
The Terrestrial Vegetation of Black Rock Forest

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Introduction



Landscape Features

Plant Associations

Hilltop meadows and Cliffs (Rocky summit grassland, Cliff)

Hilltops are characterized by small, open areas dominated by exposed rock and grasses. Tryon and Raup called these "alpine meadows." Reschke calls them "Rocky summit grasslands." This vegetation is found on hilltops throughout the highlands, but is uncommon elsewhere. Some of the plants that are relatively common here are listed as rare by the New York State Natural Heritage Survey because of their extremely restricted distribution.

The sites are open because the soil here is very thin or nonexistent. Water drains rapidly and the soils are acidic because of the gneissic rock. The sites are constantly changing as soil is eroded and the rocks weather and exfoliate. The few plants that can tolerate the extreme dryness and heat of summers and the exposure of winters, grow in cracks and seams between the rocks. It is interesting to note that this vegetation is most common on the southwest aspect of the hilltops, where insolation is high and is concentrated in the warmest part of the day. The north and east facing sides of the hilltop, often are covered by small trees.

The rock surface is usually covered with crustose and fruticose lichens. In the shallowest soil, they grow, while in crack it is possible to find goldenrod and the rare *Cunila organoides* and *Selaginella rupestris*. The moss *Polytrichum commune* usually dominates shallow cracks. The ebony spleenwort (*Asplenium platyneuron*) is sometimes found here.

As soils get deeper, this vegetation changes to that of the hilltop woods, with *Vaccinium*, *Quercus ilicifolia*, *Pinus rigida*. The woody species first appear as scrubby growth, but get taller as the soils improve.

Cliffs are often a more mixed vegetation depending on slope and aspect.

Quick drying very vulnerable to fire in summer.

Soil: Rock outcrop-Hollis on steep to sloping surfaces. a thin mantle of glacial till over gneiss with

large protruding blocks and ledges of bedrock. Hollis soil has a thin, organic leafmat over a dark brown, gravelly loam surface layer 4 inches thick. The subsoil is strong brown gravelly loam, 10 inches deep. Underlain by gneiss. Vegetation a factor of % exposed bedrock.

Lichens on rock:

Biatorrella clavis
Diploschistes scrupulosus
Gyrophora muhlenbergii
Lecanora polytropa Rabh.
Lecidea albocaulerulescens Ach.
Parmelia conspersa
Parmelia perlata
Rhizocarpon petraeum Mass.
Umbicaria pustulata (L.) Hoffm.

Plants on soil:

Asplenium platyneuron
Deschampsia flexuosa



Figure 3. *Pinus rigida* growing on the summit of RattleSnake Hill.

Danthonia spicata
Andropogon scoparius
Polytrichum commune
Corydalis sempervirens
Selaginella rupestris
Aster linariifolius
Campanula rotundifolia
Cunila organoides L.
Prunus pumila
Juniperus virginiana
Hypericum gentianoides

Hilltop woods (Pitch Pine-oak-heath rocky summit)

The thin soils of the tops of hills support a scrubby vegetation dominated by scrub oak (*Quercus ilicifolia*), pitch

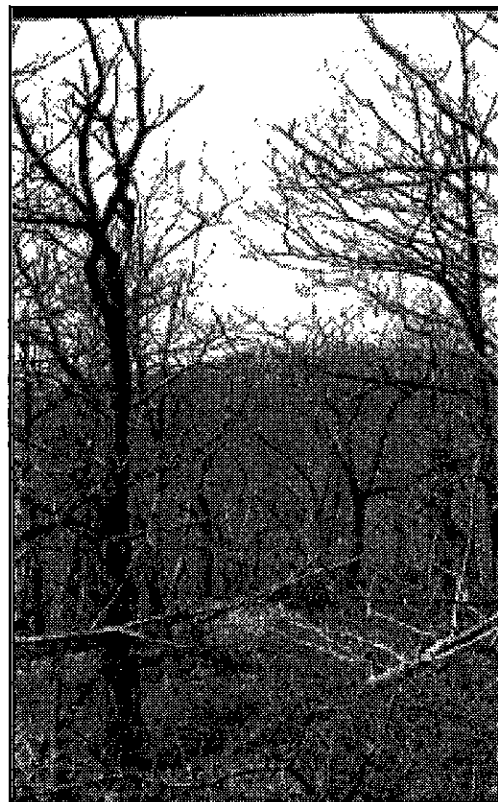


Figure 2. Chestnut oak along Rattlesnake Hill.

pine (*Pinus resinosa*), and blueberry (*Vaccinium angustifolium*). Raup called this the "scurboak-pitch pine association," while Reshke calls it the "Pitch pine-oak-heath rocky summit." It is found on hilltops throughout the Hudson Highlands, in the Appalachian Plateau of western New York and Pennsylvania, and in the St. Lawrence Plains of Northern New York.

