem of the Quinnipiaks, for a payment of eleven coats, spoons, hatchets, hoes, knives, porringers and scissors (De Forest, 164). In the agreement, the Indians retained hunting rights and reserved for themselves a plantation tract and village east of the Quinnipiac River. Both groups agreed to live in peace. Shortly thereafter, Eaton and Davenport made a similar treaty with the sachem Montowese, brother of Momauguin. This small group of ten warriors plus women and children sold land, including Wallingford, to the English for several coats and a few metal implements. These Indians, too, reserved a small reservation for themselves and retained their hunting rights. Montowese signed the agreement with his totem, a bow and arrow.

(Deforest, 494)

Perhaps the Indians imagined that the white newcomers were a people like themselves, few in number and interested only in settling a small farming village. The

Quinnipiaks could not have foreseen that within 130 years those of their number who had not succumbed to smallpox and other white man's diseases would be crowded out to the sparsely settled areas around Farmington and Kent. There they joined the Scatocook and Tunxis tribes, having lost both their lands and their separate identity.

Our time machine moves us ahead a few years and makes another stop a few miles inland up the Quinnipiac River. We see a group of thirty-eight New Haven settlers with their families, belongings, and farm animals as they move by boat up the Quinnipiac River in 1670. The previous year Abraham Doolittle, John Peck, John Moss, and John Brockett surveyed the lands north of the New Haven Colony to find a site for another permanent plantation. The General Assembly at Hartford gave permission for the establishment of a new village to be called Wallingford. The site chosen was a hill overlooking the Quinnipiac River plain, near what is now Main Street. By 1681, the Quinnipiaks had sold their remaining rights to land "12 large miles long and 8 broad" between "Wharton's Brook and Pilgrim's Harbor" (Davis, 26), including Wallingford. In succeeding years, streets were laid out, houses were built, and farmlands cleared, but for a long time the wooded area east of Elm Street was regarded as wilderness.

TYLER'S MILL

Our time machine brings us on a short hop forward to 1672. Two years after its settlement, Wallingford is beginning to look like an established town as houses are being constructed and streets laid out. Farming has begun on newly cleared fields divided by stone walls. Much of the land in the area has been parceled out among forty-one worthy planters, and Eleazer Peck owns one hundred acres, eighty-nine of which are in the vicinity of what is now known as Tyler Mill. He apparently prospered, for by 1700 he was the nineteenth wealthiest of 120 planters.

The first reference to a mill on Peck's property is in 1727. The land was by then owned by a descendent of Eleazer Peck with the same name, and this Eleazer Peck deeded the mill to his grandson, Jonathan Peck. The mill must have functioned productively for nearly a hundred years, but it was not mentioned again in public records until 1819. In that year, the Tyler family began its involvement in the area that was to bear its name.

John Tyler, who moved from Branford to Wallingford, was born in 1759. He was employed as a sailor in his youth and was in Boston during the turbulent years prior to the Revolution. He was said to have been among the "Indians" who dumped tea into Boston Harbor in defiance of the English tax law, and he served aboard the vessel that carried the peace treaty from England to America at the end of the war. He later gave up the seafaring life and moved to Wallingford with his family.

A visit via time machine to the early 1800's shows a busy scene at the Muddy River. By this time, Peck's mills included both a grist mill and a saw mill. It would not have been unusual for a single water driven wheel to generate enough power for more than one business. The saw mill had a huge perpendicular blade that cut logs into beams, joists,

and planks for construction of area houses. The grist mill ground the corn and grain that local farmers brought, producing flour and meal for them.

It is likely that both John Tyler and his son Ezra, born in 1799 or 1800, bought shares in the two mills as well as in the adjacent dwelling house. Shares in the enterprise seemed to have been owned by several people much as stocks in a company are owned today, to raise capital for the business as well as generate income for the shareholders. Records show that in 1819, Ezra Tyler bought a one-twelfth share of Peck's mills for $15. Between 1819 and 1826, he continued to purchase shares for a total investment of $940. John Tyler and his son ran the mill business together until Ezra married in 1826. Perhaps because Ezra and his new wife needed a home, John Tyler and his wife moved back to Branford to run a mill in the Mill Plain section of town.

Ezra Tyler, meanwhile, established himself in Wallingford as a solid citizen and businessman. At some point, he enlarged the grist mill and constructed a cider mill. The water wheel turned the cranks of the cider press, which crushed apples to extract the juice for the making of cider, a household staple. The mills were a prosperous enterprise with many employees. No doubt Tyler Mill Road and the road that is now the Muddy River Ford Trail carried a steady traffic of wagons loaded with apples, logs, grain, barrels of cider, lumber, and sacks of flour. In addition to the mill businesses, Ezra owned and farmed a large tract of land. He and his wife Jennette raised twelve children in their house across the road from the mill. Jennette died at the age of 47. Ezra himself died in 1882 at the age of 82, but the mills remained in the family. (See photos.)

Henry Wilson Tyler, born to Ezra and Jennette in 1848, worked on the family farm and in the mills in his youth, then learned the trade of carpentry. He was a carpenter for some years before resuming work in the family farm and businesses. He achieved sufficient prosperity to build himself a new house on Tyler Mill on the rise just south of the original homestead. Henry Tyler and his wife Hattie raised six children there, including

Angenora Tyler Woliver, from whom several present-day Wallingford families are descended. (See photo.)

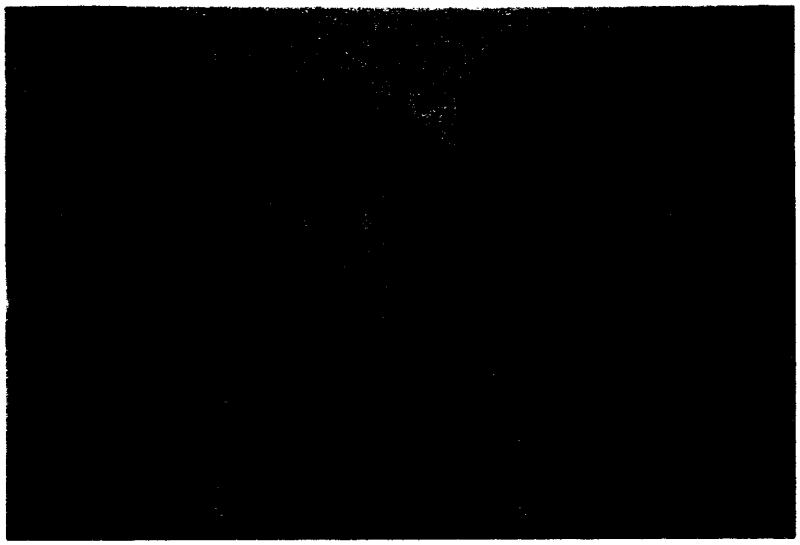
After the Civil War, business at the mills began to decline. The grist mill was used less and less as families began to buy their flour rather than grow their own grain to produce it. Building was at a standstill, so there was less need for the saw mill. Only the business of the cider press persisted, and eventually that, too, was given up.

All that remains today of this little community are the mill race and some stonework of the mill foundation and dam. The dam stood to hold the waters of the Muddy River in a mill pond until the 1920's or 1930's. Some old maps still show the pond, but it no longer exists, and the spot is obviously on its way to becoming a swamp now that the dam has been breached. Take a good look and try to imagine how the huge stones were shaped and put into place. The Tyler family homestead stood across the road from the mill. Its cellar hole was only recently covered because people persisted in throwing trash into it. The site is marked by a large, old sugar maple tree. The house, originally built in the 1700's, was a substantial saltbox with an attached shed in the rear. (See photo.) It remained in the Tyler family for years. Another Ezra Tyler, a single farmer, lived there until he died in 1896. The last person known to have lived at the homestead was David Tyler.

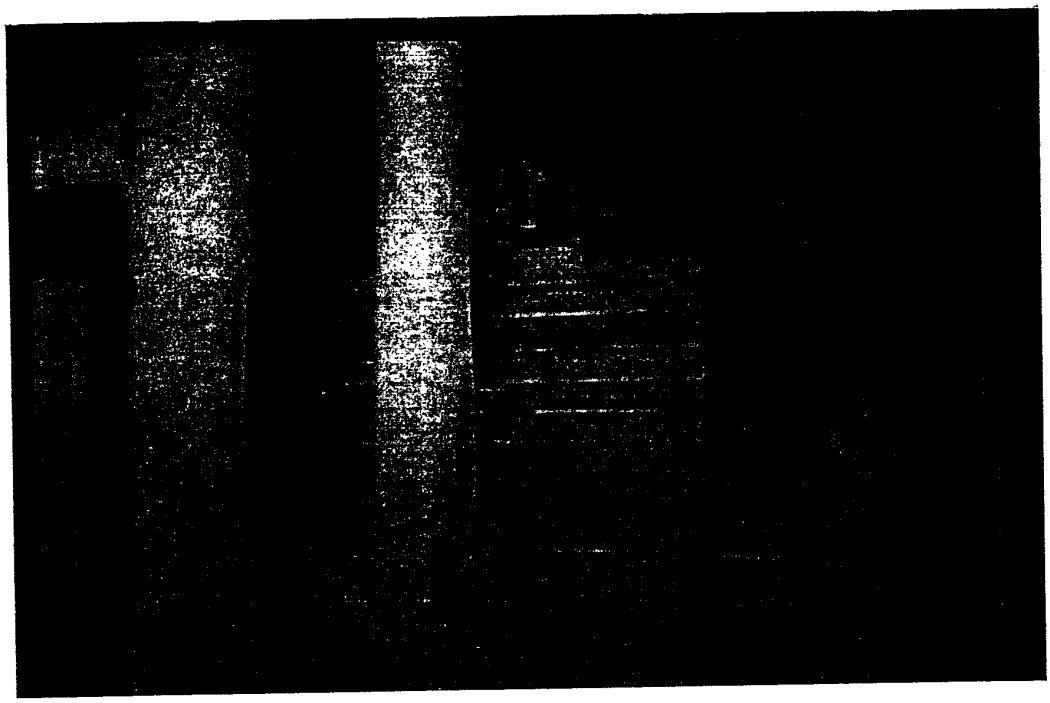
There were other homesteads in the area. Two cellar holes on the north side of the Muddy River Ford Trail mark the homes of Abel and Merriman Munson. One of the Munson's was a locally renowned fiddler and dance caller of the late 1800's. Dances at his home were a popular entertainment. The remains of a barn foundation can be seen on the south side of the trail. Another Munson house is located off the Powers Road Trail not far away. The site is marked by a profuse growth of myrtle. The Muddy River Ford Trail was once a connecting road between Woodhouse Avenue and Tyler Mill Road. A bridge crossed the river here, and a few cut stones of its foundation still remain on the west side.

Alongside the bridge is a shallow ford where farmers drove their wagons in summer to allow the water to swell the wood and tighten the wheel spokes.

At the south end of Tyler Mill Road, there was another homestead and a one room schoolhouse. The small house, whose cellar hole is barely discernible now, belonged to the Linsley family and later to the Footes. Its barn was across the road. The schoolhouse was established in 1836. In that year, a tenth school district was added to the existing nine, and a new school was constructed at the south end of Tyler Mill Road. A shallow cellar hole marks the spot. The school served children from the ages of four to fifteen. Emma Harrison, a great aunt of Robert Beaumont, current Historical Society president, taught at the school and later lived in one of the Munson houses.

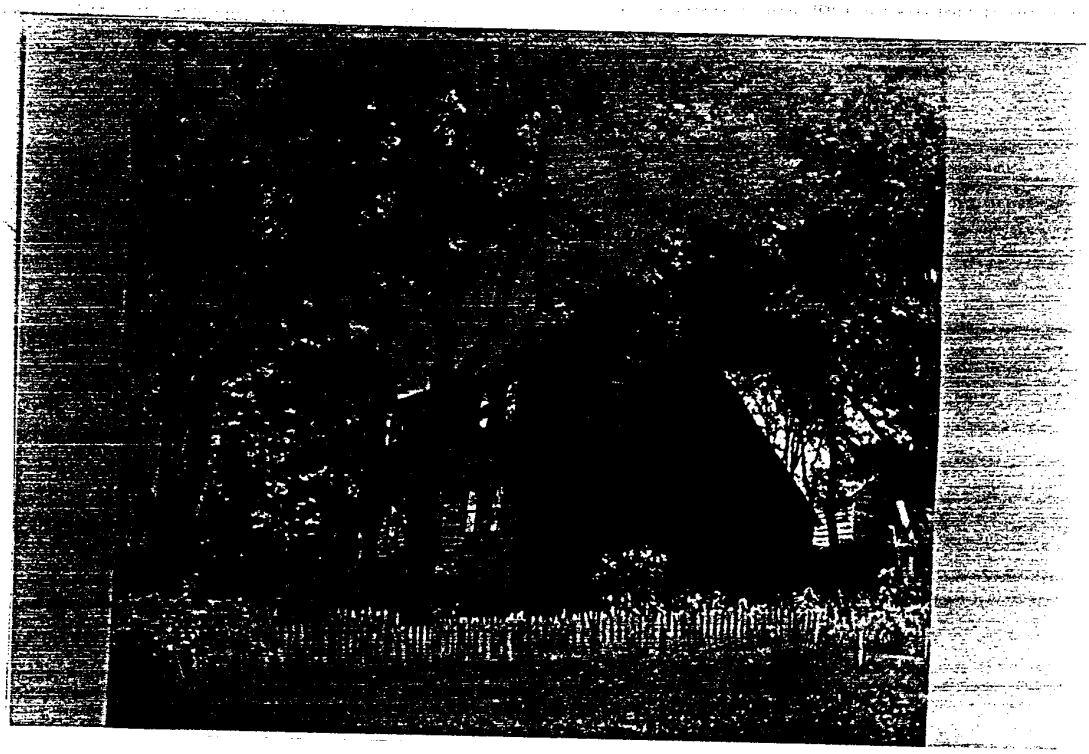


The Tyler mills as they appeared in the late 1800's. (Photo from the private collection of Robert Beaumont.)



The Tyler mill cider press in the late 1800's. (Photo from the private collection of Robert Beaumont.)

Angenora Tyler Woliver (1839-1862)
Grandmother of Bob Beaumont and
great-grandmother of Colleen Makepeace.
(Private collection of Colleen Makepeace)



Two old photographs of the Tyler family homestead on Tyler Mill Road across from the site of the mill.
(Private collection of Colleen Cooper Makepeace)

NEW HAVEN WATER COMPANY RESERVE

Our next leap in the time machine projects us to 1876, when the water rights of the mill properties were sold by the Tylers to the Fair Haven Water Works. The Fair Haven Water Works soon became the New Haven Water Company, which purchased the remaining properties in the area between the 1890's and the 1920's in anticipation of building a reservoir there. The old Tyler homestead and the other houses were probably torn down by the New Haven Water Company in the 1920's, but at least one of the Munson houses was removed intact to the west side of Wallingford in 1900.

Another jump in the time machine finds us in the twentieth century. If we look at Tyler Mill around 1923, the area would appear much as it is today. The mill has been torn down, but the stone dam is still in place. We can see a family with a young daughter on a pleasant late summer outing. They have hiked several miles carrying three or four large pails in which to gather oyster mushrooms from a particular dead tree. Great quantities of this delicacy were found there every year. The family canned and dried whatever they did not eat immediately (Fullerton letter).

TYLER MILL OPEN SPACE

The next trip in the time machine brings us to the latter part of the twentieth century. Wallingford in the late 1970's looks much as it does today, but outside of the main residential areas, there are still many acres of rolling farmland and forest and a lot less traffic than we are familiar with today. In the late 1970's much of the east side of town still looks like rural country. Two women on horseback enjoy the summer morning trotting briskly along the dirt track called Tyler Mill Road before stopping their steaming horses for a cool drink in the Muddy River. There is no sound except the rustling of leaves and the quiet slurping of the thirsty horses (photo 32)..

The Town of Wallingford purchased the New Haven Water Company property with a grant from the U. S. Department of the Interior's Bureau of Outdoor Recreation and the Connecticut Department of Environmental Protection in 1979. Then Mayor Rocco J. Vumbaco and the Councilmen at the time had the foresight to understand the importance of this 780 acre parcel and of having the Town buy it for recreational use and protect it from development. Since that time several additional parcels in the area have been purchased, sometimes to the accompaniment of acrimonious public debate in an election year. Now the area known as Tyler Mill Open Space encompasses over 1,000 acres of publicly owned and accessible open space.

Tyler Mill's identity is not firmly established even now, however. Twenty years after the purchase of the land by the Town, some official documents still refer to it as the "New Haven Water Company tract". Nor is there universal agreement about what the purpose of the place should be. In the early years, the main activities there were horseback riding, hunting, fishing, and the occasional illicit teenage party. I can remember horseback riding there in the 1980's when it was unusual to encounter another person. The trails

were clipped and cleared only if a few horseback riders committed themselves to a day on foot to do the work. Tamarack Swamp and Tyler Mill Roads were dirt roads, great for fast trotting but death to the undercarriage of a motor vehicle. Hunters and horseback riders liked it that way.

Some time in the late 1980's, for reasons known only to the Town Engineer and the Public Works Department, Tyler Mill Road and Tamarack Swamp Road were suddenly paved. The roads were not widened or even particularly well prepared for the application of the hardtop surface, but they were paved. Horseback riders were appalled because paved road is an unsuitable surface for any pace faster than a walk. Perhaps the hunters were none too thrilled either with this effort to civilize their wilderness experience.

For whatever reasons, a few townspeople were opposed to further dubious improvements at Tyler Mill, so they enlisted the help of the late Councilman David Doherty. At a Town Council meeting on December 12, 1989, Doherty moved "to accept the entire length of Tyler Mill Road as a Scenic Road" (Wallingford Town Council minutes, 3) as defined in the Town ordinances and State statutes. The motion was passed unanimously by the Council . This was a significant decision because according to the law, a designated scenic road cannot be altered or improved without the consent of the Town Council. This action effectively precluded any further "improvements" without public input. There seemed to be growing public sentiment for keeping the area as natural as possible.

A few years later, in 1991, the suggestion was broached by a few golfers who were not members of either local country club that a few hundred acres of Tyler Mill could be used to create a municipal golf course. Advocates formed a Municipal Golf Course Study Committee and concluded that a municipal golf course was a good idea. The State Department of Health Services objected because the watershed of a potential reservoir at Tyler Mill would be adversely impacted by residues of fertilizer and other chemicals

running off the golf course. In 1993, the committee persisted in asking the Town to fund a $22,000 study to determine if a golf course could be built at Tyler Mill without endangering the watershed. The golf course issue has simmered on the back burner of public interest for years. Now when the issue boils over, places other than Tyler Mill are suggested as likely sites.

An even more serious threat to the integrity of Tyler Mill Open Space surfaced later in 1993. The Town Engineering Department determined that the twelve foot wide, one lane Tyler Mill bridge over the Muddy River was unsafe. Although Tyler Mill Road, a twenty foot wide rural byway, was not expecting any more traffic, a replacement span was proposed. The design study alone cost over $60,000. The new bridge was to be a forty foot wide span with a five and a half foot wide sidewalk. The total cost of the project was estimated to be $730,000.00, a figure that included an allocation of $27,000 for sod to be planted in the middle of a forest.

The Engineering Department thought this was all a good idea because 80% of the cost would be borne by the State. Town residents, outdoor enthusiasts and penny pinchers alike, thought it was a very bad idea. Various proposals for repairing the existing structure or building a wooded bridge were hotly debated, but in the end Councilman Doherty moved to reject the engineering proposal. Several months later it was decided that the simplest, least costly, and least controversial alternative was to keep the bridge closed to vehicular traffic and not replace it at all (photo 33).

