



Rich, Mesic Forest

Community Code: CT1C2A0000

State Rank: S3



Concept:

A variant of the northern hardwood forest where sugar maple is usually dominant and there is a diverse herbaceous layer with abundant spring ephemerals, in a moist, nutrient-rich environment.

Environmental Setting:

Occurring in western Massachusetts, Rich, Mesic Forests are restricted to elevations below 2,400 ft. (about 650 m), usually on east- or southeast-facing, concave, mid- to lower slopes with downslope movement of nutrients and organic matter. Rich refers to rich in nutrients; they are also rich in species. Mesic is the moderate moisture regime. Soils are usually deep, with leaves and other plant litter quickly incorporated into the soil, so that there is rarely more than one year's accumulation of leaves on the forest floor. The dominant trees of Rich, Mesic Forests are very shade-tolerant and able to establish and grow under low-light conditions of a full canopy. Species of lower layers are also shade-tolerant and can make use of transient light patches from small canopy gaps. Rich, Mesic Forests are noted for having abundant herbaceous species: spring ephemerals (plants that flower before tree leaf out and have foliage that disappears in late spring) are characteristic, along with slightly later bloomers that keep their leaves into summer and others that flower later.

Vegetation Description:

Rich, Mesic Forests are dominated by sugar maple (*Acer saccharum*), with white ash (*Fraxinus americana*), bitternut hickory (*Carya cordiformis*), elm species (*Ulmus* spp.), and basswood (*Tilia americana*) being other characteristic trees. Butternut (*Juglans cinerea*) usually grows in Rich, Mesic Forests but is infrequent. Hop hornbeam (*Ostrya virginiana*) is common as a subcanopy tree. Although the shrub layer is usually sparse, pagoda dogwood (*Swida alternifolia*), leatherwood (*Dirca*



palustris), or red-berried elderberry (*Sambucus racemosa*) may be present. Typically, spring ephemerals are very abundant. The dense herbaceous layer typically has combinations of species that include some of bloodroot (*Sanguinaria canadensis*), maidenhair fern (*Adiantum pedatum*), late blue cohosh (*Caulophyllum thalictroides*), sweet cicely (*Osmorhiza claytonii*), Dutchman's breeches (*Dicentra cucullaria*), squirrel corn (*Dicentra canadensis*), toothwort (*Cardamine diphylla*), wild leek (*Allium tricoccum*), Goldie's fern (*Dryopteris goldiana*), and zigzag goldenrod (*Solidago flexicaulis*). A semi-evergreen fairly distinct sedge, plantain-leaf sedge (*Carex plantaginea*), is a good indicator of the community that is visible throughout the year.

Differentiating Occurrences: Rich, Mesic Forest is usually within the Northern Hardwood - Hemlock - White Pine Forest or in the transition between it and the oak-dominated forests to the south: Rich, Mesic Forest lacks conifers, beech (*Fagus grandifolia*), and oaks (*Quercus* spp.). The understory has dense spring ephemerals and lacks abundant evergreen wood fern (*Dryopteris intermedia*) and wild sarsaparilla (*Aralia nudicaulis*), both usually found in Northern Hardwood - Hemlock - White Pine Forest. Dense populations of late blue cohosh (*Caulophyllum thalictroides*), Virginia waterleaf (*Hydrophyllum virginianum*), or wild leek (*Allium tricoccum*) usually indicate Rich, Mesic Forests. The Northern Hardwood - Hemlock - White Pine Forest canopy includes eastern hemlock (*Tsuga canadensis*), white pine (*Pinus strobus*), American beech, and red oak (*Quercus rubra*). Rich Northern Hardwood - Hemlock - White Pine Forest may have scattered spring ephemerals, but also early yellow violet (*Viola rotundifolia*) and broad-leaved spring beauty (*Claytonia caroliniana*) that usually indicate lower nutrient availability. Red Oak - Sugar Maple Transition Forest has red oak as a dominant, with sugar maple, American beech, and black birch (*Betula lenta*). Spring ephemerals are not abundant. Geography is basic to differentiating Sugar Maple - Oak - Hickory Forest from Rich, Mesic Forest: most occurrences of Rich, Mesic Forests in Massachusetts are west of the Connecticut River Valley. The presence of multiple species of hickories (*Carya* spp.) and oaks (*Quercus* spp.) in Sugar Maple - Oak - Hickory Forest is a main difference between these two types. Broad-leaved woodland-sedge (*Carex platyphylla*) is close to being an indicator of Sugar Maple - Oak - Hickory Forest. Rich, Mesic Forest has plantain-leaf sedge (*Carex plantaginea*) instead. Rich, Mesic Forest is characterized by very dense herbaceous growth of spring ephemerals; Sugar Maple - Oak - Hickory Forest shares some of the species but with fewer individuals of fewer species. Sugar Maple - Oak - Hickory Forest has evergreen wood ferns that Rich, Mesic Forest lacks.

Associated Fauna: All of the upland forest types provide valuable structural attributes such as tree cavity den sites (used by a variety of bird and mammal species) and large woody material (used by various amphibian, reptile, and invertebrate species). Very few animal species are strongly associated with Rich, Mesic Forests to the exclusion of other community types. Birds of forests that breed in Rich, Mesic Forests include Wood Thrush (*Hylocichla mustelina*), Veery (*Catharus fuscescens*), Black-and-white Warbler (*Mniotilta varia*), Ovenbird (*Seiurus aurocapillus*), Louisiana Waterthrush



(*Parkesia motacilla*), Scarlet Tanager (*Piranga rubra*), and Barred Owls (*Strix varia*). Species that breed in vernal pools, such as mole salamanders (*Ambystoma* spp.), are often found in Rich, Mesic Forest. They use the surrounding Rich, Mesic Forest for foraging and hibernation. Most of the small mammals of forests occur in Rich, Mesic Forests, although some are limited to their geographical distribution. Southern flying squirrels (*Glaucomys volans*), grey squirrels (*Sciurus carolinensis*), woodland jumping mouse (*Napaeozapus insignis*), masked shrew (*Sorex cinereus*), and red-backed vole (*Clethrionomys gapperi*) are among the widespread species whose habitat includes Rich, Mesic Forests. Large mammals include Rich, Mesic Forests as parts of their habitat, but are usually more dependent on size of undisturbed forest than on the precise forest type.

Public Access:

Day Mountain WMA, Dalton; Maple Hill WMA, West Stockbridge; The Hopper, Mt. Greylock State Reservation, Williamstown; Knightville Dam and Reservation (US Army Corps of Engineers), Huntington; Hiram H. Fox WMAs, Huntington; Appalachian Trail, Tyringham.

Threats:

Invasive exotics do very well in the nutrient-rich, mesic conditions associated with these forests. Fragmentation and isolation can be problems for the species of the community.

Management Needs:

Control of exotics in exemplary sites.

USNVC/NatureServe:

A3301 *Acer saccharum* - *Fagus grandifolia* - *Tilia americana* Forest Alliance - *Acer saccharum* - *Tilia americana*/*Acer pensylvanicum*/*Caulophyllum thalictroides* Forest [CEGL006637]; A3240 *Acer saccharum* - *Tilia americana* - *Fraxinus americana* Forest Alliance *Acer saccharum* - *Fraxinus americana*/*Acer spicatum*/*Caulophyllum thalictroides* Forest [CEGL006636]; A4126 *Acer saccharum* - *Tilia americana* - *Quercus rubra* Rocky Forest Alliance - *Acer saccharum*- *Fraxinus americana*- *Juglans cinerea*/*Staphylea trifolia* Forest [CEGL006577].