As in the hilltop grasslands, water drains quickly and the soils are acidic. Deeper soils allow better root development and larger plants can send roots deep into the seams of the rock. Quick drying very vulnerable to fire in summer.

Soil: Rock outcrop-Hollis on steep to sloping surfaces. a thin mantle of glacial till over gneiss with large protruding blocks and ledges of bedrock. Hollis soil has a thin, organic leafmat over a dark brown, gravelly loam surface layer 4 inches thick. The subsoil is strong brown gravelly loam, 10 inches deep. Underlain by gneiss. Vegetation a factor of % exposed bedrock.

Plants:

Pinus rigida
Quercus ilicifolia
Vaccinium angustifolium
Quercus alba
Aronia melanocarpa
Juniperus communis
Comptonia peregrina
Gaylussacia baccata
Carex pensylvanica
Quercus montana
Cetraria arenaria
Carya glabra

Slope woods (Chestnut oak forest)

Description: (topography and locations) moderate slopes of the upper part of hills. rocky. Easily seen on side of Black Rock, and along Sackett.

Forces shaping: well drained and drying out in summer. Plants often rooting into cracks and joints in bedrock. Heavily cut, predominance of Chestnut oak may be due to sprouting after harvest. Chestnut believed to be common here before disease. Quick drying very vulnerable to fire in summer.

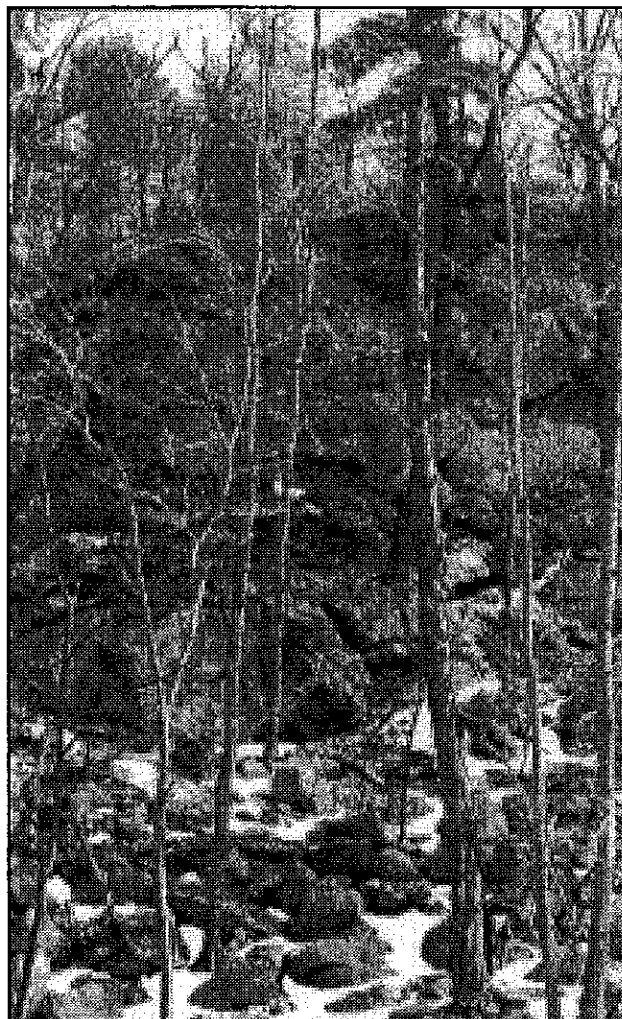
Soils: Rock outcrop-Hollis on steep to sloping surfaces. a thin mantle of glacial till over gneiss with large protruding blocks and ledges of bedrock. Hollis soil has a thin, organic leafmat over a dark brown, gravelly loam surface layer 4 inches thick. The subsoil is strong brown gravelly loam, 10 inches deep. Underlain by gneiss. Vegetation a factor of % exposed bedrock.

Vegetation:

Dominant plants:

Characteristic plants:

Quercus montana
Quercus rubra
Quercus velutina
Quercus alba
Acer rubrum
Castanea dentata
Gaylussacia baccata



Kalmia latifolia
Vaccinium pallidum
Carex pensylvanicum
Aralia nudicaulis
Viburnum acerifolium
Panicum acuminatum
Rhododendron nudiflorum
Leucobryum glaucum

Use and potential use: The use is limited because of the slope and the amount of exposed rock. In the past, these areas have been used as woodlots.