In the spring of 1993, local members of Trail Riders of the Shoreline joined with opponents of the Tyler Mill bridge replacement and other outdoor enthusiasts to organize a National Trails Day celebration at Tyler Mill. What resulted in June was a day-long outdoor festival of free nature walks, guided by local experts in bird identification, trees and wildflowers, geology, archaeology, habitats, photography, and local history (photos 34 - 37). The effort was a resounding success in building public awareness of the natural

assets of Tyler Mill. Townspeople were becoming aware of the recreation potential of the area and were concerned about protecting it. By September of that year, even newspaper editorials were calling for the preservation of Tyler Mill as a natural open space.

In 1994, Tyler Mill was in the news again, and this time the issue was the compatibility of the small game hunting program with simultaneous non-hunting activity. The State Department of Environmental Protection wanted all users other than hunters off the property for the duration of the hunting season, that is, from the third weekend of October to the end of February. Predictably, hikers, mountain bikers, and horseback riders were outraged that the Town-owned property would be closed to them for over four months a year.

Several meetings for all user groups led to a consensus that Tyler Mill could safely accommodate hunters and non-hunters alike if commonsense precautions, like the wearing of day-glo orange clothing, were observed. Hunters and horseback riders, who had previously regarded each other interests at Tyler Mill rather warily, began to realize that they had to work together for the preservation of what little open space was left to them in Wallingford, namely Tyler Mill. Cooperation was winning out over competition.

The tenuous alliance between hunters and non-hunters was tested in 1995. A court decision left municipalities unprotected if they were sued because of accidents that happened during recreational use of town property. The State and private landowners are protected from such liability, but for some reason, the State Association of Trial Lawyers convinced the General Assembly that municipalities did not need such protection. The lawyers argued that an injured party should have the right to sue a town if an accident occurred on town land. This meant that Wallingford might be held liable through negligence if it allowed simultaneous hunting and non-hunting uses at Tyler Mill.

Since Wallingford self-insures, this new interpretation made the Town Risk Manager very nervous. As a result, hunters and non-hunters alike agreed to a program of

alternating days of use during hunting season. This arrangement is still in effect at this writing in 1999. Neither the hunters nor the loose coalition of other users (horseback riders, mountain bikers, hikers) are entirely satisfied, but most obey the rules.

Our time machine's last jump is to the present. The Town has just purchased a twenty-one acre parcel in the center of Tyler Mill Open Space for $1.07 million amid considerable debate. The argument, interestingly, centered on the price and procedural matters; all concerned were more or less in agreement about the desirability of the property and the importance of protecting it from development. The deal is done, but since this is an election year, the debate is not over. Let us leave the wrangling.

As we step out of our time machine for the last time, we find ourselves at Tyler Mill in the summer of 1999. Take a look around. It is the first comfortable day after several weeks of unbroken heat and humidity. Three mountain bikers, muddy and sweaty, grunt as they labor up a steep section of Cellar Hole Hill. An older man stands at Tyler Mill bridge to listen to the quiet muttering of the Muddy River as it rolls over rocks in the shallows. Two horseback riders balance to the rhythmic trot of their horses as they stretch over the Moss Rock Run Around Trail. A breeze rustles softly in the leaves, and a cicada rattles nearby. There is a fragrance of sweet pepperbush in the air.

IV ECOSYSTEMS: PLANT AND ANIMAL COMMUNITIES

For an open space of limited size, Tyler Mill has an interesting variety of habitat types. Different plant and animal groups are adapted to particular habitats which are suitable for them. Habitats are shaped by the geological history of a place, by the environmental influences of sun, wind, and precipitation, and by human use of the land. Let's take a look at the ecosystems, the plant and animal communities, found in each of these habitats. (Individual species are shown in bold face type for clarity.)

TRAPROCK RIDGE

The origin of Tyler Mill's traprock ridges is explained in Chapter 2, The Shape of the Place: A Geological History. These remnants of diabase dikes rise above the more eroded valleys because they have been more resistant to erosion and weathering. However, they are breaking down; the talus slopes of broken rock at the base of each ridge is evidence of the effects of weathering (photos 38 - 40).

The trees growing in the stony rubble of the talus slope are mostly **birch** and **hemlock**. Rainwater is trapped in the area of small rocks, so a good habitat for wildflowers exists here. Among the **Dutchmen's breeches** and **bloodroot**, there is abundant **poison ivy.** In the mid-slope zone are such understory trees as **flowering dogwood** and **hornbeam** along with the larger **white ash** and **tupelo.** The shrub layer here is **witch hazel**, **highbush blueberry**, and **spicebush**. Near the top of the ridge are species which are wind firm and tolerant of rocky, sparse, dry soil. **Eastern redcedar** predominates here, along with some **oak** and **grey birch.** At the very summit, trees tend to be smaller because the site is more exposed to drying winds, and the thin soil

retains little water. Sometimes the **cedar** grows in exotic shapes, like examples of Japanese bonsai trees, because of the influence of the wind.

Animals are attracted to traprock ridges because they are undeveloped and relatively inaccessible to most people. The forested area are home to **deer** and **raccoons.** **Copperhead** snakes prefer the bare, sunny rocks and shady crevices of the talus slope.

SECOND GROWTH FOREST

Approximately 575 acres of Tyler Mill is woodland. Most forest trees range in age from seedlings and saplings to mature specimens about eighty years old. This area was certainly forested when the first English setters arrived in the 1600's, but they soon cleared the land for fields and pastures. When the farms at Tyler Mill were purchased by the New Haven Water Company around 1920-1930, the fields were left untended and soon reverted to shrubs and saplings, then later to larger trees. Some areas of this second growth forest have been subject to wood cuts in the last hundred years, resulting in areas of third growth forest.

Forest regeneration after a disturbance such as agricultural use or timber harvest follows a fairly predictable pattern of succession. The process starts with shrubs and early trees, called pioneer species, that are small and sun-loving. These are supplanted by deciduous and coniferous trees which eventually mature to form a climax forest. Pioneer species seen in this area include **eastern redcedar**, **grey birch**, **aspens**, and **sassafras**. **Staghorn sumac** and brambles are common, too. There is a field on the west side of Tyler Mill Road near the junction with Tamarack Swamp Road that has recently been abandoned. You can see the succession of shrubs and saplings here. Pioneer species cannot reproduce themselves in their own shade, so other shade tolerant species grow up and overtop the pioneers. These trees grow larger and can live for many years, creating increasingly shady conditions below. For a list of trees common to Tyler Mill, see Appendix B.

The majority of trees at Tyler Mill are **oaks**, including **red oak**, **scarlet oak**, **swamp white oak**, **white oak**, and **black oak. Red** and **sugar maples**, **pignut** and **shagbark hickories**, **sweet birch**, **American beech**, **eastern white pine**, and

hemlock are also numerous (photo 41 & 42). **Hemlocks** tend to occur in single species stands, like the ones near Moss Rock and on the southern end of Owl Ridge. Interestingly, saplings of **American chestnut** trees are also found scattered sparsely throughout the forest. A sapling may grow to reach a trunk diameter of four to six inches before it succumbs to the chestnut blight that killed off all of the region's mature chestnut trees earlier this century. The understory beneath mature deciduous trees is fairly open, and the shrub layer is sparse unless the forest is relatively young or there is ample sunlight near roads or trails.

Which trees grow where depends on several conditions. Location on a slope and the availability of soil moisture are significant. Low on the slope where moisture is retained and readily available, **red maple, sweet birch**, **white ash**, and **red oak** predominate, and the trees here are likely to reach their greatest size. **Maple-leaved viburnum**, **flowering dogwood, witch hazel, hornbeam,** and **hop hornbeam** form the elements of the understory (photo 43 & 44). In the middle of the slope, where there is less available moisture, there will be **scarlet oak, black oak, white oak, pignut hickory, red maple**, and **sweet birch. Maple-leaved viburnum** will again be in the shrub layer. At the top of the hill where soils are thin and wind evaporates moisture, there is a predominance of **chestnut oak, scarlet oak, black oak,** and some **red maple.**

Throughout the Tyler Mill forest, there are scattered "wolf trees", which are mature, tall trees with broad crowns. These are trees which grew up in open pastures and are now surrounded by younger forest regrowing on the formerly cultivated lands. The wolf trees are often **black oak, white oak, red oak,** and **sugar maple.**

The forest floor under an **oak** is often rather bare because it is covered with a thick carpet of decaying oak leaves. Oak leaves in particular break down very slowly and prevent seeds from reaching the soil below and germinating. Oak leaves contain tannin and

tend to make the soil underneath quite acidic. Among plants that do manage to establish themselves are such spring wildflowers as **Solomon's seal, false Solomon's seal, wild oats, pink lady's slipper, hepaticas** and **anemones**. There are also bunches of **Indian pipes, partridgeberry,** and **white wood aster.** Non-flowering plants that survive this habitat are **clubmosses** and such ferns as **bracken, Christmas fern, common polypody, marginal wood fern, hay-scented fern,** and **New York fern.**

The animals most frequently seen in the forest are those that depend on the food resources there. **Deer** and **wild turkeys** use forest food, as do **flying squirrels, grey squirrels,** and **chipmunks** that feed on seeds, acorns, and nuts. Many songbirds feed on the insects that lived in the forest canopy. Predatory birds like **hawks** and **owls** hunt as effectively in the forest as they do in the fields and brushy area.

Occasionally, more unusual forms of wildlife appear that are unexpected in an area as populous as Wallingford. Surprisingly, a **black bear** was reported in the area about ten years ago. It was probably a young animal that came over Totoket Mountain from the Lake Gaillard watershed, where bears have been established for a few years. The bear seen at Tyler Mill may have been attempting to establish a new territory. In any event, the bear does not seem to have stayed, probably because he found Tyler Mill heavily used by humans even more frightening than his own relatives.

WETLANDS

Wetlands abound in New England, and they have several functions important to environmental quality: "flood control, water table recharge, pollution filtration, oxygen production, and reduction of harmful nitrogen compounds" (Jorgenson, 250). The presence of wetlands at Tyler Mill has limited agricultural use of certain places in the past and is part of the reason, along with the presence of the Muddy River, that the area has been considered as a potential site for a reservoir in more recent times and thus has been saved from development. Additionally, wetlands are important aesthetically for the scenic beauty they provide and are crucial biologically for the diversity of plant and animal species they support. Preservation and protection of these valuable wetlands is one of the paramount reasons for preserving Tyler Mill as a natural area.

Wetlands are identified by soil type and can be classified on the basis of the plant communities they support. Tyler Mill contains three types: swamps, floodplains, and a bog. The swamps and floodplains are discussed here, and the Tamarack Swamp, which is really a misnamed bog, will be treated separately. In all there are approximately 260 acres of inland wetlands at Tyler Mill.

Swamps, where the water table is located at or near the surface all year, are located along Tyler Mill Road from Northford Road to Woodhouse Avenue. Wetland trees such as **red maple** predominate, along with such shrubs as **spicebush, sweet pepperbush, highbush blueberry, alders, willows, and buttonbush. Tussock sedge** and **skunk cabbage** are typical plants of wooded swamps. Wildflowers that bloom here include **marsh marigold, jewelweed,** and **cardinal flower** (photos 45 - 52).

Floodplains are the flat lowlands just above the edges of watercourses. There are floodplains along the Muddy River where it overflows during heavy spring rains. The floodplains handle the overflow volume of water, and the plants that live there can survive being periodic inundation. There is a readily observable floodplain area south of the Muddy River near the bridge. **Red maple, silver maple,** and **American sycamore** are adapted to this habitat. Understory plants found here include **Virginia creeper, poison ivy, silky dogwood, false hellebore, and skunk cabbage.**

Another reason wetlands are important is that they are the preferred habitat of many amphibians and some reptiles. **Toads, frogs, newts,** and **salamanders** are either primarily aquatic or depend on an aquatic environment for part of their life cycle. **Turtles** and **snakes** need access to these wetlands, too. A wide variety of waterfowl, wading birds, and songbirds is associated with wetlands. Some spend their lives in wetland environments, while others use wetlands primarily for breeding or feeding. While wetlands may look useless because they cannot be cultivated by human beings, they are among the most productive and diverse habitat types in ecological terms.

TAMARACK SWAMP: A BOG

Another sort of wetland is seen at Tamarack Swamp, which is actually a bog on its way to becoming a palustrine wetland dominated by trees. For reasons of geology and climate, bogs are uncommon in southern New England. A bog, despite the erroneous name of Tamarack Swamp, is not the same as a swamp, but it is wet. Tamarack Swamp is locally unique, and for this reason the Town of Wallingford commissioned a study of the site by a team from the Yale University School of Forestry in the fall of 1994.

Its name refers to the **tamarack**, or **eastern larch** tree, which is common in more northerly regions but unusual this far south. The **tamarack** is the rarest tree at Tyler Mill. This deciduous conifer with the straight trunk carries bunches of light blue-green needles instead of leaves, but the needles turn yellow in autumn and fall off, unlike the needles of other coniferous trees, which are retained. The **tamarack** normally also has cones, which are initially reddish and then turn to brown. Its usual habitat is the wet, peaty soil of bogs. Its range is Canada and the Northeastern United States, but the southeastern limit of the range extends only as far as northwestern Connecticut (Kapur, 3). The few old **tamaracks** in the middle of this bog, which are not reproducing, are the southernmost individuals of this species in Connecticut (Kapur, 3).

The reason for the existence of the **tamarack** trees and the bog they stand in has to do with geology, both bedrock formation and surficial processes. The bog lies in a deep basin between a traprock ridge to the east, elevation 300 feet, and two lower traprock ridge segments to the west. The basin is due to glacial scouring. The harder and more resistant traprock ridges channeled the basal ice of the glacier through the notch between them. Since the notch is relatively narrow, the glacial ice cut deeper here. When the last glaciers, those of the Wisconsin glaciation, began to melt about 18,000 to 20,000 years ago, the ice

melted first from the top and from the warmer areas of the landscape. Low-lying and colder places retained ice much longer. The ice remnant in the Tamarack Swamp basin was not only at a low point in the landscape, it was also in a notch between two ridges where it was somewhat protected from the sun. The ice melted relatively slowly to form a glacial lake over a soil of till, unsorted boulders, pebbles, sand, clay and silt dumped by the glacier. (See diagram series 1.)

When the last ice melted in the Tamarack Swamp basin, the lake was probably about 25 acres in size and up to 30 feet deep (Kapur, 5). The lake began filling with organic sediments from the edges to the center and may have existed for 10,000 years before it was completely filled, which would have happened within the last few hundred years (Kapur 5). In the usual transformation of glacial lake to bog, there are concentric zones of vegetation. The center is a floating **sphagnum** mat which is surrounded by a shrub zone. This is in turn surrounded by a tree zone, including **tamaracks**. The outermost zone is a mature swamp forest of hardwoods and **hemlocks** near the shore. Kapur and the Yale School of Forestry researchers have concluded that "the present day **tamaracks** may very well be the last of a small number of the trees to occupy the final central closure of the bog" (Kapur, 6). (See diagram series 2.)

Tamarack Swamp today receives its water from direct precipitation, surface run-off, and ground water. The soil is a very poorly drained deep organic type which is saturated most of the year. This is a bog "in the late successional stages based on the depth of peat and the vegetation community that has developed on the peat" (Kapur, 7). The Yale study concentrated on examining and mapping the peat deposit. In the north central section of the bog, the researchers found peat depths exceeding 30 feet (Kapur, 7). They did not have a probe that could go any deeper than that, so the peat could be deeper still. Understory vegetation is thickest in that area, and there is extensive surface ponding of water. (See maps 4 and 5.)

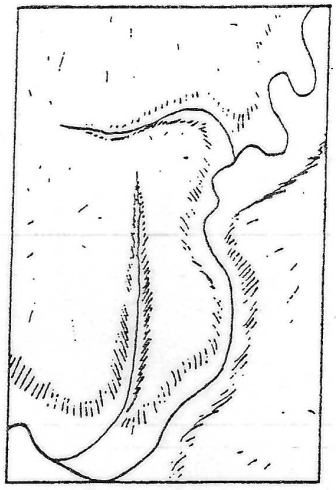
The vegetation at Tamarack Swamp consists of three plant communities: 1) The predominant trees are relatively young **red maples** with a shrub understory. 2) There are two stands of **hemlocks** with little understory, one to the north of the Swamp and one to the south. 3) There are about forty **tamaracks** in a dense shrub thicket at the center of the bog (Kapur, 8). The **tamaracks** occur as scattered trees growing on hummocks in thickets of **blueberry** and **winterberry**. Test coring established that these trees were about 131 years old (Kapur, 9). Optimum seed production age is about seventy-five years, and maximum life expectancy is around 150 years, so these trees are nearing the end of their lives.

No new **tamarack** saplings are growing for two reasons. Not only have the parent trees lost reproductive vigor, but the younger **red maples** are outcompeting the shade intolerant **tamarack** seedlings that do manage to germinate. In other words, even if the **tamarack** seeds did fall and germinate, the saplings could not survive in the shade of the **red maples**. The age of the **red maples**, around fifty years, indicates that agricultural activity, probably grazing, kept the establishment of **red maple** in check until relatively recently. The **tamaracks** were of sufficient size to be unaffected by grazing even fifty years ago. However, once the land was no longer used for pasturing animals, the fast growing **red maples** began to take over. Under the **red maples** there is abundant **highbush blueberry** and **skunk cabbage**.

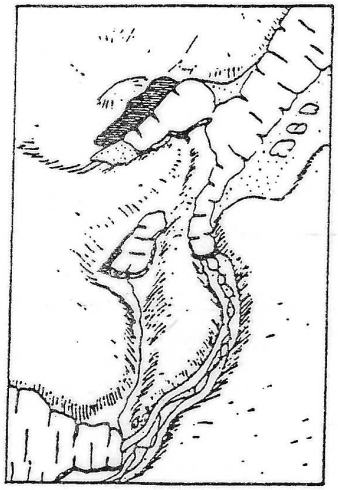
Amphibians such as **frogs** and **salamanders** and reptiles such as **snakes** and **turtles** are as likely to be found in the Tamarack Swamp bog as in other wetlands. **Copperheads** are particularly likely to live here because of the proximity of traprock ridges. Birds use this habitat, and small rodents must be plentiful in the immediately adjoining woods because **great horned owls** nest in the **hemlock** trees on the ridge.

FIGURE 1

Deglaciation Patterns
Tamarack Swamp-MacKenzie Reservoir
Wallingford, Connecticut

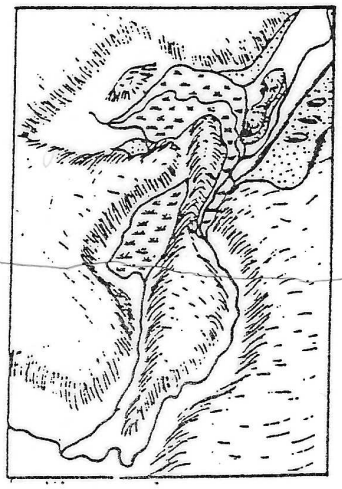


1. Probable preglacial drainage in the Pine River Reservoir area.



2. Drainage pattern after ice had melted from upland areas.

3. Level of ice-margin lake is controlled by spillway to south which carries water to second lake.



4. With complete disappearance of ice, present drainage pattern is established, lakes drain, and swamp conditions prevail.

