

Seeing the Forest

A NEW ATTITUDE TOWARD YOUR LANDSCAPE

The Nature Conservancy  *Berkshire Taconic Landscape Program*



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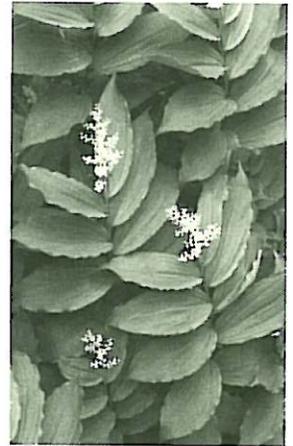
BLUE COHOSH



Forests help make life possible.

They produce more of the oxygen we breathe than any other landscape. Their porous earth soaks up rainwater and releases it gradually, so downstream flooding is lessened and our ground water is replenished. Their relentless roots transform bedrock into usable soil, then hold it their web. Overhead, their branches and leaves slow the wind, subdue the rain and soften the sun's glare.

Forests sustain the life of countless wild creatures. They are a storehouse of energy and nutrients; in their slow decay they nourish the earth. But perhaps best of all, forests give us beauty, mystery, peace and delight.



SOLOMON'S PLUME

Nature is the beauty by which all other beauties are measured.

FRANK WAUGH, 1917

INTRODUCTION

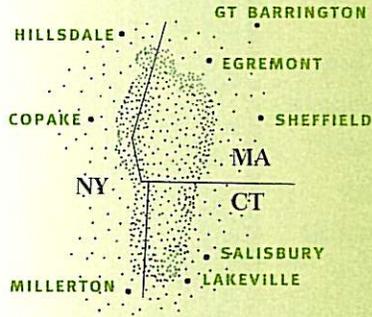
There are many kinds of forest. Some are a cool deep green, others warm and light. Underfoot, the ground may be springy and moist, rocky, or firm and dry. The woods may be crowded as a jungle, or lofty and grand as a cathedral.

All of these forests exist within the remarkably diverse Berkshire Taconic landscape. This region spans the intersection of Massachusetts, Connecticut and New York. It contains a steep-sided mountain plateau that stands like an island amidst gently rolling lowlands.

Beneath the visible landscape, several kinds of bedrock are interwoven. Thousands of years of erosion and deposition have produced an unpredictable mosaic of soil conditions. As a result, the region contains many rare and unusual species as well as hundreds of common plants in uncommon combinations.

Trees always thrive best amid the conditions they have chosen for themselves, through many years of selection and elimination.

JENS JENSEN, 1939



PURPOSE OF THIS BOOKLET

Residents of the Berkshire Taconic region appreciate its rare beauty. Here is a place where lush, open meadows flow across gentle valleys to meet the sudden rise of slope, bedrock, and deep green forest. Here are inviting groves, ferny glades and intriguing, shrubby thickets.

Many people who live here would like to bring more of these elements and visual qualities into their home landscape. Others would like to care wisely for the forests and small woodlands that already exist on their property. This booklet is designed to guide, inspire and inform these efforts.

Long ago, ancient forests towered over the land that now holds our towns and farms. And, although many species of these early forests are lost forever, the woodlands we see all around us contain many of the same plants that thrived in those original forests. In respect for the landscape that nature itself as produced, this booklet offers a way to integrate the pleasing, natural essence of local forests into our domestic landscapes.

THIS BOOKLET PROVIDES GUIDELINES TO HELP RESIDENTS:

- Learn to recognize the region's typical forest communities.
- Maintain and restore forested property in accord with natural models.
- Improve or create wooded landscapes at home.



BULBLET FERN

THINGS TO NOTICE

Every plant community possesses a characteristic appearance. To distinguish between communities, start by identifying individual species that are most obvious and abundant in a forest. Gradually, the rare and less common plants will also become known.

Then pay attention to the overall arrangement. Plants in a forest grow in three layers:

- Canopy . . . the trees overhead
- Understory . . . saplings and shrubs in the interior space
- Ground . . . ferns, wildflowers, mosses, etc.