Potential if undisturbed. No evidence exists on what occurs in post disturbance forest of this type. If the soils become deeper and richer, it is likely that other oaks, especially *Quercus alba*, *Q. rubra*, and *Q. velutina* will become more common along with *Fraxinus Americana*, *Carya glabra*, and *Betula lenta*. This forest would resemble the more widespread Appalachian Oak-hickory forest (Reschke 1990) found throughout New York.

Cove woods (Hemlock-northern hardwood forest, Maple-basswood rich mesic forest)

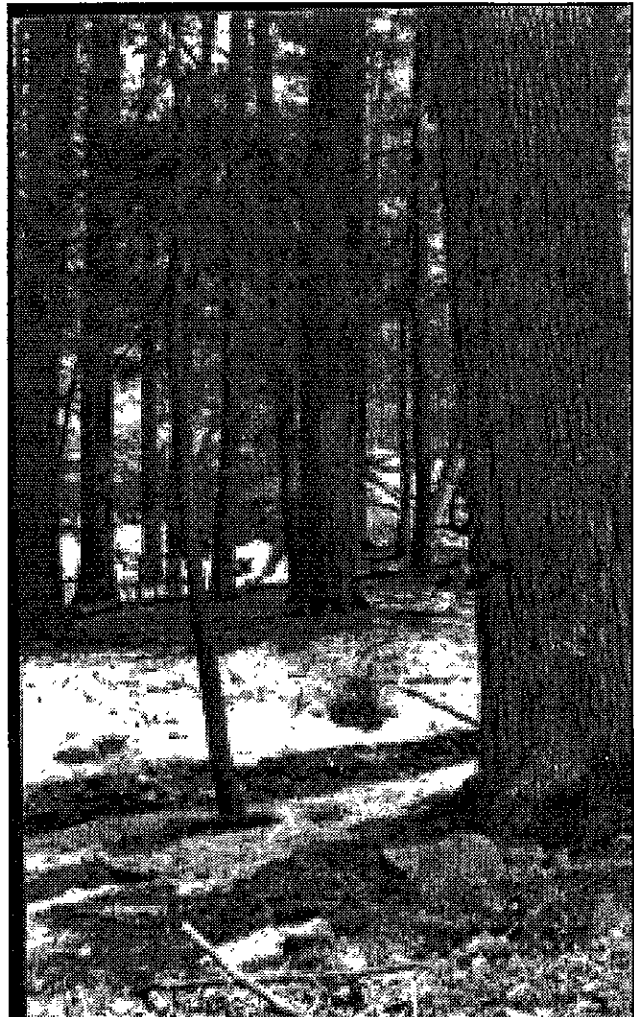
Soil: (Hemlock cove) ESB Erie, Extremely stony soils on slopes. have fragipan, surface- dark brown gravelly silt loam, 4 inches thick, Large stones at surface. Subsoil about 46 inches thick, mottled grayish brown channery silt loam in the upper 14 inches, lower part a firm, mottled olive-brown fragipan, the substrate is 50-70 inches is mottled olivebrown channery silt loam.

Soil: SXC SWC - Swartswood and Mardin, very stony soils. well drained to moderately well drained, have fragipan, 3 inch surface of dark grayish brown gravelly loam, subsoil 59 inches thick, the upper part is strong brown gravelly loam over mottled yellowish-brown gravelly fine sandy loam, 31-62 inches is a brown gravelly fine sandy loam, firm and brittle fragipan, substrate

Acer saccharum
Tsuga canadensis
Fagus grandifolia
Tilia americana
Ulmus americana
Betula aleghanensis
Ostrya virginiana
Acer rubrum

Carpinus caroliniana
Acer pensylvanica
Hamamelis virginiana

Polystichum acrostichoides



Arisaema triphyllum
Actaea pachypoda
Asarum canadense
Allium tricoccum
Smilacina racemosa
Maianthemum canadense

Lower slope woods (Beech-maple mesic forest, Oak-tulip tree forest)

Heavily cut, used in plantations, farms

HLC (in bench woods, wet woods) Hollis soils, sloping, to moderately steep. shallow, well-drained to excessively well-drained soils, surface layer is dark brown, gravelly loam to 8 inches thick, subsoil, strong brown gravelly loam to 10 inches, substrate is bedrock at about 18 inches.