(From: Surficial Geology of the Wallingford, Quadrangle, 1960)

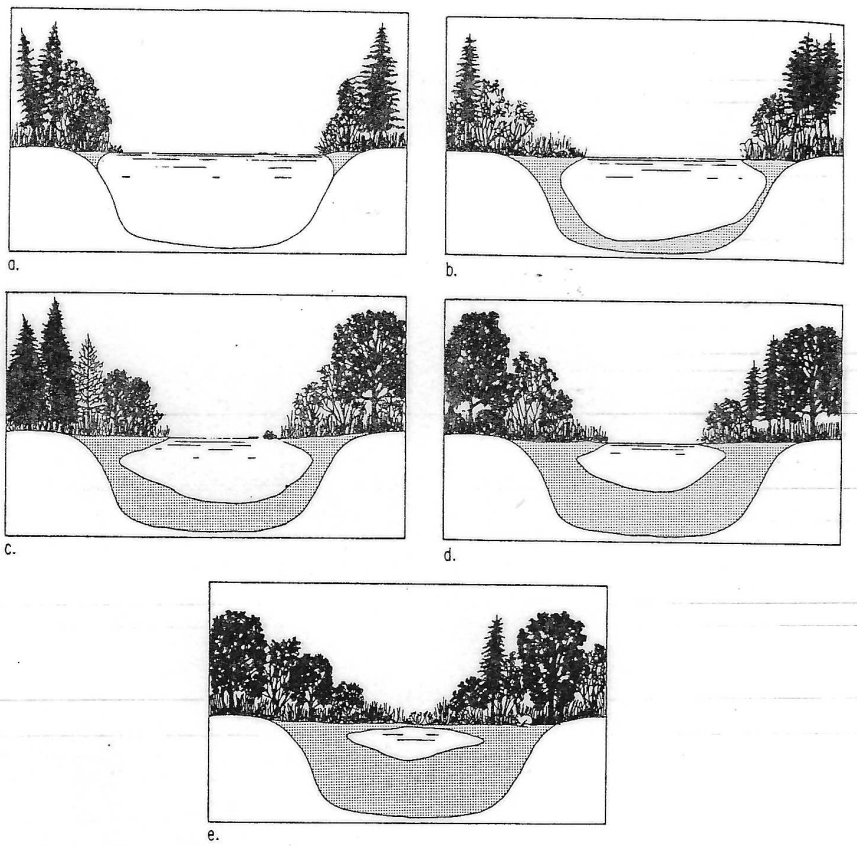
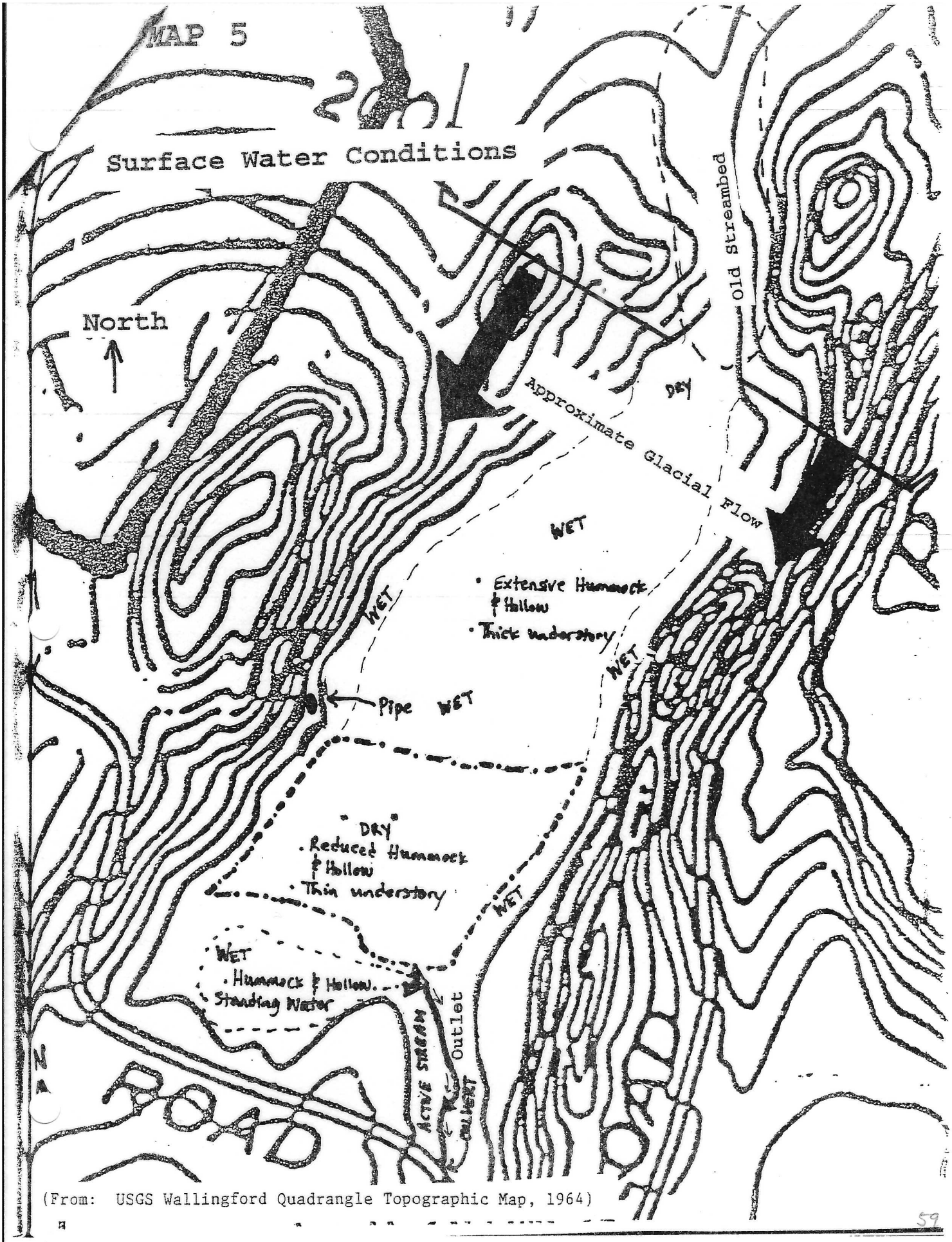


FIGURE 6–16: Ecological succession in a bog. The basin is mostly open water where drainage is congested. (*a*) Some sedges and *Sphagnum* moss are beginning to grow out from the edges. Peat continues to accumulate and the area of open water begins to shrink as the bog mat develops further. (*b*) and (*c*) Older sections of the bog are supporting the growth of some low shrubs. The edge of the bog mat is floating, which gives it the characteristic "quaking" habit found in young sections of the bog. As the peat builds up and becomes more consolidated with the further accumulation of plant remains, the soil becomes better aerated and is capable of supporting decomposition by aerobic fungi and bacteria. Nutrients are more available than in the young bog mat where peat is saturated and growing conditions are anaerobic or nearly so. Eventually, large shrubs and trees grow in the oldest sections of the bog (*d*), and the open water becomes closed off completely (*e*). The bog continues to develop toward a swamp.

(Caduto 202)

Vegetation Zone Map



(From: USGS Wallingford Quadrangle Topographic Map, 1964)

THE MUDDY RIVER, ITS STREAM BANKS, AND OTHER RUNNING WATER

The Muddy River is the predominant natural feature of Tyler Mill (photos 53 & 54). It wanders from one end of the open space to the other, entering from the north near the intersection of Northford Road and Tyler Mill Road and flowing south through the eastern side of the area. At the bridge, the river runs under Tyler Mill Road and continues its meandering south to where it passes under Woodhouse Avenue and on through Bertini Park. It eventually empties into the Quinnipiac River in North Haven. The Muddy River itself has several tributary streams. One drains Tamarack Swamp and runs under Tamarack Swamp Road. Another drains the pond in Bertini Park and empties into the Muddy River nearby. A third stream from Anderson Road empties into the river just upstream of the Tyler Mill bridge, and a fourth comes from Woodhouse Avenue and enters the river just before it passes under the road. On some maps from the early 1900's, the Muddy River is called the Pine River, but this attempt to improve its image by a name change did not last. However, the Muddy River is not muddy at all except after severe rainstorms; it is a lovely, clear stream.

The Tyler Mill area may justly be described as a cross section of the Muddy River drainage basin, including as it does the length of the river itself, flood plains, valley bottom, and valley uplands. Keeping the open space along the river in its natural, undeveloped state is crucial to the protection of the river and its watershed. The State Water Resource Commission considers the Muddy River to be a class A stream with excellent water quality. Until recently, the Muddy River provided good cold water fish habitat and supported native populations of **brook trout**. In addition, the State Department of Environmental Protection stocked more than 5,000 brook, **brown,** and **rainbow trout** annually to maintain a sport fishery. The completion of the water treatment plant upstream several years ago has meant that the water levels downstream in

Tyler Mill are artificially manipulated. The flow has been reduced at intervals so that the river's water level is not always sufficient to keep it cold enough for trout. **Bass, perch,** and **minnows** are still to be found in the small pond where the river widens just south of the bridge.

There was at one time a larger pond north of the bridge, Tyler's millpond. It backed up the river and provided the storage capacity to turn the mill wheel when there was a mill on the site. Old maps list the mill pond site, and the extent of the man-made pond can still be seen. However, most of the pond is becoming a swampy area today. There are already trees growing in the raised central area of the former pond.

In addition to the Muddy River and its tributaries, there are several intermittent streams which flow during the wet seasons of the winter, spring, and early summer when the water table is high. They are usually dry in summer and in autumn. Observing such differences is one reason why it is interesting to walk the same paths in different seasons. Things are hardly ever the same!

The Muddy River, its tributaries, and the intermittent streams of Tyler Mill are important habitat because they provide a strong food chain foundation for invertebrates like **flies, beetles,** and **crustaceans** that feed larger animals--**salamanders, frogs, toads, snakes, turtles, birds, muskrats, raccoons,** and **river otters.**

FIELDS AND MEADOWS

Tyler Mill contains several kinds of fields in addition to its other habitat types. There are approximately 100 acres of cropland which are leased to local farmers at reasonable rates. These are mostly used as hayfields, but there are a few acres of vegetables and corn. This arrangement ensures the continual presence of an important habitat type--agricultural fields--and simultaneously allows farmers to expand the land area they work without purchasing it outright (photo 55). In addition to fields being actively maintained for crops, there are also abandoned fields that are being taken over by shrubs and saplings. These are generally fields of poorer quality which no farmer was interested in leasing.

Such fields are important to wildlife in the area. Their plants and seeds, whether cultivated or wild, are a food source to animals from songbirds and **turkeys** to **deer.** Gleanings from agricultural fields are particularly important to herbivores when heavy snow covers their usual food. Fields are the primary habitat for such small nocturnal rodents as **white-footed mice, moles,** and **voles** as well as **cottontails, woodchucks,** and **white-tailed deer** (photo 56). The presence of so many creatures brings the predators that attempt to dine on them: **foxes, coyotes, owls,** and **hawks.** The **red-tailed hawk** often sits in an observation post, a tall tree overlooking a field, and waits for something to move below.

Abandoned fields are disturbed areas where invasive, non-native species like **Russian olive, multifora rose, Japanese knotweed,** and **Oriental bittersweet** become established and crowd out the more varied native vegetation.

ECOTONES

Ecotones are the marginal areas between various habitat types. Roadsides, hedgerows, shrubby edges of fields, thickets, and stream borders all combine elements of two different habitats. Such places provide attractive aspects of cover and food source for various species, so they are likely to be used by a variety of animals and their predators. Ecotones tend to be richer than a single habitat by itself. A hayfield or a forest contains particular plants, so it provides protection and food to specific animals. The shrubby margin between fields and forest attracts more species of animals than either of the other habitats alone.

V THE TRAILS: A DESCRIPTIVE GUIDE

A CAUTIONARY NOTE

There are a few things to keep in mind to enjoy a visit to Tyler Mill whether you enjoy the multi-use trails on foot, on horseback, or on a mountain bike.

1. No motor vehicles are allowed except on Tyler Mill Road and Tamarack Swamp Road. Drive slowly for the sake of visitors, wildlife, and the undercarriage of your vehicle. These are unimproved roads. Motorbikes, motorcyles and all-terrain vehicles are strictly prohibited from trails.
2. No fires are permitted.
3. No littering. If you bring something in, please carry it out. Littering ruins the outdoor experience of the next person on the trail. If you observe anyone dumping garbage along the roadside, please note the license plate number and report violators to the local police.
4. Walkers should yield to mountain bikes and horses because they are bigger and harder to stop. Step off to the side of the trail to allow horses and bikes to pass safely. It is helpful to speak up so that horses will not become startled.
5. Mountain bikers should yield to horseback riders. Stop and move to the side of the trial. Horses can be frightened if bicycles appear to be coming at them. Speak up.
6. Horseback riders should walk when approaching mountain bikes or people on foot. Say hello and thank them for yielding.

7. Dogs should be under control so that they do not chase and frighten wildlife, bikes, horses, people, or other dogs.
8. The only poisonous snake at Tyler Mill is the northern copperhead. It is a tan snake with reddish-brown hour-glass shaped markings. It is found in trap-rock ridges areas, but is quite shy and will avoid people if possible. Just watch where you put your feet.
9. Poison ivy is common. It can be a vine climbing on a tree, a low-growing plant, or a bush. Contact with any part of the plant, roots, stems, leaves or berries, may result in a nasty rash characterized by itchy, painful blisters. If you touch it by accident, immediately wash the affected area with strong soap or a specific product for treating poison ivy. The rash can be transmitted by clothing or pets that have been in contact, too.

10. Ticks inhabit areas of tall grass and shrubs year round, but are more active in warm months. The extremely tiny deer tick may carry Lyme disease. To avoid getting bitten, it is best to wear a long-sleeved shirt and long pants tucked into your socks. Use repellent. Always check yourself thoroughly or take a shower after a walk. Remember to check your dog, too.

11. Do not pick wildflowers. Make a sketch or take a photograph, but leave them for others to enjoy.
12. Water in the Muddy River and in area streams may look clean, but it is best to bring your own drinking water, especially in hot weather.
13. Firearms are absolutely forbidden except to members of the Wallingford Rod and Gun Club and hunters with a day permit who are hunting during the State regulated hunting season. Specific days during the hunting season are for hunting only; no other users should be on the trails.

Hunting season schedule for trail use

Third weekend in October to December 31

Hunting only: Monday, Wednesday, Saturday; Thanksgiving Day

All other users: Tuesday, Thursday, Friday, Sunday; except Thanksgiving Day

January 1 to February 28

Hunting only: Monday, Wednesday, Thursday, Saturday

All other users: Tuesday, Friday, Sunday (not Thursday)

WALKING THROUGH THE SEASONS

Tyler Mill's trails are worth visiting any time of year. There are unique and interesting things to see in every season.

SPRING: MARCH, APRIL, MAY

Tyler Mill begins to come alive in March. Clouds of newly hatched insects are visible in the air and in the water, making a convenient and abundant food source for returning songbirds as well as for emerging reptiles and amphibians. Near wetlands, **spring peepers** and other frogs can be heard beginning the chorus of spring sounds. **Wood frogs** emerge early and make a characteristic "quack" call. **Salamanders** can be found under rocks and woody debris near water (photos 58 & 59). On warm nights these amphibians travel to breed in vernal ponds. Such small seasonal pools dry up by summer, but are a good place for amphibian eggs because they have fewer predators than ponds and streams do.

Early in the month, male **redwing blackbirds** return to the swamps. The black males with their bright red and yellow epaulets, or shoulder patches, are distinctive. Female redwings, which return later, are a much less showy brown with a streaked breast. When the days become warmer, early returning migrating birds begin to sing their mating songs as the males stake out nesting territories. Males sing to attract mates and to warn away potential rivals. Flocks of **American robins** return around the middle of March and are particularly noticeable as they search for worms in grassy open areas and ball fields. Males and females are similar, but the male's brick red breast is brighter than that of the female.

Chipmunks become very active in March and are often seen in the vicinity of stone walls or brush piles. These lively little rodents scamper around checking out last autumn's food caches. Their chattering call can be mistaken for that of a bird.

Even though this month seems to have one foot in winter and one in spring, March is not too early for some plants to show signs of life. If you look carefully, you can see that trees are beginning to blossom. We do not usually think of trees as having flowers, but they do. Although the flowers of trees are often small and inconspicuous, many appear in late winter and early spring. Most trees bear two kinds of flowers, male and female, often on the same twig. The **red maple** and the **silver maple**, for example, have clusters of tiny reddish flowers, while the **silver maple** has greenish flowers that hang in drooping clusters. The **American beech** produces a ball of small yellowish blossoms. The birches, like the **grey birch**, the **sweet birch**, and the **black birch**, have long drooping catkins (male), and cone-like clusters (female) or short upright clusters (female).

Shrubs in wetlands are among the first to show signs of life. March is the time to look for **pussy willows** in sunny, wet areas. The little grey catkins appear early in the month on bare twigs and branches of this shrub or small tree. The catkins later mature into clusters of small flowers, yellow ones on male plants and green ones on female plants. Catkins of both plants turn an unattractive yellowish brown as they age. By the time the leaves appear, there is no longer any trace of the characteristic grey, furry flower. Also found in swampy areas, **skunk cabbage** begins to unfold its large, dark green, cabbage-like leaves. **Skunk cabbage** gets its common name as well as its Latin name, Symplocarpus foetidus, from the fetid odor of decaying flesh emitted when its leaves are bruised. Though repulsive to people, the smell attracts the insects that pollinate the plant. A similar spring plant also found in wetlands is **false hellebore**. It looks a bit like **skunk cabbage**, but can be distinguised by its parallel leaf veins (photos 60 - 62).

As March blows into April, your ears will tell you that spring has arrived; there is a significant increase in birdsong. The birds of open grassy areas such as suburban lawns and ball fields are different from those that live and breed in wooded areas. Listen carefully for songs you may not ordinarily hear at home. One bird both seen and heard on the ball fields at Tyler Mill is the **killdeer**. This handsome member of the plover family is dark brown above and white below with two dark neck rings. It appears to be formally dressed for some important occasion. This noisy bird's scientific name, Charadrius vociferus, alludes to its wide variety of loud calls. The killdeer employs an interesting ruse to distract potential predators from its nest: It will run along the ground dragging a wing and appearing to be injured. When the predator has been drawn far from killdeer eggs or nestlings, the parent flies away.

Also near the end of March, **turtles** begin to emerge from hibernation. On warm days they can be seen sunning themselves on floating logs or on rocks near wetlands

In the warm sun of April, shrubs begin to bud, with the leaves of wetland plants more noticeable at first. **Spicebush** blooms with such a profusion of tiny yellow flowers that it is often called "wild forsythia" (photo 63). Twigs of this plant give off a pleasant spicy aroma when crushed. Look for it in wet lowlands along Tamarack Swamp Road. At the same time, notice that **skunk cabbage** is growing larger and opening up its huge leaves. There is a lot of it near the Muddy River bridge.

Encouraged by longer daylight hours and warming sun, spring wildflowers bloom abundantly April. These so-called spring ephemerals grow in wooded areas and seem to blossom all at once. They are taking advantage of the brief opportunity of full sunlight to complete their whole growth cycle--leaves, flowers, and fruits--before being shaded by the leaf cover of mid-May. Traprock ridges and rocky slopes are especially good places to look for spring wildflowers, but they any are found in woodlands, fields, roadsides, and wetlands, too.