Finally, notice that each layer exhibits a typical degree of:

- Diversity . . . the number of different species
- Density . . . how close together the plants grow

PLANT COMMUNITIES

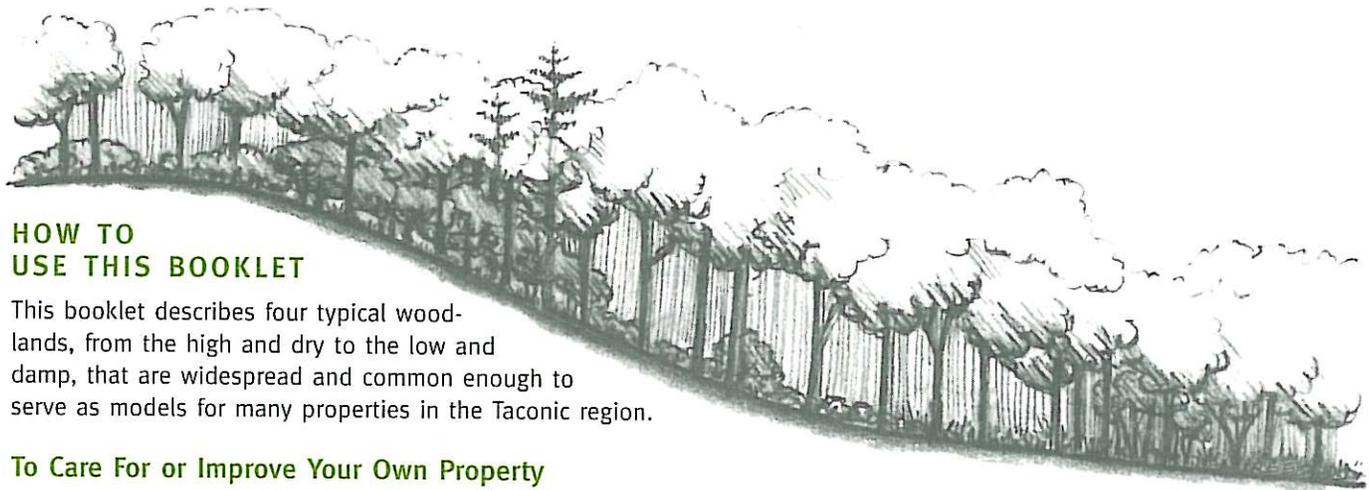
Forests are infinitely, marvelously complex and continually changing. At first glance, they may seem to be a random collection of trees and smaller plants. However, when you know what to look for, forests make sense. Plants grow where they can, and each plant thrives in a particular set of physical conditions.

Plant communities are groups of species that have evolved to require or tolerate the same physical conditions.

While the Berkshire Taconic landscape is extremely varied, most of its forests contain several deciduous tree species and few conifers, with sugar maples growing in varying amounts throughout the area. Many distinctly different forest communities are embedded within this general matrix.

With a bit of careful attention you will come to recognize the individual plants that repeatedly grow in each other's company. Gradually, you will also see that, under similar conditions, these plants repeatedly arrange themselves in the same general patterns.

These recurring patterns allow natural woodland communities to serve as models for the care and restoration of other forested landscapes.



HOW TO USE THIS BOOKLET

This booklet describes four typical woodlands, from the high and dry to the low and damp, that are widespread and common enough to serve as models for many properties in the Taconic region.

To Care For or Improve Your Own Property

- Match one of the communities described in the next few pages to the character of your own project; if your property is not currently wooded, match the general location and physical conditions, rather than specific plants.
- Preserve and add only native plants typically found in the appropriate natural model . . . focus on trees to keep the canopy closed and ground plants to help keep the soil loose and moist.
- Emulate appropriate patterns of distribution; strive to match the density and diversity of each forest layer.
- See *How to Care for your Woodland* at end of booklet, for additional suggestions.

NOTE: If none of these communities resembles the woods of your property, find a natural, healthy forest that does, and use this as your own model.