Closed swamps (Red maple swamp)

Soil: PB, Palms muck, ponded. deep, poorly drained in depressions and bogs of uplands, well decomposed organic matter, surface is black muck, 13 inches thick, very dark, grayish brown muck extends to 26 " underlying mineral soil is bluish gray, heavy silt loam. This is organic, while Alden is mineral
Spring ponding, water table at or near surface for most of the year. roots generally limited to surface, support only grasses, shrubs and trees

AC Alden, extremely stony soils, deep, poorly drained, 0-6 inches of water, surface layer, very dark grayish brown silt loam, 9 inches thick, Subsoil 27 inches deep, the upper 10 inches is dark, gray, heavy silt loam, the middle 9 is mottled greenish gray silt loam, the lower 8 is mottled dark grayish brown loam. the substrate is firm mottled olive-brown fine sand loam to a depth of 60 inches or more. Ponded in spring, water table always near surface

Acer rubrum
Betula lutea
Nyssa sylvatica
Quercus borealis

Osmunda claytoniana
Lindera benzoin
Clethra alnifolia
Vaccinium corymbosum
Iris versicolor
Alnus incana
Alnus rugosa

Open swamps (Shrub swamp)

Soil: Histic Humaquepts - commonly called freshwater marsh. very deep, very poorly drained, level mineral soils capped with a layer of Organic Material. ponded through most of year and commonly border large streams, can be created by beaver dams. surface 1-6 " of water, upper layer of black, organic soil 4-16 " deep. gray to dark grayish brown mineral layer next ranging from a mucky, silty clay to a gravelly loamy sand 4-20 inches deep characterized by thin organic layer over mineral.

Chamaedaphne calyculata
Alnus incana
Vaccinium corymbosum
Rhododendron viscosum
Alnus serrulata
Lindera benzoin
Viburnum cassinoides
Cephalanthus occidentalis

Carex stricta
Dulichium arundinacium
Drosera rotundifolia

Sphagnum meadow (Sedge meadow)

Sphagnum spp.
Carex stricta

Soil: Histic Humiquals

Road & Roadside (Unpaved road)

Roads change the habitat in two ways. First, they create a zone of permanently high disturbance. Second, they allow light to penetrate into established habitats, the "edge effect." Permanent drainage ditches provide an open, disturbed habitat while the road surface itself is ideally dry and highly compacted.

on road
Hypoxis hirsuta
Juncus tenuis
Paronychia canadensis
Paronychia fastigiata

on roadsides
Dennstedtia punctilobula

in roadside ditches
Gratiola
Chelone
Carex lupulina
Scirpus
Mimulus

Plantations (Spruce/Fir plantation)

Create very low light levels at ground. Change soil horizon 1) enrichment and acidification by needle drop, 2) induce podzol by root action (?)

in areas where light reaches
Dennstedtia punctilobula

in low light areas
Veronica serpyllifolia

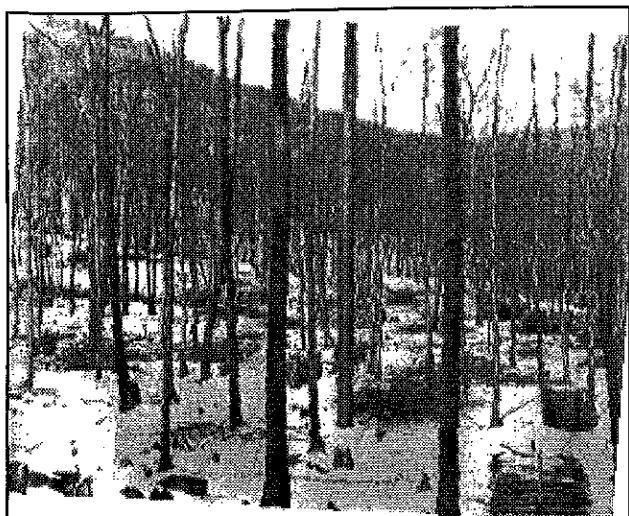


Figure 8. Glycerine Hollow, 1949. Photo by H. Tryon



Figure 9. Glycerine Hollow, 1993

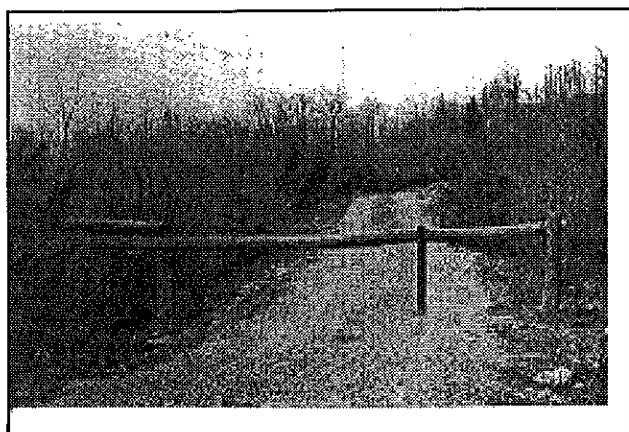


Figure 7. Hulse Road, 1949. Photo by H. Tryon



Figure 6. Hulse Road, 1993