Hepaticas seem to emerge first, pink, lavender or white flowers on hairy stalks. This plant of rocky woods has leaves with three rounded lobes, which reminded early herbalists of the human liver. The name "hepatica" refers to the liver, as does its common name, "liver-wort". **Rue anemone** and **wood anemone** are two related white wildflowers of forested areas. Both have delicate one inch flowers (photo 64). They might be found not far from the **trout lily**, or **dogtooth violet**, which also prefers rich woodlands. **Trout lily** often appears in large patches, almost like a ground cover. The nodding yellow flower has three back-curving petals and three similar sepals. The name "trout lily" comes from the mottled brownish markings on the leaves, which resemble the markings on a brown trout. Look along wooded trails for the **trout lily**. The flowers will blossom on plants that receive sufficient sunlight. Many plants receive insufficient sunlight for flowers, but form carpets of leaves under the trees. In wooded areas with rich soil, **purple trillium** can be found. Each solitary flower growing on its short stalk is arranged on a plan of three, hence its name. There are three maroon petals with three green sepals and three diamond shaped green leaves. Never pick trillium! Like skunk cabbage, it has a foul smell with which to attract the carrion flies that pollinate it. This odor is the origin of the flower's common name, "**stinking Benjamin**". **Purple trillium** is also called **red trillium** or **wake-robin**, probably because its blossom is about the same color as the breast of the bird that returns in spring when the flower appears. Native Americans used the plant as an astringent and made a poultice of it to treat insect and snake bite. Early common names for this plant, "birth wort" and "squaw root", refer to its medicinal uses (Niering, 610).

On rocky slopes or traprock ridges, especially where the Hayfields Trails runs next to a traprock ridge, fragrant **Dutchmen's breeches** proliferate (photo 65). These white pantaloon-shaped flowers hang on an arching leafless stem like tiny bloomers set out to dry on a miniature clothesline. This wildflower is in the same family as the familiar pink

garden favorite, bleeding heart. Their feathery leaves are quite similar. **Bloodroot** is a white flower of April. It is a low-growing small flower with eight to ten petals arranged around an orange center. If picked, the stem and roots yield a reddish juice used by Native Americans as a dye and insect repellent (Niering, 674). Its Latin name, Sanguinaria canadensis comes from the Latin word for "bleeding". Also found on rocky ridges and slopes is the beautiful red and yellow flower of the **wild columbine**, with its striking spurred and curving petals and colored sepals. The nodding, bell-like flowers attract long-tongued insects. **Wild ginger**, with a dark red flower blooming close to the base of the plant, and **colt's foot**, with a dandelion-like flower, are other common spring blooms.

The bright gold **marsh marigold** is spring's herald in the wetlands (photo 66). Look for these one inch flowers wherever a trail crosses a stream or swampy area. Some people cook its wide, dark green leaves and eat them as a spring vegetable.

When you are looking for **marsh marigolds**, observe the water level in wetlands. Everything seems to be wet! Streams carry more water and swamps are fuller (photos 67 & 68). Ice in previously frozen ground has melted, and there is frequent seasonal rain. Trails that are usually dry now have deep wet spots, or wallows, from past vehicle damage. Look for **tadpoles** in these muddy puddles.

Spring is the time for beautiful flowering trees and shrubs on suburban lawns, and the woods and wetlands are adorned, too. **Flowering dogwood** grows along Tamarack Swamp Road. This small understory tree is covered with white "flowers" which are really four petal-like bracts. The real flowers are in tiny yellowish-green clusters at the center of the more showy bracts. Small as the tree is, its hard wood has been used for spools and mallet heads. Native Americans used the roots to make a red dye (Little, 616). Several **apple** trees also blossom along Tamarack Swamp Road (photo 69). These trees may be a remnant of an old orchard or may have been planted by farmer long ago. Uncared for, the trees now produce only a few stunted apples. Several other trees bloom

attractively here and there. Wild **cherry** trees have similar white blossoms with five rounded petals. The **horse chestnut** bears long upright clusters of one inch bell-shaped flowers. The **tulip** tree, or **yellow poplar**, has a spectacular two inch flower in the form of a cup of green and orange petals that looks very much like a tulip.

There is one profusely blooming shrub that can take on the proportions of a small tree. The **Russian olive** has silvery foliage on a dense network of branches. The small yellowish flowers are fragrant, and its late summer berry-like fruit is a food source for gamebirds and songbirds. The **Russian olive** is a popular ornamental shrub that has escaped from cultivation and become a pest where it grows in the wild. It sprouts readily from the roots and forms dense thickets, which are good wildlife cover but quickly obscure trails. The trail south of Airplane Field must be clipped several times a year during the growing season to keep the trail open. Because each twig of this shrub ends in a short spine, passing through a stand of **Russian olive** can be a painful experience. Another profuse bloomer is often smelled before its white blossoms are seen. The fragrance of the **multiflora rose** seems to perfume the air. Thickets of prickly **multiflora rose** stems laden with masses of white flowers grow along Tamarack Swamp Road and at the borders of woods and fields. Rose hips are a wildlife food source, and the plant provides excellent cover, but unfortunately this plant spreads readily into fields and pastures. There is an impenetrable thicket of **multiflora rose** on the north side of Tamarack Swamp Road where only fifteen years ago there was a useful hay field. The many rose canes with their sharp thorns are a hazard for trail users, so they must be clipped back. Like that other non-native pest, **Russian olive**, **multiflora rose** is invasive in the wild. Both plants grow so profusely that they crowd out native plants and alter habitats by forming dense stands. They are difficult to eradicate once they become established, and they increase the difficulties of trail maintenance.

May is prime time for birdwatching at Tyler Mill. Migratory species have returned to their New England breeding grounds, so the woods and fields resound with the songs of birds attempting to attract a mate or defend a territory. You can buy a tape or compact disc of birdsongs or you can borrow one from the library. Train your ear to identify some of the common birdsongs. Before the trees are fully leafed out, careful observation may enable you to correlate the song with the singer. Some of the birds frequently seen on suburban lawns and at bird feeders may be observed at Tyler Mill on ball fields, hay fields, or in shrubby clearings. Other species are only found in wooded and relatively undisturbed forest tracts like this one. See Appendix A for a list of some of the birds observed at Tyler Mill.

Birds are not the only creatures flying around in May. Small pale blue butterflies called **spring azures** can be seen, and there are also **tiger swallowtails** and **mourning cloak** butterflies. There are other insects, too, including **flies, gnats**, and **mosquitoes** that can be annoying.

Wildflowers of May bloom in great abundance. Early in the month, the lavender flowers of the five petaled **wild geranium** appear in woods and fields (photo 70). This plant has a deeply cut five-part leaf. Its other common name, "**crane's bill**", and its genus name geranos from the Greek word for crane refer to the elongated beak-like capsule at the center of the flower. The **common blue violet**, which is actually lavender blue, appears in the woods at this time also. Look for it in moist forested areas of the Backside Trail. You may find other kinds of wild violets. A good field guide to wildflowers will help you distinguish among them by looking at their leaves. Be careful not to confuse the common blue violet with the **periwinkle**, or **myrtle**. This spring ground cover is not wild at all; it has escaped from cultivation and frequently forms extensive patches around old cellar holes. Look for **periwinkles** along Tyler Mill Road, especially at the southern

end where a schoolhouse once stood. The flower is a bluish purple five lobed funnel with a white center (photo 71).

Another blue flower of a completely different shape and habitat is the **blue flag iris** (photo 72). It looks much likes the garden iris, but grows wild along streams and in wet areas. The **blue flag iris** rises on a sturdy stem from a cluster of long, thin leaves. The rhizome is quite poisonous, but small quantities were once used by Native Americans and colonists as a diuretic (Niering, 565).

An unusual green flower appears in May: **Jack-in-the-pulpit**. The plant gets its name from the shape of the flower. The "pulpit" is a ridged tube with an arching hood. This part of the flower is green and often streaked with brown. Inside the "pulpit" is a club-like structure, or "Jack", which bears tiny flowers (photo 73). **Jack-in-the-pulpit** is found in damp woodland. It grows along several trails, but is hard to see because it is the same color as the surrounding vegetation. The underground tuber of **Jack-in-the-pulpit** was once gathered and cooked as a vegetable, hence its common name, "Indian turnip".

One very elusive spring flower is the **pink lady's slipper** (photo 74). This member of the orchid family bears a distinctive 2 1/2 inch lip petal that looks like a slipper with an opening slit. It is also called the **pink moccasin flower**. The **lady's slipper** grows in the woods and is rarely seen. Orchids propagate poorly and should never be picked.

Two white spring flowers in the lily family have similar names and prefer similar habitats, but they look different. These cousins are the **smooth Solomon's seal** and the **false Solomon's seal**. **Smooth Solomon's seal** has small white, bell-like flowers hanging from an arching stem. Native Americans and colonists looked for the starchy rhizome of this woodland plant as food. **False Solomon's seal**, also a forest plant, carries feathery masses of flowers at the end of each arching stem. Somewhat similar to

smooth Solomon's seal is **wild oats**, also known as **sessile bellwort.** It has a single small pale yellow flower like a narrow bell hanging from an angled stem. Look for it in the woods along the Short Cut Trail near Tamarack Swamp Road. **Canada mayflower** blooms there, too (photo 75).

In hayfields, near shrubby edges of fields, and along roadsides many common and easily recognizable wildflowers appear in May and bloom throughout much of the summer. These include several **clovers**, **blue vetch**, **oxeye daisy**, **Queen Anne's lace** or **wild carrot**, **dandelion**, **buttercup**, **bluets**, and **butter and eggs**. Some of these are interesting as well as beautiful and deserve to be more closely examined with a hand lens. Nevertheless, since most people can identify them, they need no description here.

One plant that begins flowering in May should be noted and strictly avoided. That is **poison ivy**. It can grow upright, as a vine, or as a trailing shrub and bears small greenish or white flowers in clusters. Poison ivy not only flowers in spring, it also bears small white, berry-like fruits from August to November. Its three leaves are characteristic whatever shape the plant takes, and whether it is found in woods, thickets or roadsides. The adage "Leaflets three, let it be" is a useful warning, for all parts of this ubiquitous plant contain a volatile oil that causes severe skin inflammation and itchy blisters. In case of contact, wash the affected skin with soap or swab with alcohol immediately. Although poisonous to humans, poison ivy fruits are an important food source for songbirds and gamebirds because they persist through the winter when other foods are scarce.

SUMMER: JUNE, JULY, AUGUST

A summer walk in the woods is a pleasant experience (photo 76). You will hear the hum of insects and some bird song, but it is quieter than in spring because fewer birds breed, so they no longer sing their mating or territorial songs. As you walk near any open fields, look up and see if there is a large dark shape soaring overhead. The **red-tailed hawk** is common at Tyler Mill. You may hear its hoarse scream, especially if your presence forces it to move away. **Red-tailed hawks** often perch in a tall tree at the edge of meadow to watch for movement in the grass below that might mean the imminent arrival of a meal of small rodent or cottontail. Red-tails hate to be interrupted while they are waiting for lunch. The other large bird seen soaring overhead could be a **turkey vulture**. The black **turkey vulture** is rarely seen on the ground unless it is feeding on a carcass. If you do see this scavenger at close range, observe the small, red, featherless head on this large bird. This bird is usually silent, although it may hiss if disturbed while feeding. You can usually tell the difference between **hawks** and **turkey vultures** overhead because the **vulture** soars with its wings held slightly upward at an angle from its body in a dihedral, or shallow "V" shape, and the undersides of its wings have a dark grey or blackish band at the trailing edge. The **red-tailed hawk**, on the other hand, soars with its wings held in a fairly flat plane with its body, and the wings appear light underneath except for dark tips.

Another large bird seen in the woods in summer is the **wild turkey**. This gamebird, after being hunted out of Connecticut for many years, has been successfully re-introduced by the State Department of Environmental Protection. The **turkey** is elusive, but you may hear its quiet gobbling even if you cannot actually see the three to four foot tall dark bird itself. You may see a hen with her dozen or so chicks crossing a path. Flocks of

several hens, their chicks and a few toms are sometimes seen foraging in cornfields that have been harvested (photo 77).

Another bird sound you may hear is the energetic scratching of the **rufous-sided towhee**. Look for this bird if you hear it turning over dry leaves in search of insects and grubs. It bears a slight resemblance to the more familiar robin, but only the **towhee**'s sides are reddish and its breast is white. Its call is an easily recognizable "Drink your tea." See Appendix A for a more complete list of the birds seen at Tyler Mill.

Summer is a good time to observe insects. Colorful butterflies can be found sipping water from puddles or on flowering plants. **Honeybees** hover there, too, so intent on their business of nectar gathering that they are unlikely to sting unless disturbed. **Wasps** may also be in the vicinity, but they are best given a wide berth because they can be testy. **Paper wasps** live in large, grey, football-shaped nests that hang from the branches of trees or shrubs (photo 78). **Yellowjackets** are ground nesting wasps which prefer sites in dry woodland or rock crevices. The nests are noticeable because of the large numbers of insects streaming in and out. Both **paper wasps** and **yellowjackets** react aggressively if their nests are disturbed.

If you happen to be walking early on a dewy morning or after a rainfall, look carefully for **spider** webs. The droplets of water will glisten like diamonds in the sun. The webs are intricate and quite lovely. If you look closely, you may see the owner or perhaps a luckless insect trapped in the web for the **spider's** next meal.

Fly larvae are an important food source for many creatures, but a few **flies** can be annoying unwanted companions on a hike. The **black flies** of late spring and early summer can give a bite that leaves a painful welt. Wedge-shaped **deerflies** deliver a similar bite, but they are more troublesome to horses and other animals than to people.

Close your eyes and listen. Insects make several of the sounds that people associate with summer. **Crickets** and **katydids** stridulate, or make their sounds, by

rubbing a projection on one front wing over file-like ridge on the other front wing. **Cricket** sounds are rather musical chirps or trilling, while **katydids** and also **grasshoppers** produce more mechanical rattling or buzzing sounds. Several species of **crickets** and **katydids** are common at Tyler Mill. Each sings from a particular type of perch--trees or shrubs or low vegetation. Most sing at dusk and night, but some may produce sounds day and night. In most species it is the male which stridulates to attract a responsive mate. The loud daytime buzzing of the male **cicada** (sometimes mistakenly called a locust) is a well known sound associated with hot weather.

Insects can sometimes be observed around water. **Whirligigs** seem to spin over the surface of ponds and streams, while **water striders** literally walk on water. Other insects are more elusive, but overturning an occasional rock or log can reveal an opportunity for interesting observations. Often the area underneath may be seething with the activities of such creatures as **ants**, **earwigs**, **pillbugs**, **millipedes**, **centipedes**, and **beetles**.

Several amphibians can be observed at Tyler Mill if you know where to look. **Newts**, **salamanders**, **frogs**, and **toads** spend most of their lives in or near water (photos 79 & 80). **Salamanders** have streamlined bodies and long tails, while **frogs** are tail-less and have well-developed hind legs for jumping. **Salamanders** may be seen in ponds during the breeding season but may also be found under streamside logs or rocks. **Toads** breed in shallow water but spend their lives in woodlands, where they eat earthworms and insects. **Frogs** found at Tyler Mill range from the tiny, one inch **spring peeper** to the six to eight inch **bullfrog**. The **spring peeper** makes a well-known cricket-like call. The **bullfrog's** call is "jug-o-rum." A careful observer in the swamps may see **pickerel frogs** and **green frogs**, too. The **green frog** makes a "gung" sound like a plucked rubber band.

Tyler Mill is a good habitat for reptiles, but they are not easy to find. **Painted turtles** may be observed as they sun themselves on rocks or logs near the water. The shell is black with yellow or red markings around the edges of each plate. These alert turtles dive at the first suspicion of danger. The **spotted turtle** is a small common turtle with yellow spots on a black shell and yellow-orange spots on the head. The **snapping turtle** has a reputation for being "a turtle with a long tail and a short temper" (Jorgensen, 372). It eats mostly water plants, but can be quite nasty in defending itself on land, so it is best left alone.

There are several snakes that inhabit Tyler Mill, but chances are they will disappear before you see them. Sometimes snakes can be heard slithering away in the grass beside the trail as they move away. Only the secretive **copperhead** is poisonous. Step carefully around traprock ridges and rocky slopes, but it will try to avoid you. I have seen only one in many years. The **garter snake** can be found in a variety of habitats. It is a thin snake with three yellowish stripes along its back and sides. The **northern water snake** lives around swamps and streams. It has a stout, dark-colored body with cross bands (photo 81). The **black racer** is a long, fast-moving black snake. These snakes are efficient rodent killers and are quite beneficial.

Because Tyler Mill is a fairly extensive open space, it is a good habitat for mammals. Some of these are the familiar wild animals which have managed to adapt to life in suburbia. The **grey squirrel** that raids the backyard bird feeder actually survives quite well in the wild on a diet of hickory nuts, acorns, fungi, seeds, and berries. Some of the acorns the **grey squirrel** buries for the winter are forgotten and germinate and grow into new oaks. Look for a **grey squirrel** nest of leaves and twigs in a tall tree. Another animal that coexists peacefully with humans is the **chipmunk**, a striped ground squirrel. It lives in a burrow, but also climbs oak trees to gather acorns. It varied diet includes seeds, nuts, fruits, and insects. Look for **chipmunks** on or around stone walls, which

serve as **chipmunk** highways and hiding places. The **chipmunk** makes a whistling chatter. The **woodchuck**, or groundhog, can be observed at the edges of fields and along roads. It digs a system of burrows and usually does not stray far from one entrance or another in its search for edible plants.

Some of the mammals at Tyler Mill are rarely seen because they are nocturnal. The **flying squirrel** does not really fly, of course, but it glides by spreading the thin furry membrane that extends from its front legs to its hind legs. It can glide long distances with considerable control and make a soft landing on the ground or on another tree. **Flying squirrels** live in groups in hollow trees o woodpecker holes. If you suspect that a hollow tree may have a nest of **flying squirrels**, rap the trunk with a stick and they may appear at the entrance to see who is knocking. Three nocturnal animals that have acclimatized to back yards also inhabit Tyler Mill: the **raccoon**, the **opossum**, and the **striped skunk.** They are rarely seen alive during the day but are most often encountered dead along the roadside as a result of being hit by a car. In fact, if you see one of these animals on the trail during the day, leave it strictly alone because it may be ill. You will also want to avoid **skunks** whenever you see them. A **skunk** that feels threatened can lift its tail and spray an extremely malodorous and unpleasant defensive spray from glands near its anus to dampen the curiosity of an observer or predator. Other seldom seen nocturnal animals are the **meadow vole**, **white-footed deer mouse**, and various **bats**.

Another rodent at Tyler Mill is an aquatic one, the **muskrat**. It usually lives in a burrow in a stream bank. Watch the surface of the water for a small dark shape leaving a "V" shaped wake behind. A member of the weasel family, the **river otter** lives along the Muddy River, but **river otters** are rarely seen and are more recognizable by their unusual sliding tracks in winter snow, so they will be mentioned later.

The largest animal at Tyler Mill is the **white-tailed deer.** The population of this game animal is high despite a legal hunting season in some areas. Deer hunting is never

allowed at Tyler Mill, however. **Deer** browse on twigs, grass, shrubs, apples, acorns, and bark, but they will also eat ornamental plantings in residential areas and do damage to apple orchards if populations are squeezed by development into ever smaller parcels of remaining open space. **Deer** feed at dusk, at night, and at dawn, so look for them in hayfields and open areas. **Deer** also bed down at night in tall grass, so you might see flattened spots in a pasture, their unmade beds. They spend their days in dense thickets. You may occasionally frighten a hidden **deer** into flight as you walk down the trail. You will be even more startled than the **deer** when you hear the sudden commotion of snapping branches. Probably all you will see is the trademark white tail raised in alarm as the elegant animal bounds away.

The **white-tailed deer** has had to adapt to the necessity of sharing the land with humans. Despite the fact that it is most often encountered on farmland, in managed open space, or even in the back yard, seeing a **deer** is a little bit magical for most people. As nature writer John Masden put it in an issue of Wyoming Wildlife, "a **deer** lends a special wildness to the land, so that wherever the **deer** is found, it is truly a wild place. **Deer** carry wilderness entangled in their antlers; their hoofprints put the stamp of wilderness on tame country" (37).

The **cottontail rabbit** is another inhabitant of fields and thickets. The numbers of this appealing animal fluctuate, probably as the result of disease or numbers of predators. **Cottontails** seem more numerous recently after several years of scarcity.