Red Oak Woods



Mixed Hardwood Forest



Rich Maple Woods



Lowland Forest

RED OAK WOODS

High elevations ✎ *Light and dry interior* ✎ *Thin, acidic soil*

CHARACTER ✎ These woods are light and dry. Located mostly in high terrain, their soils are thin, rocky and acidic. As a result, large trees grow somewhat widely spaced, so the canopy is sparse. This allows plenty of sunlight to

filter through to the interior, but the poor soils support only a few kinds of plants in the understory and ground layer.

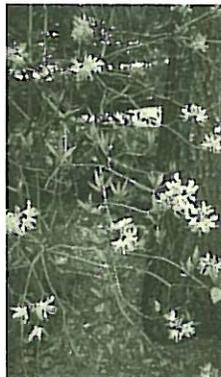
Fallen leaves decay slowly on the hard ground. Rainwater quickly washes away the few

nutrients that are produced. The soil remains thin while a thick layer of leaf litter accumulates on the surface, reducing germination opportunities for many new plants. These inhospitable conditions restrict the community's diversity.

VEGETATION ✎ Red oaks strongly dominate the canopy. If the forest is old, their trunks may be tall and thick as pillars. Sugar maples are scattered among the oaks, along with lesser amounts of sweet birch, black cherry, red maple and an occasional pine or hemlock. These trees vary in size and age.



In the forest interior, dense thickets of mountain laurel are common. Pinxterbloom azalea and maple-leaf viburnum grow in airy patches, their delicate blooms a counterpoint to the bold laurel flowers. Witch hazels occasionally arch just overhead. Drifts of huckleberry and lowbush blueberry mix near the ground with canada mayflower, starflower, and startling clumps of pink lady's slipper. The dry forest floor may be strewn with patches of wintergreen, sarsaparilla, wild oats, and uncommon shinleaf.



PINXTER AZALEA



PINK LADYSLIPPER



MOUNTAIN LAURELS AMID THE OAKS

TYPICAL PLANTS

Canopy

- *Red oak
- Sugar maple
- Sweet birch
- Black cherry
- Red maple
- White pine
- Eastern hemlock
- American beech

Understory

- Mountain laurel
- Pinxterbloom azalea
- Witch hazel
- Maple-leaf viburnum

Ground

- Lowbush blueberry
- Canada mayflower
- Starflower
- Pink lady's slipper
- Indian cucumber root
- Wintergreen
- Sarsaparilla
- Wild oats
- Shinleaf

MIXED HARDWOOD FOREST

Upper slopes ✎ *Dense and crowded* ✎ *Average soil*



CHARACTER ✎ This varied community is quite widespread in the region. It often occupies mid-slope terrain, where the soil is moderately moist and acidic. Many different plants thrive in these favorable conditions. The resulting forest has a densely closed canopy and a crowded understory. The ground layer is diverse but sparse, due to the deep shade.

VEGETATION ✎ Red oaks grow here, but this community is distinguished from the drier red oak forest by the presence of white ash, American beech and many more sugar maples. The

canopy also contains basswood, butternut and hemlock. With their shiny bark, occasional black, yellow and paper birch trees stand out among the crowd.

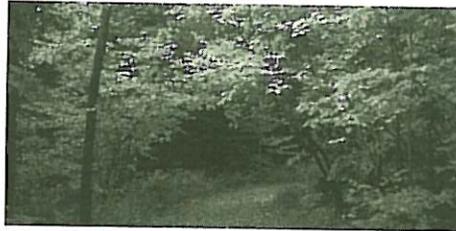
In the understory, saplings of these large trees mix with smaller striped maple and witch hazel. Delicately-branched shadbush produce clouds of tiny white flowers in early spring. Mountain laurel here are shorter, thinner and less abundant than in the dry oak forest.

Many of the ground plants found in the dry oak forest occur here too, but in smaller amounts. The most abundant

wildflowers in this community are sarsaparilla, canada mayflower, Indian cucumber root. These produce ephemeral white blooms in spring and, with Christmas ferns, remain green through the summer. In early fall, the graceful blooms of white wood aster decorate the woods.