Two canine predators hunt at Tyler Mill, the **red fox** and the **coyote.** The smaller of the two, the **red fox**, hunts in fields, thickets, and woods for small animals and also eats nuts, berries, and fruits. The **coyote**, a relative newcomer to southern New England, is clever and adaptable. It is larger than the **fox** and may be in the process of displacing those natives. Although it resembles a medium sized dog in appearance, the **coyote's** manner and body carriage have an unmistakable wild look. Its actions are very

purposeful and deliberate, as if it is aware that it must survive on its own and not depend on people's table scraps as does its cousin, the dog. **Foxes** may bark at night, and **coyotes** can sometimes be heard howling. They occasionally howl in response to sirens or to a person attempting to howl like a coyote. If you hear a **coyote** at night, try to give a howl yourself and listen for an answer.

When you need a rest from your hike, take a few minutes to watch the small fish in the Muddy River. They are visible in the pool at the bridge or you an sit on a shaded rock and look in the river. The fish in the Muddy are mostly **minnows** and **bass**. The State Department of Environmental Protection stocks the river with **trout**, but the spring fishing season removes most of them before hot weather. The municipal water treatment facility upstream sometimes causes low volume flow on the river, and the water becomes too shallow and warm to support a viable **trout** population.

A summer walk in the woods offers a refreshing combination of sunlight and shade. The tree canopy overhead blocks much of the sun because each leaf is positioned to receive the maximum amount of light. Sunlight is the energy that powers photosynthesis, the process by which trees and other chlorophyll containing green plants use water and soil nutrients to create carbohydrates for food. Compare the leaves of a mature tree with those of a sapling of the same species. Young trees often have larger leaves to capture the maximum amount of sunlight despite their lack of height and limited access to the sunny canopy (photos 82 & 83).

Summer is the best time to identify trees because the leaves are the most obvious clue. Trees can be identified by examining the shape of the tree, by autumn leaf color, by looking at acorns, or by analyzing twigs, but looking at the leaf shapes is far easier. With a good field guide to trees and shrubs, it is possible to learn the various species at Tyler Mill. Binoculars are useful for seeing the leaves of tall trees. See Appendix B for a list of common trees at Tyler Mill.

This is a post agricultural mixed deciduous forest with **oak** trees predominating. The stone walls that create a network throughout Tyler Mill bear silent witness that this was once farmland, fields, and pastures (photo 84). It was cultivated from the late 1600's when Wallingford was settled until the early 1900's.

The reasons why particular trees grow where they do are many and complex. One reason has to do with each place's unique micro-climate--elevation, exposure to precipitation, sun, and wind. Another reason has to do with the soil type and the kind of bedrock underneath. Wetness or dryness of the soil and proximity to water are important factors, as is the presence of seed bearing trees. Previous use of the land, whether it was cultivated, hayfield, or pasture, also figures in the equation. Rather than attempt to discover why certain trees and shrubs grow where they are, I will mention some of common trees and shrubs and make a few comments. It is fun to look for particular trees on your own as you learn to recognize them.

Several species of **oak** predominate in this forest. Three different **maples**, two **hickories**, several **birches**, and a **beech** round out the cast. The understory consists of smaller, shade-tolerant trees and shrubs. In addition, there are completely different stands of trees in particular habitats. **Tamarack**, or **larch** trees grow in the middle of Tamarack Swamp, for example. Groves of **hemlocks** grow on Moss Rock, along the Muddy River, and on the slopes of Owl Ridge along Tyler Mill Road. Many different shrubs grow in the forest understory and in swamps and wetlands. Several of these are noticeable because they flower in summer. **Maple-leaved viburnum**, named for the shape of its leaves, blooms in flat clusters of white flowers (photo 85). **Mountain laurel**, a common cultivated ornamental, grows wild abundantly here in Connecticut, where it is the State flower. There are a few specimens of this evergreen shrub which bears clusters of white or pinkish flowers in June. Look for **mountain laurel** along the Muddy River Ford Trail and on the Moss Rock Ridge Trail.

Part of the fun of a summer walk is finding a few wild berries to taste. Check a field guide to be sure you know which ones are edible. Grassy fields may yield tiny, sweet wild **strawberries**. **Highbush blueberry** us a common shrub, but chances are that birds or small mammals will have done their picking before you get there, so you may not get many berries. **Blackberries** are large and sweet, just be careful of the prickles on their stalks (photos 86 & 87). Purplish **elderberries** are edible, as is the purplish raspberry-like fruit of the **white mulberry** tree. This tree was once cultivated because it is the food of silkworms but it has since spread readily in the wild. Birds and **raccoons** eat the fruit and inadvertently spread the seeds.

Summer flowers are abundant, and most are found in open places because they need more sun than is available in the shade of the forest canopy. Look in open fields, pastures, hay fields, fence rows, roadsides, and sunny places within the woods. Some plants that might be considered weeds have attractive flowers. Most people recognize the bright yellow **buttercup**, **black-eyed Susan**, white **bladder campion**, brilliant **cardinal flower** or **lobelia**, which is pollinated by **hummingbirds**, and the orange **daylily** (photos 88 & 89). Once in a while, you may see **daylilies** in the "wrong" place, in the middle of the woods, for example. Look for a cellar hole nearby, for they might have been planted by a farmer's wife in her dooryard long ago. There are several yellow **hawkweeds**, whose flowers look like smaller versions of the dandelion, and **fleabanes**, which resemble small daisies. Two common flowers of roadsides and waste places are **black mustard** (which is yellow, not black) and **chicory**, whose sky blue flowers attract the eye. Both of these plants have edible parts; chicory roots are roasted and ground as a coffee substitute. Several attractive **asters** in various shades of purple can be seen in sunny places, although one, the **white wood aster**, has white flowers and grows in the woods (photo 90).

Among the less well known common flowers is the **milkweed**. It has attractive pink flower clusters, but its real claim to fame is that the foliage is a crucial food source for the **monarch butterfly** larvae. The milkweed contains chemicals like those used in human cardiac medications, which serve to make the monarch larvae and adults toxic to predators. **Common tansy** has escaped from cultivation; its familiar orange-yellow button-shaped flowers form flat-topped clusters. Two unusual flowers complete this partial survey of summer flowers. The **evening lychnis** has a white, fragrant flower with an inflated calyx that looks like a little green balloon behind the blossom. This flower blooms only at night and attracts moths to pollinate it. The **Indian pipe**, also white, is a saprophytic plant with a translucent stem topped by a single nodding flower that look just like a small pipe. It gets its nourishment, not from the process of photosynthesis as green plants do, but from decayed organic material. Because it does not need sunlight to produce food, it can grow in dense shade. Do not pick **Indian pipe** as it soon turns black and dies. It is found in rich woodland soil. I have seen **Indian pipes** under **hemlock** trees.

By late summer, some of the spring flowers have become fruits. **Jack-in-the-pulpit** leaves have withered away, but the stem that bore the pulpit-like flower now carries a cluster of green berries that turn to bright red (photo 91).

AUTUMN: SEPTEMBER, OCTOBER, NOVEMBER

A walk in the woods, in autumn is an invigorating experience. The air is cooler, but the sun is still warm and pesky insects have disappeared. The forest has a different look in autumn as the trees begin their annual color changes (photos 92 & 93). If you walk in successive weeks, you will note which trees first exchange their green leaves for more showy colors. Reds, oranges, and yellows predominate. **Staghorn sumac**, which usually grows along roadsides and the edges of fields, has leaves which turn brilliant red. Upright clusters of dark red fruits appear at the same time. Most **oak** leaves turn reddish with bronze or brown tones, but the **scarlet oak** turns really scarlet. **Sugar maple** leaves turn shades of deep red, yellow, and orange all on the same tree. **White oak**, **silver maple**, and **grey birch** leaves turn orange, while **shagbark hickory**, **sweet birch** and **yellow birch**, **American beech**, **tuliptree**, and **sassafras** turn various shades of gold and yellow. The needles of the **tamarack** turn yellow at this time as well because they fall just like the leaves of deciduous trees.

In autumn it is possible to take a look at the many different kinds of acorns and nuts. **Squirrels** and **chipmunk** cannot possibly get every single one! With a good guide to trees, you can determine which acorn belongs to which **oak** and which nut belongs to which **hickory**. One unusual fall fruit is that of the **sycamore**, which is a brown ball hanging on a long stalk like an ornament. The ball is composed of many tiny nuts.

A few plants bloom in fall. Among the shrubs **witch hazel**' s spidery yellow flowers appear almost like autumn forsythia. Several **goldenrods** make their entrance in clearings and along roadsides at this time of year to show off their bright yellow plumes of flowers (photo 94). **Spotted Joe Pye weed** adds a note of pinkish-purple with its tall

clusters of flower heads (photo 95). Native Americans may have used this plant to treat fever. Although **common milkweed**'s flowers have passed by, its seeds are even more spectacular: Each seed is attached to a tuft of hairs like a silky parachute. Many seeds are launched all at once when a milkweed pod ripens and splits to release its contents into the air (photo 96).

Some berry-like fruits appear at this time as well. On the **flowering dogwood**, clusters of red berry-like fruits show were the blossoms once were. On two vines, **climbing bittersweet** and **Oriental bittersweet**, clusters of bright orange berries split open to reveal red seeds inside. Closer to the ground in the woods, two creeping plants show off clusters of bright red berry-like fruits. **Bunchberry** bears clusters of berry-like fruits, while **partridgeberry** has a single fruit (photo 97). The partridgeberry is edible.

If autumn weather is wet and rainy, autumn is a good time to observe the many varieties of **fungi,** known as **mushrooms** and **toadstools**. They vary greatly in size, shape, and color, but most of these **fungi** derive their nutritional needs from organic material such as dead plants or fallen trees. A few are parasitic on living trees. **Mushrooms** found at Tyler Mill may be white, cream, yellow, brown or red. They are interesting to look at, but only an expert can distinguish edible **mushrooms** from those that are deadly (photos A, B, C, D, E, F). Do not touch.

In autumn, animals prepare for the cold of winter. **Chipmunks** and **grey squirrels** are very active as they gather nuts and seeds to cache. **White-tailed deer** are breeding, so males have their full rack of antlers and have scraped off the velvet covering. They are ready to challenge each other and attract females to mate with. Migratory birds have left Connecticut a lot more quietly than they arrived. Although many winter birds are still seen, they are not breeding or defending a nesting territory so they are not heard as much as in the spring.

Monarch butterflies also migrate in late summer and early fall. They seem more abundant now than in mid-summer, and great numbers of these colorful orange and black butterflies can occasionally be seen in fields of **goldenrod** as they pause to rest and feed (photos G, H, I, J). They are waiting for favorable wind currents to float them on their southward journey to wintering grounds in Mexico.

By the end of October, days are still warm but the nights are cold, and most colorful leaves have turned brown and fallen to the ground to crackle underfoot. The **American beech** holds its paper thin leaves and various **oaks** hold their leathery ones until well into the winter months (photo 98). Once most of the trees are bare, the forest takes on yet another look.

WINTER: DECEMBER, JANUARY, FEBRUARY

Winter may seem like the least likely time of year to take a walk in the woods, but paradoxically, the winter visitor may see more of Tyler Mill than visitors in other seasons. Winter is the best time to see the shape of the land. The 200 foot difference in elevation from the lowest valley to the highest ridges is much more obvious now than in greener seasons when leaves soften the outlines of the land. Even if there is a coating of snow, the earth's contours are revealed.

Signs of the human imprint on Tyler Mill are more evident now, too. Stone walls suddenly seem to run every which way, and unobscured by vegetation, their workmanship is a mute testimony to the skills of the farmers who made them (photos 99 & 100). The English colonists who began to farm here over 300 years ago built stone walls to divide their fields from those of their neighbors and to keep livestock out of crops. They did not do it just to remove the stones they found, for making a simple pile would have been easier than the proper balancing act that makes a lasting wall. Nor did they enclose all fields with stone walls because it was all they knew how to do. Stone walls were constructed because stone was a good choice of material. Wood was often scarce after the original clearing of the land, and a wooden fence would eventually rot and have to be replaced. Although a stone wall was labor intensive, once complete it would have been practically permanent, and it made use of materials all too available. Occasional strands of barbed wire can be found sticking out of large, old trees. Barbed wire indicates that land was still farmed after 1870. Bark can grow right over a wire strung to a young tree, and years later the wire will seem to coming out of the middle of the tree itself (photo 101).

Other evidence of human use of the land can be seen in the cellar holes and foundations of houses, barns, and even a one room schoolhouse, all mute reminders of the small neighborhood that once existed here.

Winter is a quiet time at Tyler Mill. You may hear the rattling of a few **oak** leaves as they blow across crusty snow, but the muttering of the Muddy River is likely to be muted under a glaze of ice (photo 102). There are birds about, but they are surviving, not breeding, so they do no sing much. Only a few can be heard. The **blue jay** and **common crow** almost always have something to say, and the **black-capped chickadee**, which flocks in winter, seems permanently cheerful, making its characteristic call of "chick-a-dee-dee-dee" in all seasons. The **hairy** and **downy woodpeckers** can be heard drumming on dead trees as they search for insects. You may see flocks of **tufted titmice**, **slate-colored juncoes**, or **purple finches**. The bright red of the **cardinal** flashes through the thickets. On one bare trunk or another, watch for the **white-breasted nuthatch**, which creeps headfirst down trunks. There are also **American goldfinches** about, now in the subdued olive plumage of winter rather than the flashy yellow of breeding season. The **mockingbird** overwinters in Connecticut, and there may even be a few **robins** around. I have seen them at Tyler Mill near swampy areas. These particular birds might spend the breeding season in northern Canada, so perhaps Connecticut's comparably milder climate feels like a winter vacation in the south to them.

Winter is a good time to look at bird nests, which are as distinctive as the builders themselves. They may be found high in trees, in bushes, or on the ground. Nesting materials vary greatly, but include among other things twigs, leaves, animal hair, mud, grasses, feathers, mosses, and spider webs. Most birds build new nests each year. **Great-horned owls** nest in late January or early February, often taking over the nest of a **hawk** or **crow**. If you see a really big nest, look to see if there is a really big **owl** sitting on it. **Squirrel** nests, which look like loosely thrown together bunches of leaves and

sticks high up in the crotch of a tree, are actually quite sturdy. **Mice** also make nests in shrubs.

If the season is snowy, animals leave tracks and make it possible to observe their activities indirectly. This way, even the behaviors of normally nocturnal animals can be observed. The best places to look for tracks in fresh snow are in areas of mixed habitats and ecotones---open fields with woodland edges and thickets in close proximity. Tracks of plant eaters like the **cottontail** lead to grasses. **Squirrels** dig through snow to access buried nut caches. **White-footed mice** make tunnels under the snow which become visible as the topmost layers of snow melt away a bit. Sometimes a set of tracks that comes to an abrupt end with some drops of blood or bits of fur signals a successful predation by an **owl** or **hawk.**

A few tracks are easy to recognize. **White-tailed deer** make pointed heart shaped tracks, for example. A field guide to animal tracks makes the task easier when it comes to distinguishing between the tracks of **squirrels**, **cottontails**, **skunks**, **raccoons**, **chipmunks**, **foxes**, and **coyotes**. One unusual track is that of the **river otter**, which may still live along the Muddy River. Several years ago I saw a few sets of tracks along with strangely elongated marks near the water's edge. The **otters** were evidently playing by sliding on their bellies down hummocks on the ground.

Winter observation yields additional signs that might be missed in other seasons. **Deer** shed their antlers at this time, so you might find an antler on the ground (photo 103). Look carefully to see if it has been gnawed by a small mammal seeking its mineral content. Animal scat, or excrement, may also be visible. **Deer** leave marble-sized rounded lumps, and **rabbits** leave smaller pellet-sized ones. Under trees, particularly on Owl Ridge, you may find **owl** pellets, which are regurgitated lumps of indigestible materials such as bone or fur. Pellets are clean and odorless, and when examined reveal interesting information about what an **owl** has been eating (photo 104).

A tree can be identified in winter by studying its bark and twigs and shape and then consulting a field guide to trees in winter. Tree shapes are often unique to a particular species. From a purely aesthetic point of view, there is a singular elegance in the black, grey, and brown of trees and bushes against white snow (photos 105 - 108).

Winter plants are not only a study in black and white, of course. There are a few color notes, too. If there is no snow cover, winter is a good time to look for **clubmosses**, or **ground** pines. These small evergreen plants look like miniature coniferous trees. **Clubmosses** spread by runners and tend to grow in large patches on the forest floor. Two types, **ground cedar** and **tree clubmoss** are common in wooded areas of Tyler Mill (photo 109). Interestingly, **clubmosses** also reproduce by spores, and these spores have been exploited commercially in the past. They have been used for microscopic measurements, in soothing powders for wounds, as coatings for pills, and as explosives in fireworks and photographic flashes (Cobb 215). Another evergreen to look for is tiny creeping **partridgeberry** and its red berry-like fruit. An attractive shrub adds a note of festive red to the winter landscape: **Winterberry** is a deciduous holly whose stems bear many bright red berries in fall and winter (photo 110). There is also a hardy evergreen fern called **Christmas fern** that grows abundantly in many wooded areas (photo 111).

One other typical end of winter plant is also a sign of spring. **Skunk cabbage** emerges like a purplish and green shell from its swamp and wetland habitat. It grows so rapidly that "the heat of cellular respiration resulting from its rapid growth actually melts snow or ice around it" (Neiring, 344). Check the swampy areas even if there is a bit of snow. You may see the **skunk cabbage** determinedly seeking spring by melting its way into the sun (photo 112 & 113).

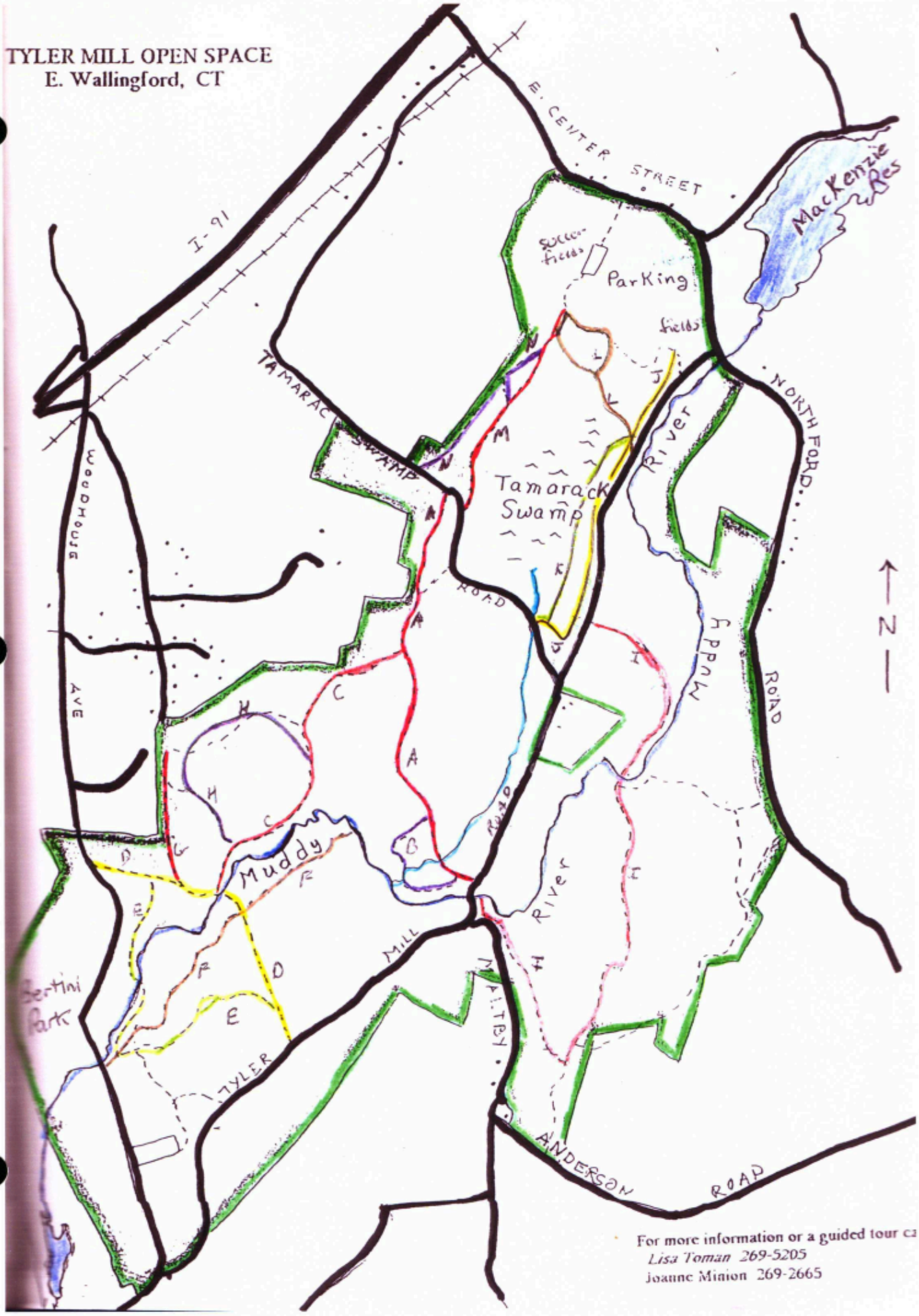
The appearance of **skunk cabbage** in all its smelly glory is a signal that it is time to start searching for other signs of spring---swelling tree buds, emerging **midges** and

stoneflies, tell-tale yellow buds on the **marsh marigold**, yellowing **willow** whips, and early migratory **robins** returning to re-establish their territory for another spring. After a long, cold and dark winter, these clues are sufficient excuse for a walk in the woods. They are the promises that the cycle is about to begin all over again.