SARSAPARILLA FLOWER AND LEAF



WITCH HAZELS ARCH ACROSS THE PATH



THREE BIRCHES SHINE IN AUTUMN LIGHT

TYPICAL PLANTS

Canopy

- *Red oak
- *Sugar maple
- *American beech
- *White ash
- Basswood
- Butternut
- Eastern hemlock
- Sweet birch

Understory

- Maple-leaf viburnum
- Witch hazel
- Shadbush
- Striped maple
- Beaked hazelnut

Ground

- Canada mayflower
- Sarsaparilla
- Lowbush blueberry
- Indian cucumber root
- Intermediate wood fern
- Christmas fern
- White wood aster
- Blue-stemmed goldenrod
- Starflower
- Wild oats

RICH MAPLE WOODS

Lower slopes ✎ *High canopy, lush carpet* ✎ *Deep, rich soils*

CHARACTER ✎ On the mountain's lower slopes, moist, alkaline soils are produced by calcium-rich bedrock and a steady supply of nutrients washing down from above. Sugar maples thrive in this rich earth. Dampness helps their soft leaves decay

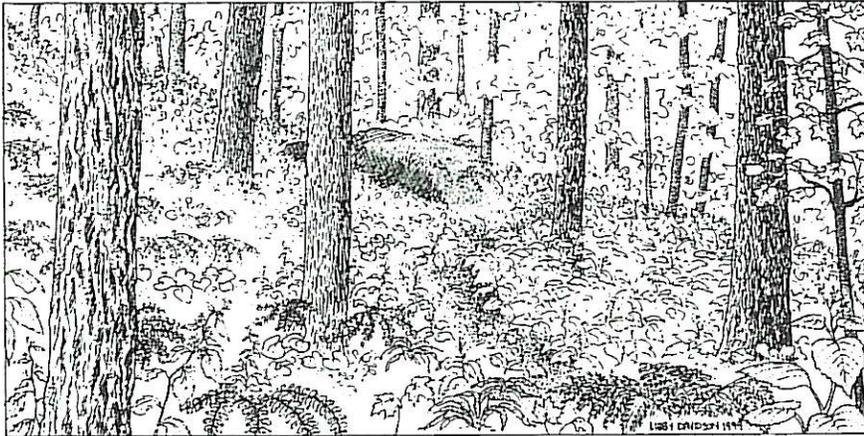
quickly, which constantly replenishes soil fertility.

In these conditions, trees grow fast, tall and straight. Their extremely dense canopy rises high overhead. When this maple forest is mature, few other tree species can repro-

duce successfully in its deep shade, so diversity in the canopy is quite low.

Plants in the understory may be almost nonexistent, except in the occasional sunny opening left by the falling of an ancient giant; here shrubs and saplings crowd into the light. By contrast, the entire ground layer is extremely dense and diverse.

VEGETATION ✎ Sugar maples tower above this landscape. Only scattered white ash and basswood regularly share the canopy, with bitternut hickory, black cherry and butternut occasionally present.



Where understory trees exist, they are usually hop hornbeam or pagoda dogwood. Leatherwood and red elder may also occur.

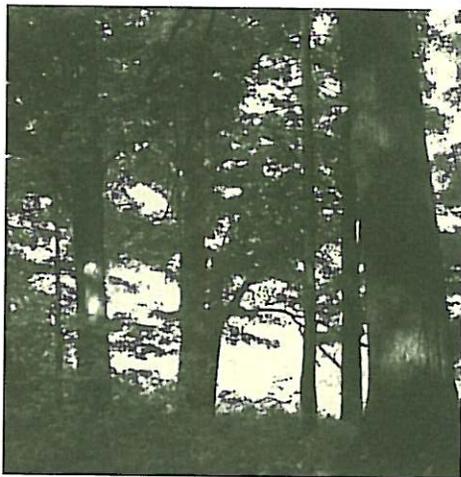
The truly exceptional feature of this forest is its rich assortment of wildflowers. Spring starts with the tiny blooms of hepatica and spring beauty, followed by the larger blossoms of bloodroot, dutchman's breeches and trillium. When the large, white Solomon's plumes appear, blue cohosh has already spread into a deep, blue-green carpet. Maidenhair and other ferns shoulder their way into the crowd.



SPRING BEAUTY



PAGODA DOGWOOD



SUGAR MAPLES CAST A DEEP SHADE

TYPICAL PLANTS

Canopy

- *Sugar maple
- White ash
- Basswood
- Bitternut hickory
- Black cherry
- Butternut

Understory

- Hop hornbeam
- Striped maple
- Pagoda dogwood
- Red elderberry
- Leatherwood

Ground

- Maidenhair fern
- Blue cohosh
- Dutchman's breeches
- Hepatica
- Bloodroot
- Spring beauty
- Wild ginger
- Christmas fern
- Wild leek
- Solomon's plume
- White baneberry

LOWLAND FOREST

Gentle terrain ✎ *Dense canopy, ferny interior* ✎ *Damp soils*

CHARACTER ✎ This forest of gently rolling terrain includes many small streams and the floodplains of some larger ones. Its soils are fine-grained and often damp. The canopy is continuous, but its deep shade and the slightly inhospitable soil

conditions produce an understory that is rather sparse.

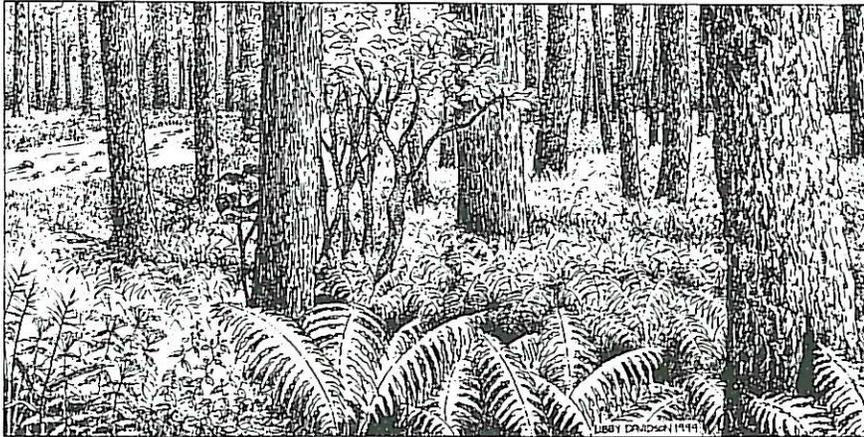
As with the rich maple woods, the ground layer in this moist community may be extremely dense and lush, up to 3-4' tall in some places.

However, this forest's poorer

soils limit overall diversity.

VEGETATION ✎ Sugar maples share the canopy nearly equally with white ash. Less abundant hardwoods include basswood, red maple, black cherry and occasional red oak. Cottonwood and silver maple, which are nonexistent in the upland forests, may thrive here in damper locations.

The relatively open forest interior contains scattered clumps of witch hazel and elder, as in the uplands, but this forest also supports muscledwood, with its sinewy trunks, and winterberry, whose bright red berries persist well into the winter.





COTTONWOOD CATKINS BY THE RIVER

The plants of the ground layer are mostly ferns with occasional drifts of white snake-root and various sedges. Tall meadow rue may sometimes lift its delicate white tufts above the ferny profusion.



WINTERBERRY'S TINY BLOOMS



MARSH MARIGOLD & OSTRICH FERNS

NOTE: Lowland forests may include areas of regulated wetland or river protection zones. Check with your local authorities before taking any action.

TYPICAL PLANTS

Canopy

- *Sugar maple
- *White ash
- Basswood
- American elm
- Silver maple
- Cottonwood
- Red oak
- Red maple
- Black cherry
- Black ash
- Sycamore

Understory

- Witch hazel
- Red elder
- Musclewood
- Common winterberry

Ground

- Ostrich fern
- White snakeroot
- Sensitive fern
- Heart-leaved aster
- Lady fern
- Jack in the pulpit
- Tall meadow rue
- Wild ginger