WALKING THE TRAILS

For a close look at Tyler Mill, the best approach is on foot. This guide to each trail gives an estimate of its difficulty, indicates the markings to follow, tells where to find the trailheads, and describes things to see. Each trail has unique features and offers a slightly different perspective on Tyler Mill as a whole. None is very long, particularly difficult, or hard to follow. Except for Owl Ridge, all trails are multi-use, open to horseback riders and mountain bikers as well as to walkers. Please yield the trail when encountering horses and bikes. Enjoy!

TYLER MILL OPEN SPACE
E. Wallingford, CT



For more information or a guided tour ca
Lisa Toman 269-5205
Joanne Minion 269-2665

TRAIL MAP KEY

trail	map color & letter		length	description
Tyler Trot Trail	red	A	.9 mi	easy, wide
Fishermen's Loop	violet	B	.2	easy, short
Hayfield Trail	violet	N	.4	easy, slope
Cliffside Trail	red	M	.4	moderate, slope
Muddy River Ford Trail	yellow	D	.6	easy, river crossing
Powers Road Trail	red	G	.1	easy, dead end
Owl Ridge Trail	yellow	J	.7	moderate, steep
Tamarack Swamp Trail	light green	K	.4	moderate, rocky
Eagle Scout Trail	brown	L	.5	easy
River Edge Trail	pink	I	1.5	easy, river crossing
Moss Rock Run Around Trail	light green	E	.9	easy, river crossing
Moss Rock Ridge Trail	brown	F	1.0	mud, slopes
Back Side Run Trail	pink	C	.6	easy
Cellar Hole Hill Trail	violet	H	.8	easy, wide

Tyler Mill Road (Northford Road to bridge)	1.1
(bridge to Woodhouse Avenue)	1.0
Tamarack Swamp Road	.6

Tyler Trot Trail

This trail runs from the Tyler Mill bridge to the Airplane Field then to Tamarack Swamp Road. The trail head is at the north side of the bridge where there was once an old cellar hole of the Tyler family home. Several **sugar maple** trees mark the site. This open, brushy area is being taken over by invasive **multiflora rose**, which perfumes the air with the fragrance of its white flowers in June.

Follow the trail west through an area with many **eastern redcedar** trees. These trees are "pioneers" because they shoot up rapidly in sunny abandoned fields. The cedars will eventually be shaded out by the growing canopy of hardwoods and will die. Cedar wood is quite durable and rot resistant, so it is prized for fence posts. There is a seasonal stream with a rocky bed to cross. It dries up in summer, but it is a good place to look for yellow **marsh marigolds** in spring.

There are a few trees in this area with blue paint marks on them. These trees were marked to be cut and removed as part of a scheduled timber harvest. The plans were canceled because widespread tree cutting with heavy equipment would have damaged an area that receives a great deal of recreational use. Even old, dead trees, called snags, have an important funtion in the forest: They provide insect food for **woodpeckers**, and the **woodpecker** holes serve as nesting cavities for some birds and for **flying squirrels**.

The trail meanders through mixed hardwood forest with a swampy lowland to the left. Notice the many stone walls along the trail. This was probably a major farm road years ago (photo 114). It may be necessary to walk around several muddy spots in this trail where damage has been done by the illegal use of four wheel drive vehicles. The power driven wheels of four wheel drive trucks, all-terrain vehicles, and motorbikes dig deep in the soil, then the depressions hold water.

The trail crosses another seasonal stream with a wetland to the right, then it turns right over another stream and heads uphill a bit. There are two left hand branches off this trail; either one will lead up the the Airplane Field at the top of the hill. If you follow the trail straight ahead without taking a turn, it opens out onto Tamarack Swamp Road. The Airplane Field is so called because some time ago it was used for flying small remote controlled planes. The hayfield is now leased to a local farmer.

Fishermen's Loop

This is a short trail used by fishermen to access the Muddy River. The trail follows the river closely, and there are several places where rocks or jutting branches make a great place to sit and contemplate the flow of the water (photos 115 & 116).

Beginning at the Tyler Mill bridge, the trail overlooks the river. Look across the Muddy to the flood plain on the opposite side. It is an area that may be under water if heavy spring rains cause the river to flood. Look along the river for an odd arrangement of trees: Two **sugar maples** grew up with a **beech** between them, and maple bark extends from one maple to the other, forming a collar around the beech tree (photo 117). **Sugar maples, red maples,** and **birches** are common here. **Beech** trees often grow in stands of related individuals. There is usually one "parent" **beech** tree surrounded by many sapling "children" that have sprouted from the roots of the mature tree. The occasional straight-topped stumps in the vicinity are evidence of a past timber harvest (photo 118). The Fishermen's Loop emerges from the woods onto the Tyler Trot Trail not far from the Tyler Mill bridge.

Hayfield Trail

Hayfield Trail connects Viet Nam Veterans' Park with Tamarack Swamp Road. From the parking lot, walk through the first hay field by taking the right-trending trail. At the next field, follow the diagonal path uphill. At the top of the hill, the trail runs between a cornfield on the right and the rocky slope of a traprock knoll on the left. This is a great place to look for spring wildflowers; **Dutchmen's breeches** are plentiful here.

Notice the large dead tree on the right side of the trail. About ten years ago, this tree was struck by lightning with such force that the bark exploded off the trunk and littered the ground. The tree was killed and has been falling apart ever since. Beyond this point, the trail passes into a third hayfield. **Queen Anne's lace**, **Deptford pinks**, **daisy fleabane** and **butter-and-egg** grow here in summer (photo 119). Bear right through the field onto Tamarack Swamp Road.

Cliffside Trail

Cliffside Trail links Viet Nam Veterans' Park with Tamarack Swamp Road. From the end of the parking lot, go directly through the hayfield and bear right into the woods. This area is an overgrown hayfield in the process of becoming a forest. The trees here are young hardwoods, and they are already overtopping the **eastern redcedar** that was in the early successional stage of this transformation process. The **redcedar** here is mostly dead or dying because it is in the shade of taller deciduous trees.

Follow the trail up and over this first knoll and up to the second, taller knoll. The trail up this slope is steep and covered with loose stones. Heavy use has exposed the rounded rocks near the crest of the hill, making them slick. On the downhill side of this second knoll there is an interesting old **northern red oak** . The trail levels off in another former field. This was an open field as recently as the early 1980's, but it is now an impenetrable thicket of **multiflora rose**, **Russian olive**, and **eastern redcedar**. The trail ends on Tamarack Swamp Road.

Muddy River Ford Trail

This trail, running from Woodhouse Avenue to Tyler Mill Road, was originally a main road to Tyler's Mill (photos 120 & 121). From Woodhouse Avenue, the trail crosses a man-made berm that is being eroded away by the stream underneath it. Look over the edge to the bottom of the slope to see the water damage. Eventually erosion will make this causeway disintegrate. Note the stone walls on each side of this road. There were once several houses here, as evidenced by the profusion of **myrtle** growing in several patches. It was originally planted and has since run wild.

The trail approaches the Muddy River at what was once a bridge. Look at the two hump-like abutments on each side of the river. A few dressed stones are visible on the west side. Alongside the bridge there is a shallow ford where farmers drove their wagons into the low water in summer instead of using the bridge. This "water treatment" soaked the wheels and swelled the wooden spokes to tighten them in dry weather (photo 122).

Cross the river to the east and find the tall, double-stemmed **sycamore** tree. Its grey bark peels away in sheets to reveal a yellow layer underneath (photo 123). **Sycamore** leaves are shaped like maple leaves but are larger. **Sycamores** grow readily in the wet soil along stream banks.

There are several house and barn foundations on this side of the river, too. The cellar holes are obvious depressions lined with shaped field stones. There is a huge **sugar maple** to the left which must be very old (photo 124). Scraps of barbed wire that seem to be growing out of the center of the tree are remnants of fence that was placed against the young tree, which then proceeded to grow right around the wire.

The trail descends slightly as it passes a through a swampy area. This is a **red maple** swamp, but most of the trees in the center are dead because the water got too deep

for them to survive in this poorly drained soil. The center of the swamp is full of hummocks of **tussock sedge** and standing water, a good place for **ducks** and **frogs**. The edges of the swamp are crowded with wetland bushes--**meadowsweet, buttonbush, speckled alder, sweet pepperbush,** and **highbush blueberry**--as well as **sedges** and **fern** (photos 125 & 126).

The trail rises and passes rocky slopes to the right. There is some **mountain laurel** here, and look for **clubmosses** in the leaf litter. Continue straight to Tyler Mill Road or, alternatively, take the Moss Rock Run Around Trail to the right to bring you back to your starting point on the Muddy Ford Trail near Woodhouse Avenue.

Powers Road Trail

The Powers Trail heads north from the Muddy River Ford Trail between Woodhouse Avenue and the river. Note the **myrtle** on both sides of the trail, evidence that there were houses here long ago. The Powers Road Trail runs between stone walls as it heads uphill. The open area was the site of an extensive wood cut in the fall of 1998. There are few trees standing, and much of the wood, trunk sections and tops, lies on the ground where it fell after the salable timber was removed (photos 127 & 128). The heavy machinery used in the timber harvest caused erosion to begin on this hillside. You may see water bars and other erosion control measures that have since been put into place (photo 129). Once plants and shrubs are established, there will be less water running off the slope.

This trail ends at the development at the top of the hill. The Hurricane Trail that heads off to the right is currently impassable because of trees and woody debris left from the timber harvest.

Owl Ridge Trail

Owl Ridge Trail is the steepest walk in Tyler Mill (photo 130). Starting at Tamarack Swamp Road, it heads north across three knobs of traprock that form the Owl Ridge parallel to Tyler Mill Road. This trail is for walkers only; horses and bikes would damage the fragile ridge vegetation and trail. Enter the south end of the trail from Tamarack Swamp Road. The entrance is to the right just beyond the corner of Tamarack Swamp Road and Tyler Mill Road. This same trailhead serves both the Tamarack Swamp and Owl Ridge Trails.

At the entrance to the trail, notice a hunting regulations sign posted on a **swamp white oak** tree to the right of the trail. Its bark is deeply furrowed. At the stone wall, take the trail to the right that heads uphill through woods composed mostly of **hemlock** and **chestnut oak**. **Chestnut oak** has bark with shallow furrows and horizontal breaks in the furrows. The trail is rocky underfoot with little vegetation growing under these trees.

At the top of the first knoll, the trail breaks out onto the rocky ridge itself, offering nice views to the west (photo 131 & 132). The rock here is all blocky traprock, much of which has a greenish cast due to the presence of **lichens**. Look down to see the extremely steep west side of the ridge. Most of the trees on the slope are **hemlock**. The eastern side of the ridge here is shorter, less steep, and has mostly deciduous trees. Along the top of the ridge, look for **highbush blueberry** bushes, **partridgeberry, lichens, ferns, junipers** with blue berries, and **mosses** (photo 133).

The trail descends into a low-lying saddle before heading up the second knoll. There is a curious kind of low rock wall in this spot. It is obviously man-made because the rocks are cemented into place, but what it could have been used for is difficult to guess.

Ridgetop trees again are hemlock, **northern red oak,** and **scarlet oak**. Look closely at the branches of the **hemlocks**; the white foamy substance is a sign of infestation by **woolly adelgid**, a pest which will probably kill most of the **hemlocks** in Connecticut within a few years if efforts to find a natural enemy of this insect are not successful soon. If the Tyler Mill **hemlocks** die, the look of the place will be significantly altered (photos 134 & 135).

A view to the west reveals two slightly lower traprock knobs covered with trees. In the valley between is Tamarack Swamp. In the fall, the **tamarack**, or **American larch** , will have golden needles and should be easily distinguishable from the **hemlocks**, which are evergreen. There are only about three dozen **tamaracks** left because this area is far south of their usual range, and the bog in which they grew is gradually becoming a swamp. (See the sections on wetlands and Tamarack Swamp as well as the chapter on geology for an explanation of why these unusual trees are growing here.) There is also a good view to the north beyond East Center Street (photo 136). The trail heads downhill through a stand of **white oak** and crosses a blue marked Eagle Scout Trail at a barbed wire fence.

Continue straight across the Eagle Scout Trail and uphill to the third traprock knoll through many large, old **hemlocks** (photo 137). The east side of this knoll is practically vertical, and west slope is gentle. There is a small grassy clearing with good rocks for sitting and a view to the east before the trail descends off the knoll to the north.

When the trail downhill branches, bear right through many **northern red oaks** (photo 138). These commercially valuable trees with the tall, straight trunks are prized for hardwood floors and furniture. Note the ski trail-like furrows in the bark. The trail winds through an abundant growth of **false Solomon's seal** underfoot before ending at a stone wall (photo 139). An opening in the wall leads to one of several agricultural fields at Tyler

Mill. This field is leased to a local farmer who usually grows corn and various vegetables (photo 140).

You can walk right along the field border and end up at Tyler Mill Road, or you can walk left and arrive at the Viet Nam Veterans Park. To return to your starting point on Tamarack Swamp Road via the Tamarack Swamp Trail, retrace your steps to the Eagle Scout Trail between the second and the third knolls. Go right on the blue marked trail and take your first left onto a clear but unmarked trail, the Tamarack Swamp Trail.

Tamarack Swamp Trail

This trail passes through one of the most unusual habitats of Tyler Mill. Tamarack Swamp, named for the unique trees which grow there, is the remnant of a glacial bog, a geological relic of the Ice Age. Read about it in the Tamarack Swamp section of chapter 4 and in the section on surgical geology in chapter 2.

The northern end of this trail begins at the Eagle Scout Trail. Access the blue marked Eagle Scout Trail at the north end of Tyler Mill Road and proceed uphill until to a second trail on the left. The first left heads uphill to the Owl Ridge Trail. The second left slopes gently downhill to an area of **hemlocks** and **oaks.** Occasional stumps are left over from a timber cut many years ago. The left or eastern side of the trail abuts the very bottom of Owl Ridge along a steep talus slope (photo 141). The right or western side of the trail is the Tamarack Swamp. This is a peat bog which is gradually filling in with trees (photo 142). Except in extremely dry weather, it should be explored only visually from the trail. There are no paths through it, and a person could not walk without sinking into the saturated peat.

Notice the rolling, hummocky ground. The trees here are predominately **hemlocks**, with **black oaks** and **birches**. The shrub layer consists of saplings, **sweet pepperbush,** and tall clumps of **royal fern** (photo 143). **Skunk cabbage** abounds as well.

The trail follows the base of the cliff and meanders over and around the traprock blocks, large and small, that have tumbled off the ridge (photo 144). The trail ends at a stone wall next to Tamarack Swamp Road. This is also the trailhead for the Owl Ridge Trail.

Eagle Scout Trail

This section of trail was created by Jason Waterbury as an Eagle Scout project in 1997. It connects Tyler Mill Road with the Viet Nam Veterans' Park ball fields and parking lot. The trailhead is on the ridge side of Tyler Mill Road between the bridge and Northford Road. Two blue squares painted on a mound of macadam mark the entrance.

Eagle Scout Trail ascends the gently sloped, forested east side of Owl Ridge. Trees here are a mixture of **American beech, northern red oak, scarlet oak,** and **hemlock.** As the trail crosses a low point between two traprock knolls and passes through a gap in a barbed wire fence, look up the steep, rocky path to Owl Ridge. Eagle Scout Trail trends downward and to the right through dense stands of fairly young **hemlocks** interspersed with a few **oaks.** Stumps here and there indicate an old timber cut. A trail to the left goes to the Tamarack Swamp. Hardwoods such as **oaks, sugar maple,** and **hickory** begin to outnumber the **hemlocks.** Notice a long-needled **white pine** on the left.

Eagle Scout Trail has a circular loop that begins at a large **northern red oak** with three stems. Either the right or the left branch of the trail will lead you to the Viet Nam Veterans' Park. This narrative follows the trail to the left. There is a huge **white oak** near the trail. Look at the light-colored bark in loose, scaly plates. Beyond this tree the trail opens into an old hayfield that is in the process of being grown over with **Russian olive, eastern redcedar, multiflora rose,** and **flowering dogwood** (photo 145). Notice that many trees are draped with **Oriental bittersweet** vines. The vines, which bear colorful red-orange berries in the fall, are so heavy that they break down and eventually cover the native trees and bushes they climb on. This damages the diversity of the habitat and makes it less rich.

The trail heads right out into the hay field above the ball fields and parking lot. Follow the path through the field and observe the wildflowers that grow there in summer. You are likely to see spiny **bull thistle, Queen Anne's lace, asters,** and **bladder campion** (photos 146 & 147). Look for a very tall **scarlet oak** tree at the edge of the field (photo 148).

Leave the hay field and turn sharply right onto a trail that follows the shrubby fence row. Observe a huge, five-stemmed **shagbark hickory** with its characteristic shaggy bark. Check the ground beneath the tree for nuts. In late summer, they are bright green with thick shells. By fall, **squirrels** and **chipmunks** will have eaten most of the nut meats, leaving behind the dark brown rinds. Tall trees like this one and the **scarlet oak** just mentioned flourish in the fence row because they are out of the path of mowing machines. This is typical of older agricultural land, too. When you walk paths in the woods, you will often see mature trees very close to stone walls even if the rest of the forest consists of much younger trees. In many cases, the old trees that were allowed to survive were **sugar maples**. They were very useful trees, as their sap could be boiled down to maple syrup or maple sugar.

Fence rows and the shrubby borders along fields are ecotones, or places where two habitats blend. Ecotones are particularly rich in plant and animal life because they contain species from both habitats rather than just one. This fence row has **arrowwood viburnum** shrubs with clusters of blue berries, purple **asters**, and **goldenrod** in summer.