HOW TO CARE FOR YOUR WOODLAND

ON THE GROUND

- Cover all bare earth, preferably with leaf litter from the vicinity.
- Keep within the forest all the fallen leaves, branches and woody debris, either in a brush pile or strewn inconspicuously throughout . . . in decay this material replenishes the soil and nourishes the invisible micro-organisms that help plants grow.
- Repair gullies or eroded land . . . replace lost soil, re-shape the ground to slow or disperse rain runoff, restore vegetation, prevent heavy foot traffic.
- Preserve and protect low plants whose leaves help to keep the ground moist.
- Let fallen trees stay on the ground . . . to create a rich, shaded micro-habitat for forest creatures and, in decay, to be a nursery for baby trees.
- If paths are needed, design them to be narrow and follow the contour of the land as much as possible, rather than crossing steep slopes . . . avoid creating unintended watercourses.
- Keep activity away from fragile places

ABOVE THE GROUND

- Remove invasive exotic plants . . . these crowd out the less aggressive natives and reduce the forest's overall diversity.
- Maintain a closed canopy overhead . . . this promotes soil moisture and reduces invasions by aggressive exotic species.
- Preserve saplings in the understory . . . they contain the future.
- Let dead trees remain standing . . . as food and shelter for many birds, bugs and mammals.
- Avoid using herbicides and pesticides . . . they may cause much unintended harm (insects are the main food of most birds).
- Allow some places in the forest to be crowded or messy . . . neatness may damage the invisible but vital elements or relationships whose value we don't comprehend.

INVASIVE PLANTS

Plants often thrive better in exotic locations than they might in their own place of origin, where various diseases and predators usually keep them in balance within the larger ecosystem. Away from their natural controls, non-native plants may have a competitive advantage over native species. The result is a decline of indigenous diversity in favor of an extreme abundance of the exotic species.

In the Berkshire Taconic region, the following species have become problematic in their dominance:

Garlic mustard
Alliaria petiolaria
Japanese barberry
Berberis thunbergii
Oriental bittersweet
Celastrus orbiculata

Morrow's honeysuckle
Lonicera morrowii
Tatarian honeysuckle
Lonicera tatarica
Purple loosestrife
Lythrum salicaria
Common reed
Phragmites australis
Shining buckthorn
Rhamnus frangula
Common buckthorn
Rhamnus cathartica
Multiflora rose
Rosa multiflora

For more information about the control and removal of invasive species, check the TNC websites: <http://nature.org/berkshire/science> or <http://tncweeds.ucdavis.edu>.

PROJECT NATIVE

The Nature Conservancy has joined with the Railroad Street Youth Project to create a native plant nursery. Developed and run by local youth, this nursery provides the local community with plants indigenous to the region's forest and wetland communities, as alternatives to exotic horticultural varieties. For more information, contact TNC or nursery manager Raina Weber at the Railroad Street Youth Project: 413/528-2475.

When buying native plants for your forest or landscape, be sure they are nursery-propagated, not taken from the wild and grown only briefly in a nursery before being sold. Call the New England Wildflower Society in Framingham, MA, for a list of other nurseries.

RESOURCES

American Plants for American Gardens, Edith Roberts and Elsa Rehmann. University of Georgia Press, Athens, GA; 1996 (originally published 1929)

Flora of Berkshire County, Massachusetts, Pamela Weatherbee. Studley Press, Dalton, MA; 1996

The Landscaping Revolution, Andy Wasowski. Contemporary Books, Lincolnwood IL; 2000

The Natural Style in Landscape Gardening, Frank Waugh. Gorham Press, Boston; 1917

Noah's Garden, Sara Stein. Houghton Mifflin Co., Boston; 1993

Reading the Landscape of America, May Watts. Nature Study Guild Publishers, Rochester, NY; 1975

Reading the Forested Landscape, Tom Wessels. The Countryman Press, Woodstock, VT; 1997

Siftings, Jens Jensen. Ralph Fletcher Seymour Publisher, Chicago, IL; 1939

Wetland, Woodland, Wildland, Elizabeth Thompson and Eric Sorenson. VT Department of Fish and Wildlife and The Nature Conservancy; 2000

Wildflower Gardeners Guide, Henry Art. Storey Communications, Pownal, VT; 1987

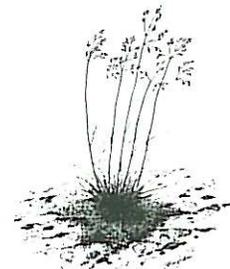
FIELD GUIDES

Wildflower Guide, Lawrence Newcomb. Little Brown Company, Boston, 1977.