Follow the trail straight into the woods. The left path is a running track around the park. Bear right over a stone wall. Evergreens growing in this scrubby area include both **eastern redcedar** and **common juniper**. These two look alike superficially, but you can tell them apart by examining and feeling the needles. **Eastern redcedar** is

usually a tree with overlapping scales forming needle-like twigs. **Common juniper** is a bluish-green shrub with tiny, sharp individual needles.

Proceed along a trail at the foot of a hill. The forest here is composed of a variety of hardwoods and **hemlock** with **witch hazel** and **dogwood** in the understory. This trail leads to the three-stemmed **northern red oak** and then back to your starting point on Tyler Mill Road.

River Edge Trail

This trail runs along the east side of the Muddy River from the foundation of the mill to the middle of Tyler Mill Road. Begin south of the bridge overlooking the old mill foundations and mill race. The stone blocks are local sandstone and conglomerates trimmed to fit tightly (photo 149). Walk upslope to look at the old mill pond, which now resembles a swamp more than a pond. Follow the trail until it almost goes into a cultivated hayfield that borders Maltby Lane and take a sharp left to a small tributary of the Muddy River that flows from the vicinity of Anderson Road. Look in the low area for the evergreen **Christmas fern** with its leathery-looking dark green fronds.

Once across the small stream, the trail heads uphill, bears right and becomes rocky under foot in an area of large trees, mostly **white ash, black birch,** and **tuliptrees.** See if you can find the **apple** tree that grows here, too. Perhaps the seed that started this tree was from the casually tossed apple core of some farm laborer having a snack. The trail emerges from the woods onto a farm road. Turn left toward the hayfield.

Take a good look at the shrubby margins of this field. **Oriental bittersweet** grows rampant here and is smothering some of the trees where it drapes itself in heavy hanging garlands (photos 150 & 151). Walk around the edge of the filed in a clockwise direction. At the far end of the field is a stand of **ash** trees that bear elongated yellowish seed cases in August (photo 152). There is more **Oriental bittersweet** and **Japanese honeysuckle** as well (photo 153). Its fragrant tubular flowers, which start out white but turn yellow with age, bloom from spring through summer. Like **Oriental bittersweet**, this climbing vine is an invasive non-native.

The trail continues into the woods at the opposite corner from where it entered. Note the many **burning bush** shrubs with corky wing structures on the stems. Near the stone wall to the right there is a particularly fine old **oak** tree.

The trail heads downhill through an area of tall trees, including many straight, tall-trunked **tuliptrees** and some **hickory.** About midway down the hill, there is a tall tree that has been uprooted by the wind to create a "pillow and cradle". The pillow is the dirt that was hauled up with the tree's roots; the cradle is the shallow depression where the tree stood. The pillow and cradle will be visible long after the wood from the tree and its roots have rotted and disappeared (photo 154).

Cross the Muddy River on stepping stones in the shallows. Look for young **beech** trees sprouting from stumps in this area (photo 155). Follow the trail along the Muddy River. Off to the left, there are several permanent pools, probably fed by springs or seeps. Watch for frogs here. Look for **white wood asters** in bloom from mid-summer to October. The trees along the river are mostly **hemlock** with some **grey birch,** but the trail heads uphill over drier soil away from the river and its banks and flood plain. This upland forest is full of **beeches.** The trail ends as a logging road that exists onto Tyler Mill Road just east of the junction with Tamarack Swamp Road.

Moss Rock Run Around Trail

From a dirt berm at the south end of Tyler Mill Road the trail goes west. There is a swamp on the right. Notice the many dead standing trees here. Bear left instead of going straight when the trail forks.

This area is second or third cut forest. Look for stumps and stump sprouts (photo 156). When a dominant tree is cut, the stump will often sprout new stems, which grow vigorously into trees because they are generously supplied with nutrients and water by the root system of the original tree.

As the trail heads southwest to Moss Rock, it enters a mature **hemlock** stand. Look for the tiny hemlock cones on the ground. The undergrowth under this heavy tree canopy is sparse because little sunlight gets through to the ground. The path here is traprock, just like the steep talus slope to the right. The left side of the trail is a swamp with numerous hummocks of **tussock sedge**. Look carefully along the left side of the trail to see an odd double stemmed **hemlock**. The two stems have picked up a rock between them as they grew, and now the rock seems suspended there many inches from the ground (photo 157).

With Moss Rock on the right, the trail heads toward Woodhouse Avenue and then bears around Moss Rock to turn north with the Muddy River on the left. The talus slope base of Moss Rock is still to the right here. It is quite steep. The forest here is a mixture of **hemlock**, **beech,** and **white ash**. Cross the river in a shallow place and notice the cobbles on the bottom (photo 158).

The **hemlock** grove on the west side of the river has a very sparse understory, but as the trail moves away from the **hemlocks** and the river, the trees become hardwoods and the shrub layer increases (photo 159). The trail passes over a gap in a low stone wall

and into an open area used for storing logs in the recent timber harvest. Many of the standing trees here show damage where they were scraped by heavy equipment (photo 160). Notice the hay bales and recently planted grass. These are efforts to control erosion and sedimentation caused by the passage of machinery.

Cross a small tributary stream that flows into the Muddy River from Woodhouse Avenue. Many of the trees here have thick, woody vines draped from them like long ropes. These are **grape** vines (photo 161). **Poison ivy** grow on the trees here, too. Rather than twining around the tree trunks and branches, poison ivy vines grow millions of tiny hair-like rootlets to hold on to the tree bark (photo 162). The muddy wallow in this part of the trail makes it necessary to find a drier way around. The mud hole was always here, but was worsened when the skidders and other machinery of the timber harvest went back and forth over it (photo 163 & 164).

The trails ends where it connects with the Muddy River Ford Trail. A walker can continue on the Ford Trail to Woodhouse Avenue or to Tyler Mill Road or could begin the Backside Run Trail and go all the way to Tamarack Swamp Road.

Moss Rock Ridge Trail

Moss Rock Ridge Trail runs north to south from Woodhouse Avenue to the Muddy River not far from the Tyler Mill bridge and thus encompasses many of Tyler Mill's most attractive features: traprock ridge, **hemlock** groves, hardwood forest, wetlands, and the river itself. A careful look at the trees from one end of this trail to the other will reveal that different species grow well in particular habitats.

Begin at the trailhead near the Woodhouse Avenue bridge over the Muddy River. Inside the highway guardrail, cross over the Moss Rock Run Around Trail that circles the rock and head instead straight up the trail to the top of Moss Rock. Notice the erosion caused by use and water run-off on this steep slope. A downed tree forms a natural water bar, or barrier, by holding back some of the eroded dirt and stones that tumble downhill in heavy rain. Man-made water bars at intervals would further protect this section of trail.

The trees on this hillside are a mixture of **hemlocks** and hardwoods including **Eastern redcedar, chestnut oak, basswood**, and **black oak** (photo 165). Look uphill through the trees to see Moss Rock, a massive outcrop of traprock of volcanic origin. This was a conduit for hot magma from far below the surface of the earth. It was originally hundreds of feet deep under sediments, but the less resistant sediments eventually eroded away over time, leaving the more resistant diabase traprock. Look for a freshly broken piece of this rock. It is bluish black inside even though the weathered outside is dull grey.

The trail tops out at the summit of this rocky promontory overlooking the Muddy River and Woodhouse Avenue. There is a sheer drop to the west. On a clear day, the view south stretches as far as the towers of New Haven and perhaps even the glint of sun on the waters of Long Island Sound (photos 166 & 167). Notice the shrubby **common juniper**

at the top of this ridge. It looks like **Eastern redcedar**, but **juniper** berries are light blue, while those of the **redcedar** are dark blue (photo 168). **Juniper** berries, fragrant when crushed, are used to flavor gin.

Leave this rocky lookout by following the most obvious trail northwest. Where it forks, the right hand trail leads to another traprock knoll more wooded than the first. The left hand fork leads to a steep, eroded slope downhill to the northwest (photo 169). Descend this rocky trail carefully, as the small stones tend to roll underfoot. The trees on both sides of this ridge include **white ash, yellow birch** with peeling bark, and **American beech.** Bear right when the trail forks and pass through an abundant stand of **mountain laurel,** famous for its lovely white flowers in late spring.

The trail widens at the northern end of Moss Rock where it passes through a grove of **hemlocks**. The ground under these trees is quite open. The trail diverges here. The two right hand branches lead to the Moss Rock Run Around Trail as it goes back toward Woodhouse Avenue. Instead, bear left under the huge hemlocks to where the trail passes through a gap in a low stone wall. The vegetation begins to change here as hardwoods predominate and **hemlocks** are fewer. Find a **sassafras** sapling showing its three distinctive leaf shapes--oval, three lobed, and the two lobed mitten shape (photo 170). The branches of this tree have green bark even in winter. Other hardwoods here are **sugar maples, northern red oaks, birches**, and **musclewood.**

The trail continues along a ridge overlooking the Muddy River. There is a surprisingly steep drop to the water (photos 171 - 172). It crosses the farm road which is the Muddy River Ford Trail. Proceed directly across and enter an area of lowlands along the river. Trees here have thinner trunks and are much younger than those just seen. This was agricultural land more recently, perhaps there was pasture on this well watered flood plain. Trees growing here include **shagbark hickory**, **sugar maple**, **beech,** and **white oak** with its light colored, peely bark. The **eastern redcedars** here

are mostly dead. This pioneer species grew up quickly in the sunlight of abandoned fields, but was later shaded out as the taller deciduous trees began to take over. This is a normal phase of forest succession.

Near a very large, old **white ash**, the trail takes a sharp left turn. Note the hollow core of the **ash** where it has rotted out. The tree's bark exhibits the distinctive diamond pattern of the white **ash** (photos 173 - 174). As you cross another stone wall, notice the large trees growing very close to the wall in an area of otherwise small trees. The tall trees were left for shade and as part of the field boundary. Often such trees are **sugar maples** which have been encouraged to grow because they could be tapped each winter for their sap, from which the farmers made maple sugar or maple syrup.

The trail ends at a lovely spot on the Muddy River. A tall **sycamore** near the edge of the water has an extensive root system to anchor it to this flood plain and resist the force of the high water in spring. The gray bark of these roots peels to reveal yellow underneath in the same way that the bark of the trunk and branches does. Notice that the running water has eroded river banks and undercut streamside trees, causing them to pitch over into the river. Small changes like this, which occur constantly, are part of the natural processes of erosion and weathering.

The trail ends here, but if you cross the river you can head right on the Fishermen's Trail back to the bridge at Tyler Mill Road or head left on the same trail to join the Tyler Trot Trail. From there pick up the Back Side Run Trail to Woodhouse Avenue and your starting point.

Back Side Run Trail

The Back Side Run Trail is a connecting trail between the Muddy River Ford Trail and the Tyler Trot Trail. It begins where the Tyler Trot Trail bends north and ends at the Muddy River Ford Trail near the ford itself. It is short and wide, an easy walk through forest of hardwoods: **white ash, American beech, American hemlock** and several **oaks** (photo 175). The trail crosses a small stream. The soil is a little wetter in this area, making it a good place to look for **violets** in spring and tiny purple **monkey flower** in summer. **White wood aster** is abundant along this trail (photo 176).

Both sides of the trail are covered with slash, the woody debris consisting of tree tops, limbs, and other tree parts not considered salable products after a timber cut in 1998 (photo 177). Piles of slash are good wildlife cover for small animals and birds. Some trees still standing along the trail have scrapes and cuts on their bark as a result of damage by logging equipment (photo 178). These places of broken bark allow entry to disease-causing fungus and may cause the wood to rot. Sometimes a tree forms woody callus tissue over these scars and survives, but if the damage is severe, the tree could eventually die.

The trail ascends a rocky slope then heads down through **tuliptrees**, beeches and oaks. There are also a few **sycamores** near an intermittent stream. The understory here includes **dogwoods,** which bear showy blossoms in spring. In wet areas, look for orange flowered **jewelweed.** Downhill to the left, you can see the Muddy River.

The trail ends at the junction with the Muddy Ford Trail. The ford is to the left, Woodhouse Avenue is to the right.

Cellar Hole Hill Trail

Begin Cellar Hole Hill Trail from the Back Side Trail not far from the Muddy River ford. This fairly short, half loop runs uphill through the hardwood forest before joining the Back Side Trail again at its northern end. As usual, a wide variety of deciduous trees grows here: **northern red oak, white oak, red maple, sugar maple, white ash, sassafras, sweet birch, American beech,** and **pignut hickory** (photo 179). **Flowering dogwoods** figure prominently in the understory. At ground level are tree saplings, **wild grape** vines, and **white wood asters**, which flower in late summer. Debris left from the autumn, 1998 timber harvest and cut stumps line both sides of the trail in several places.

Watch for stone walls to the left. One section of stone wall is very unusual in that it is composed of thin, flat or wedge shaped slabs of traprock that look like roofing slates rather than the blocky boulders that are ordinarily used in stone walls (photos 180 & 181). This oddly shaped traprock was sheared along a fault line and fractured in small, flattened or wedge shaped pieces. The farmer who found this material at hand simply used these stones because they were available where he wanted a wall. Perhaps creating the intricate arrangement of small pieces was a welcome relief from the back-straining work of manhandling the heavy, large stones used for the rest of the wall.

When the trail passes directly across a stone wall, look for a huge, bent **beech** tree on the right (photo 182). This tree probably bore the weight of a dead or broken tree when it was young and flexible. It survived in spite of this handicap and kept growing up toward the light. Long after the weight was removed, the beech retained its odd shape. There is a rocky outcrop to the right, then the trail crosses another stone wall. Notice that many of the trees still standing after the timber harvest bear bark scars from being scraped

by heavy equipment. One positive effect of the timber harvest is the creation of an unshaded area where green plants can flourish and provide food for **white-tailed deer** and other herbivores.

Cellar Hole Hill Trail passes the entrance to Hurricane Trail, which is currently impassable due to trees downed in Hurricane Gloria and the timber cut. Bear left and follow the track made by logging equipment. The ground underfoot is very rocky as the trail reaches a knoll covered with **eastern redcedar**. The remains of a small shack and campsite are evident. The trail heads downhill and crosses a stone wall and another section of Hurricane Trail. In winter when the leaves have fallen, it is obvious that the slightly sunken Hurricane Trail running between stone walls was once a farm road.

Bear left downhill and the right on the wider of two branch trails. This is the Back Side Trail again. Follow it to the right to reach your starting point.

VI. TYLER MILL CONSERVATION AREA: A VISION FOR THE FUTURE

In order to preserve and protect Tyler Mill for the future, some environmentally sensitive management policies should be adopted.

A NEW NAME: TYLER MILL CONSERVATION AREA

One suggestion of primary importance has the twin virtues of being both easy and largely cost-free: an official name change. A name change would reflect a philosophical shift in the way that the property is regarded by the public. The land which is the subject of this study has been referred to here as "Tyler Mill" or "Tyler Mill Open Space", but these terms are inadequate. The simple designation "Tyler Mill" by itself is sufficient for the hikers, hunters, horseback riders and mountain bikers who know the area, but to newcomers, it suggests nothing except perhaps an industrial site or factory. The land is too beautiful to allow that misconception to persist. The title "Tyler Mill Open Space" is little better. "Open space" is a generic term which, by definition, could refer not only to fields and forest but also to cemeteries, land around school buildings, golf courses, or landfills. The term "open space" also gives the impression that the land is only space available waiting for something to be done to it, for something to be built there. The words "open space" carry no hint of the value of the natural, aesthetic, and recreational resources at Tyler Mill/

An even worse name is the one currently given to this property in most official Town documents, where it is referred to as the "New Haven Water Company property". Although the New Haven Water Company was the previous owner, the company no longer exists and no longer owns the land. The persistence of this name gives rise to the false impression that the property is not even a part of Wallingford. The forest management plan

prepared for the Town in 1993 uses the designation "New Haven Water Company Tract". If such an official document seems to indicate that the land belongs to New Haven and that its only value is the water there, then this name is not only inadequate, it is misleading. It ignores the fact that the area around Tyler Mill is one of Wallingford's most valuable natural resources and a center for trail-based recreation.

The name I am suggesting is the "Tyler Mill Conservation Area". The inclusion of "Tyler Mill" in any title for that property is a recognition of the area's history. Tyler's mill was the center of a small community or neighborhood. Besides the mill, there were homes, farms, and a schoolhouse. Roads were constructed so people could get to and from the mill. The name of the Tyler family dates back to the earliest days of the settlement and establishment of the Town of Wallingford, so the use of "Tyler" in the title is entirely consistent with the current practice of naming streets, parks, ballfields, and schools after those citizens whose lives had historic significance in the community. Because Tyler Mill is the name of the road on which the area is located, the use of that name in the title is also practical.

I am suggesting that the land be called a "conservation area" rather than an "open space" because the former term is more appropriate and specific. "Conservation" means that the land is to be conserved, that is, managed for the protection of its natural, aesthetic, historic, and recreational resources. "Tyler Mill Conservation Area" is a suitable name because it is logical, historically correct, and indicative of the land's value as a natural area worthy of protection. A simple name change by resolution of the Town Council would give the place a specific and concrete identity that reflects its location, assets, and importance to the Town. Unobtrusive signs with the name could be posted at entry points, for example, at the end of the Viet Nam Veterans' Park parking lot and at both ends of Tyler Mill Road. "Tyler Mill Conservation Area" could be used to designate the property in all official documents that refer to it.

MAINTENANCE

The Tyler Mill area receives heavy recreational use, much of which is invisible because it occurs far from roads that pass by. Just because this land consists of trails rather than tennis courts does not mean that it can go untended. Regular maintenance is important. Some of the work can continue to be done by volunteers, and some of the major projects must be done on a scheduled basis by the Department of Public Works under the direction of the Parks and Recreation Department.

Trail clipping, an annual necessity, has been managed for years by local members of the Trail Riders of the Shoreline, a horseback riding club. At least once a year they cut back the multiflora rose, brambles, branches, and shrubs that persist in growing into the sunny spaces created by trails and threaten to obliterate those trails entirely. The volunteers also cut back the invasive Russian olive, a non-native shrub that thrives in abandoned fields and tends to grow into impenetrable thickets. The Wallingford Rod and Gun Club holds an annual clean-up day along Tyler Mill Road, and volunteers pick up many dump truck loads of trash.

Eagle Scout candidates have planned and carried out several important projects that have improved Tyler Mill trails and have been a public service to the whole community. In 1995 Dan Mandle conducted a major trail clean-up to remove accumulated garbage. In 1996 Jason Waterbury marked most major trails with a consistent system of colored triangles and squares and also cut a new trail, now called the Eagle Scout Trail, from Tyler Mill Road to the Viet Nam Veterans' Park. In 1999 Nicholas Koff organized the construction of a trail segment that enables hikers, bikers, and riders to pass safely along Woodhouse Avenue from the Tyler Mill trails to those at Bertini Park. In that same year Robert Lavado opened a new segment of trail to go around a wet, damaged area.

I have been serving as coordinator of volunteers for the Parks and Recreation Department, and I know that there are several other Eagle Scout projects in the planning stage. In addition, middle school students Lori Linsley and Jessica Reeve did six hours of trail clipping this spring as part of a community service project for a class (photos 183 & 184). Such volunteer projects are of enormous value to the community for the work performed, but they also benefit the volunteers because of what they learn about the outdoors and about planning and carrying out a major endeavor. Nevertheless, volunteer service should not be a substitute for regular maintenance that ensures long-term resource protection.

The directors of the Department of Parks and Recreation and Public Works should establish and carry out a schedule of major maintenance projects. Collection of trash along Tyler Mill and Tamarack Swamp Roads is of primary importance and should be done on a monthly basis at least. The garbage problems is not as bad as it once was. Because the area is used by the public, it has become harder to dump a pick-up truck load of debris without being seen by someone. Unfortunately, trash begets trash; if there is junk along the roadside, its presence seems to invite more as if the existing piles are tacit acceptance of this method of waste disposal. It is much more difficult to fling garbage onto a clean roadside that people obviously care to keep clean. In addition, the presence of garbage bags, pieces of drywall, broken toilets, smashed furniture, and a mosaic of broken glass on the ground ruin the outdoor experience of visitors and could be dangerous as well (photos 185 - 188). The Public Works Department has always been responsive to specific complaints about dumped trash, but clean-up along the roads should be a regular monthly chore. Perhaps if the roadsides are consistently clean, dumping will become less of a problem.

Trail maintenance is another issue that needs to be addressed on a regular basis. The steep segments of Owl Ridge, Cliffside, River Edge, and Moss Rock Ridge Trails are

prone to erosion due to heavy use, particularly by mountain bikes (photo 189). Establishment of ruts on slopes creates the conditions for heavy rains to erode soil. Trail degradation can be minimized by the correct placement of water bars. These are log barriers placed perpendicular to the slope so that they look a bit like steps. They hold back and slow down storm water run-off so that it cannot wash away soil particles and small pebbles. Proper installation of water bars is probably too big a job for volunteers, but once done by Town workmen, water bars would last a long time.

Another trail maintenance project that should be undertaken by the Town is the removal of debris from the trails themselves. There are only a few places where piles of old trash exist in the interior far from roads, but these piles consist of junk too large to be removed by hand (photo 190). Removing this old debris might well be a one time job, since current public use of the trails would make such dumping difficult to do without detection.

A third management task to be addressed on a periodic basis as needed is that of clearing trails blocked by fallen trees. Trails could be checked annually or after severe storms by a Conservation Commissioner so that if there is downed timber it could be removed. This sort of work is best done with a chain saw in the hands of a competent Public Works employee or the Town's forestry consultant. The Hurricane Trail, an old farm road west of the Muddy River, has been difficult to access for years since Hurricane Gloria brought down a few trees across it. The trail was not recognized as a trail during the recent timber harvest, so it is now choked with logs, stumps, and trees tops and is impassable. Clearing this trail to re-open it would be a one time effort, but it can only be done with the proper equipment; the task is too large in scope for volunteers.

PROTECTION

Tyler Mill needs to be maintained properly to ensure the continued value of its resources, and it also needs to be protected. The Police Department must be committed to enforcing the rules against garbage dumping and motor vehicle use on the trails whenever violations are reported. Only if the police are perceived as being serious about the apprehension and prosecution of violators will the public be convinced that the rules must be followed. For a child riding an unauthorized all-terrain vehicle, a verbal warning simply ensures that he will be faster next time (photo 191). On the other hand, a ride to the police station and a fine that must be paid will put the child and his parents on notice that there is a price for irresponsibility. Motorized vehicles do severe damage to trails and present a danger to hikers, bikers, and horseback riders as well as a risk of injury to the vehicle user. Such issues may seen trivial in light of the other tasks the police are expected to perform, but they are necessary chores if Tyler Mill is to be preserved and protected.

Tyler Mill must be protected from another potential danger: overuse. The Town used federal open space grant money to purchase the land from the New Haven Water Company, so Tyler Mill cannot be considered a private preserve for the use of Wallingford citizens only. However, it is a mistake to publicize and promote the use of Tyler Mill trails by non-residents. This is an area of 1,000 acres, not a vast state park. Tyler Mill's trails are a limited resource that cannot serve unlimited numbers of people. If damage to the trails occurs, Wallingford must fix it. If liability is incurred, Wallingford must pay for it.

The mountain bike races held at Tyler Mill are advertised widely in New England and New York, and they attract hundreds of riders on the day of the race itself. Throughout the year, the publicity also attracts many out-of-town riders because mountain bikers enjoy the challenge of new trails. Tyler Mill trails are already listed in mountain

biking guide books and web sites. Overuse will degrade the area and diminish its value. Unfortunately, it is possible to love a place to death. Well publicized regional mountain bike races should not be held at Tyler Mill. They benefit only the promoters and the mostly non-resident participants. Instead, the Park and Recreation Department could sponsor a local race to get children involved in a wholesome sport and allow adults to compete on a recreational level.

One specific area of Tyler Mill deserves its own special protection. Owl Ridge Trail should be off limits to horseback riders and mountain bikers. It is steep and rocky and contains fragile ridgetop vegetation that could be damaged by wheels or hooves. Signs or simple barriers at each end of the trail could convey the message that this trail is for walkers only. Most people would be willing to comply for their own safety and for the well being of the traprock habitat.

FOREST MANAGEMENT

Some form of forest management is obviously necessary for the long-term maintenance and protection of Tyler Mill. However, while there are various acceptable philosophies of forest management, a specific plan must be established for Tyler Mill forest that recognizes the area's recreational uses and aesthetic value to the community. In other words, some policies may be perfectly appropriate for the Water Division's watersheds that are not open to the public, but those policies are not appropriate and could even be detrimental at Tyler Mill.

The ultimate goal for forest management at Tyler Mill should be maintaining and encouraging the growth of a healthy forest. Habitat diversity is an important ecological goal, and Wallingford has a variety of habitat types. Indeed, as has already been shown in this guide, there is a variety of habitats within Tyler Mill itself. The one type of habitat that is increasingly scarce in this rapidly growing region is that of unbroken forest, without roads or developments or fields. Some species of plants and animals simply will not reproduce or even survive without large tracts of forest to support them. Migratory neo-tropical warblers are one example and wood turtles are another. Such species breed only in forest tracts like Tyler Mill or state forests, and they are never seen in back yards. Since Wallingford already has abundant open field habitats, it is important to protect this forest.

The Forest Management Plan for 1993 to 2002, which was completed for the Town in 1993, is no doubt professionally done, but it does not adequately address the status of the Tyler Mill forest in 1999. The primary management objective stated for Tyler Mill is "to provide passive recreation and environmental education opportunities for town residents" (Shramek, iv). This excellent objective is undermined by the secondary objective, which, the document states, is "to maintain overall health of the forest ecosystem

and manage the forest, where appropriate, to provide sustainable yields of revenue through the growth and sale of wood products (saw timber and firewood)" (underlining mine) (Shramek, iv). This may be boilerplate forestry contract language, but in the case of Tyler Mill at least, the two objectives are in conflict.

Tyler Mill should not need to pay its own way, so to speak, by the creation of revenues from the sale of timber. The expectation that wood products sold out of this forest will pay for its maintenance created a problem in the autumn of 1998 (photos 192 & 193). There was a planned timber harvest on a sixty-three acre parcel of the Woodhouse Avenue side of Tyler Mill. This was just the first of many parcels to be cut throughout the area. The problem was that the foresters who wrote the management plan and those who carried out the wood cut could not see the forest for the trees. Instead of seeing a community's natural and recreational resources, they saw dollar signs. Trees were evaluated in terms of the board feet of marketable lumber they would yield. Mature northern red oaks were cut because they fetch top dollar as saw logs. Mature American beech trees were cut and left where they fell to create growth room for more marketable species. Because the harvest was a commercial venture for the company that won the contract to do it, heavy equipment was used. Immature trees were run over. Trees not targeted for the cut were scraped and damaged or crushed by falling trees. Trails and stone walls were churned. Bare slopes turned to gullies in the first rainfall. The unmarketable wood of tree tops, branches, damaged trunks or "worthless" species was left where it fell. Ironically, about a dozen marketable saw logs were left behind at the landing area because they were too few in number to make a full truckload (photo 194).

The original goal of this timber harvest had been to conduct a selective thinning to promote the health of the forest. What actually happened was much more extreme. The woodcutting contract was violated by the cutter and the supervising forester because they misunderstood the land they were working on. They calculated board feet of timber and

hourly wages and the cost of trucking logs, but they failed to take into consideration the fact that they were supposed to be improving the status of Wallingford's premier natural area.

As a result of these mistakes, some corrections have been made. The wood cutters have had to return to the site and install water bars and other erosion control measures on slopes that were stripped. They have also cleared the Powers Trail, which was completely blocked with slash (photo 195). Finally, the whole timber cut program has been suspended indefinitely until there is a re-evaluation of the Town's forest management objectives, especially where Tyler Mill is concerned.

This is an opportunity to manage the forest at Tyler Mill so that it remains healthy and beautiful into the next century and the new millennium. The trees must be viewed as an important natural asset, not seen as "forest products" for sale to the highest bidder. Any cutting that does take place should be done on a selective basis to maintain trails and promote the growth of the forest without regard for what is marketable and what is not. The highest value of these trees is that they are part of the Town forest at Tyler Mill. Cutting should be done in the least invasive manner, one tree at a time, without skidders or other heavy equipment that damages the forest's understory, soil base, and trails. There must be a better way to manage a forest than to cut it down, sell some, and leave the rest to rot.

OUTDOOR EDUCATION

Tyler Mill is an important resource for outdoor education, but is an under-utilized asset. Connwood Foresters used trails in the area to establish a self-guiding interpretive nature trail with stops at points of interest. There is a booklet with a map available at the Parks and Recreation Department and there is a series of numbered signs on the trails. That guide is an excellent start.

This present guidebook, with its sections on geology, history, and more extensive information on all the trails, should prove to be a useful resource to parents or Scout leaders wishing to introduce youngsters to the outdoors.

An additional approach to outdoor education might be to use this guide as an educational tool for Wallingford schools so that Tyler Mill could be used as an outdoor classroom. With a little thoughtful preparation, teachers at all levels of instruction from elementary school to high school might find that a field trip to Tyler Mill is a convenient and appealing learning opportunity for their students. A wide range of outdoor activities is possible, and the degree of complexity can be tailored to the interests and abilities of each class. Students can identify leaves and preserve them or analyze the chemical changes that make them turn colors. They can examine flowers or figure out how insects pollinate them. They can observe animal species or investigate a particular habitat. Projects can be designed to measure water flow or tree heights. Classes can paint flowers or landscapes from nature. Once teachers are aware of Tyler Mill's existence and its potential as an outdoor classroom, the possibilities are limited only by imagination. The proximity of Tyler Mill to the Town's schools makes a field trip economical financially and feasible within the constraints of the school day. Not only would students benefit from learning the

lessons taught, they would also gain an appreciation and affection for the natural world that cannot be experienced while sitting at a computer screen.

CONCLUSION

This guide has described and examined Tyler Mill in detail so that visitors on foot, on horseback, and on mountain bike can understand and appreciate this uniquely valuable place. The ultimate question about Tyler Mill is this: Why do we need Tyler Mill as a natural trail-based recreation resource? Why is this the place's highest and most important use to our community? My answer is simple.

We need some open space in its natural state for our continued existence as human beings. By virtue of our evolution and history, we are creatures of nature as well as creations of God. When we are isolated from our natural heritage by the proliferation of roads, malls, subdivisions, and parking lots, when nature and the land become too hard to see, we face two dangers: Not only do we lose touch with a part of our own humanity, we begin to misunderstand the natural processes upon which we are dependent.

We still live in the natural world even if our technology often insulates us from it, and we need this world for our survivial as a species. Misunderstanding that connection leads to environmental mistakes--water and air pollution, farmland loss, species extinctions, habitat destruction. It is not overstating the case to say that such mistakes can imperil our continued existence as human beings on this planet. We all need Tyler Mill and places like it to keep us mindful of the connection between people and nature.

APPENDIX A: SOME BIRDS OBSERVED AT TYLER MILL

Wetlands, river
- red-winged blackbird
- great blue heron
- mallard
- tree swallow
- belted kingfisher
- barn swallow

Open, grassy fields
- ring-necked pheasant
- American goldfinch
- Eastern meadowlark
- Eastern bluebird
- savannah sparrow
- bobolink
- mourning dove
- rock dove
- flicker
- American robin
- mockingbird
- Eastern phoebe
- brown-headed cowbird
- house sparrow
- chipping sparrow
- starling
- blue jay

Thickets, shrubs
- grey catbird
- brown thrasher
- song sparrow
- yellow warbler
- common yellowthroat
- American redstart
- rufous-sided towhee
- cardinal
- indigo bunting
- white-throated sparrow

Deciduous woods
- Northern oriole
- slate-colored junco
- cedar waxwing
- common grackle
- crow
- ruffed grouse
- turkey
- whip-poor-will
- barred owl

great horned owl
red-tailed hawk
turkey vulture
downy woodpecker
hairy woodpecker
red-bellied woodpecker
white-breasted nuthatch
rose-breasted grosbeak
scarlet tananger
black-capped chickadee
tufted titmouse
red-eyed vireo
Eastern wood peewee
ovenbird
veery
wood thrush
black and white warbler
worm eating warbler

APPENDIX B: COMMON TREES AT TYLER MILL

eastern white pine	tall evergreen conifer with long needles in bundles of five
eastern hemlock	evergreen seen in several stands, especially at Moss Rock and along Owl Ridge threatened by woolly adelgid, a non-native insect pest
eastern redcedar	evergreen with aromatic wood, understory species needle-like twiglets composed of overlapping scales found along roads and trails, also a pioneer in unused fields
tamarack	Eastern larch, a deciduous tree with needles which drop in winter about 40 mature trees in Tamarack Swamp, an unusual location as this is a northern forest tree
pignut hickory	common hickory with a thick-shelled nut
shagbark hickory	shaggy bark is in long, loosely attached, curving strips edible nut
yellow birch	slightly aromatic twigs
sweet birch	black birch aromatic, with odor of wintergreen from crushed leaves or twigs birch beer made from sap
grey birch	small tree, pioneer on abandoned fields
American hornbeam	musclewood, small tree with smooth, grey, muscle-like bark
hop hornbeam	small tree with shaggy bark in long, narrow, loose strips
American beech	large tree with smooth grey bark reminiscent of elephant legs found in stands because it sprouts from roots
swamp white oak	deeply furrowed bark
white oak	light colored bark, leaves light green with rounded lobes
scarlet oak	large tree with leaves shiny, dark green above and pale below leaves brilliant red in fall
pin oak	pin-like twigs, drooping lower branches
chestnut oak	oval leaf with many rounded teeth
northern red oak	dark grey bark has long ridges
black oak	rough, blackish bark; leaves fuzzy often found on ridges and near tops of slopes

American elm	tall, graceful tree formerly abundant until advent of Dutch elm disease fine specimen at Viet Nam Veterans Park near flag pole
tuliptree	leaves have a broad tip and look like a tulip tall, straight trunk bears tulip-like orange and green flowers
sassafras	aromatic roots used to make rootbeer some lobed leaves resemble mittens
sycamore	bark mottled and peeling grows along stream banks
basswood	large, heart-shaped leaves
American chestnut	exists as saplings only, mature trees have been killed by chestnut blight

APPENDIX C: COMMON SHRUBS AT TYLER MILL

common juniper	attractive powder blue berries small, sharp needles
highbush blueberry	common tall shrub with sweet, blue-black berry
pussy willow	many-stemmed shrub or small tree with grey, furry catkins in late winter/early spring grows near streams and in swamps
speckled alder	low shrub that grows in a clump shape near water or in wet soil female flowers develop into small cones good wildlife cover and food source
maple-leaved viburnum	common shrub in moist woods maple shaped leaves are purple in fall small, white flowers in flat-topped clusters
mountain laurel	Connecticut's state flower an evergreen shrub with clusters of pink buds that become white flowers in early summer
spicebush	blooms in early spring with dense clusters of small, yellow flowers, called "wild forsythia" a tea can be made from its aromatic twigs and leaves (Neiring 585)
witch hazel	tall shrub of the woods which blooms in autumn with spidery, yellow flowers whose petals curl back into a bud if temperature drops and reopen when it rises bark and leaves used in the manufacture of an astringent, company based in Connecticut--Dickinson Witch Hazel branches sometimes used as dowsing wands to locate water (Neiring 553-554)
sweet pepperbush	blooms in summer with long upright spikes of fragrant flowers grows on wet ground or in swamps
buttonbush	common shrub along streams balls of narrow, tubular, white flowers bloom in summer fruit forms in autumn as rough, brown balls like buttons
elderberry	large shrub growing in wet soils flat-topped clusters of white flowers in summer develop into sweet, purplish-black berries; edible, good wildlife food source

Russian olive	invasive non-native shrub or small tree with spiny twigs masses of tiny yellow flowers in late spring yellowish, berry-like fruits; edible, food source for birds
multiflora rose	invasive non-native profuse fragrant white flowers in late spring arching stems with many thorns wildlife cover and food source
eastern burningbush	shrub with purple, berry-like fruit twigs and branches are winged with corky ridges
Japanese knotweed	large bushy plant with hollow jointed stems responsible for its other name, Japanese bamboo flowers in long white clusters in late summer invasive non-native

APPENDIX D: A FEW VINES AT TYLER MILL

wild grape	long vines twining around trees or hanging on shrubs, old stems quite stout dark purple fruits
woodbine	Virginia creeper, a clinging vine sometimes mistaken for poison ivy but having five leaves
climbing bittersweet	a twining, woody vine that produces orange fruits which open to expose red interior in autumn
Oriental bittersweet	Asiatic bittersweet, a non-native species similar to climbing bittersweet has escaped from cultivation and tends to be invasive
Japanese honeysuckle	fragrant, white, tubular flowers that become yellowish as they age non-native, invasive
poison ivy	mostly climbing but also masquerades as low plant or shrub has flowers and berry-like fruits all parts of plant cause skin inflammation red foliage in autumn fruits are a food source for birds, which spread the seeds far and wide

APPENDIX E: COMMON WILDFLOWERS AT TYLER MILL

Spring	Summer	Late Summer, early fall
yellow star grass	yellow star grass	yellow star grass
periwinke, myrtle	New England aster	New England aster
Jack-in-the-pulpit	New York aster	New York aster
smaller pussytoes	smaller pussytoes	tall goldenrod
common dandelion	common dandelion	jewelweed
blue cohosh	white wood aster	white wood aster
May apple	tickseed sunflower	tickseed sunflower
highbush blueberry	spotted Joe Pye weed	spotted Joe Pye weed
wild geranium	spotted knapweed	rough-stemmed goldenrod
blue flag	blue flag	witch hazel
spicebush	evening lychnis	evening lychnis
trout lily	oxeye daisy	New York ironweed
Canada Mayflower	chicory	chicory
smooth Solomon's seal	bull thistle	bull thistle
purple trillium, wake robin	daisy fleabane	daisy fleabane
wild oats, sessile bellwort	black-eyed Susan	black-eyed Susan
false hellebore	false hellebore	
wild flax	wild flax	
pink lady's slipper	viper's bugloss	viper's bugloss
Dutchmen's breeches	black mustard	black mustard
bloodroot	harebell	harebell
wood anemone	cardinal flower	cardinal flower
rue anemone	sweet pepperbush	sweet pepperbush
wild columbine	wild columbine	
marsh marigold	Asiatic dayflower	Asiatic dayflower
round-lobed hepatica	hedge bindweed	hedge bindweed
common strawberry	red clover	red clover
bluets	white clover	white clover
pussywillow	Indian pipe	Indian pipe
common blue violet	pokeweed	pokeweed
Gill-over-the-ground	common buttercup	common buttercup
bladder campion	bladder campion	
coltsfoot	meadowsweet	meadowsweet
wild ginger	steeplebush	steeplebush
	buttonbush	buttonbush
	blue toadflax	blue toadflax
	butter-and-eggs	butter-and-eggs
	monkey flower	monkey flower
	common tansy	
	common barberry	
	Japanese honeysuckle	
	elderberry	
	maple-leaved viburnum	
	climbing bittersweet	
	bunchberry	
	mountain laurel	
	crown vetch	
	blue vetch	
	false Solomon's seal	

Summer
multiflora rose
rugosa rose
partridgeberry
daylily

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