A Field Guide to Trees and Shrubs, George Petrides. The Peterson Field Guide Series, Houghton Mifflin, Boston, 1958

Tree Finder, Mary Watts. Nature Study Guild, Berkeley, CA, 1963

Flower Finder, Mary Watts. Nature Study Guild, Berkeley, CA, 1955



HAIRGRASS

BOTANICAL NAMES

HERBACEOUS PLANTS:

Bloodroot, *Sanguinea canadensis*
Blue cohosh, *Caulophyllum thalictroides*
Blue-stemmed goldenrod, *Solidago caesia*
Canada mayflower, *Maianthemum canadense*
Dutchman's breeches, *Dicentra cucullaria*
Heart-leaved aster, *Aster cordifolius*
Hepatica, *Hepatica acutiloba*
Indian cucumber root, *Medeola virginiana*
Jack in the pulpit, *Arisaema triphyllum*
Lowbush blueberry, *Vaccinium angustifolium*
Sarsaparilla, *Aralia nudicaulis*
Shinleaf, *Pyrola elliptica*

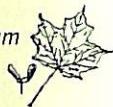
Starflower, *Trientalis borealis*
Spring beauty, *Claytonia virginica*
Tall meadow rue, *Thalictrum pubescens*
White snakeroot, *Eupatorium rugosum*
White wood aster, *Aster divaricatus*
Wild ginger, *Asarum canadense*
Wild leek, *Allium tricoccum*
Wild oats, *Uvularia sessifolia*
Wintergreen, *Gaultheria procumbens*

FERNS:

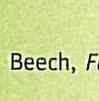
Christmas fern, *Polystichum acrostichoides*
Intermediate wood fern, *Dryopteris intermedia*
Lady fern, *Athyrium filix-femina*
Maidenhair fern, *Adiantum pedatum*
Ostrich fern, *Matteuccia struthiopteris*
Sensitive fern, *Onoclea sensibilis*

LEAVES OF COMMON FOREST TREES

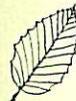
Sugar Maple, *Acer saccharum*



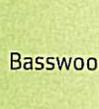
Red Oak, *Quercus rubra*



Beech, *Fagus grandiflora*



White Ash, *Fraxinus americana*



Basswood, *Tilia americana*



Sweet Birch, *Betula lenta*

Butternut, *Juglans cinerea*





The mission of The Nature Conservancy is to protect the earth's most precious and endangered natural places, and all the plants and animals that depend upon them, forever.

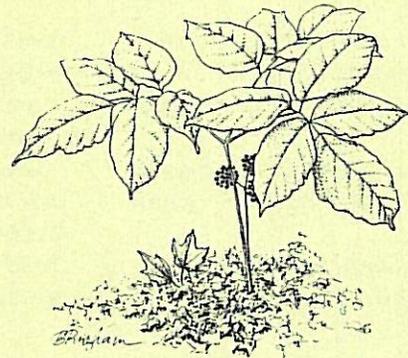
The Berkshire Taconic Landscape Program focuses on protecting the landscape that spans the junction of Massachusetts, Connecticut and New York, which The Conservancy has designated as one of the world's 200 remaining "Last Great Places."

This region boasts a remarkably healthy and diverse mountainous forest and globally significant wetlands, and is home to many rare plants, animals and natural communities. It is a place where roaming mammals such as black bear, mink, bobcat and fisher can continue to survive and migratory songbirds can still safely breed. The landscape remains relatively undisturbed, despite the fact that it is situated in the heart of the urban Northeast, facing ever-increasing development pressures.

The Conservancy collaborates with town governments, state agencies, land trust and other non-profit organizations, the business community, and people from all walks of life to help protect the cherished qualities of this special place.

*Every plant has its fitness and must
be placed in its proper surroundings
so as to bring out its full beauty.*

JENS JENSEN, 1939



SARSAPARILLA