Picea rubens - (Betula alleghaniensis, Aesculus flava) / Viburnum lantanoides / Oxalis montana - Solidago glomerata Forest

COMMON NAME	Red Spruce - (Yellow Birch, Yellow Buckeye) / Hobblebush / Common Wood
SYNONYM	Red Spruce - Northern Hardwood Forest (Herb Type)
PHYSIOGNOMIC CLASS	Forest (I)
PHYSIOGNOMIC SUBCLASS	Mixed evergreen-deciduous forest (I.C)
PHYSIOGNOMIC GROUP	Mixed needle-leaved evergreen - cold-deciduous forest (I.C.3)
PHYSIOGNOMIC SUBGROUP	Natural/Semi-natural (I.C.3.N)
FORMATION	Mixed needle-leaved evergreen - cold-deciduous forest (I.C.3.N.a)

ALLIANCE *Picea rubens - Betula alleghaniensis* Forest Alliance

CLASSIFICATION CONFIDENCE LEVEL 1

USFWS WETLAND SYSTEM Upland

RANGE

Globally

This community is known from high elevation areas in the southern Blue Ridge of North Carolina, Tennessee, and Virginia.

Great Smoky Mountains National Park

This community was sampled on the Mount Le Conte quadrangle and was not found on the Cades Cove quadrangle. It was sampled in the vicinity of Mount Kephart, on the broad, steep, slopes on the northern and southern flanks of Mount Le Conte, and in the vicinity of Balsam point, at elevations ranging from 5000 to 5880 feet. It should be sought in other high elevation (> 4500 feet) areas of the Park.

ENVIRONMENTAL DESCRIPTION

Globally

This association occurs in the broad elevational transition zone between spruce - fir and northern hardwoods in the southern Blue Ridge (approx. 4600-5100 feet elevation) on steep slopes and protected ridges, over shallow, stony soils.

Great Smoky Mountains National Park

This community was found on steep, north- and south-facing middle and upper slopes, at elevations over 5000 feet. Landforms were often slightly convex to concave, broad slopes with boulders and rock outcroppings. Soils are stony to gravelly and have high organic content. Major disturbance factors affecting this forest include ice, wind, and feral hogs. Examples on the Mount Le Conte quadrangle include old-growth forest.

MOST ABUNDANT SPECIES

Globally

Stratum	Species
Tree canopy	*Picea rubens, Betula alleghaniensis, Fagus grandifolia, Aesculus flava*
Tall shrub	*Viburnum lantanoides*
Herbaceous	*Dryopteris campyloptera, Dryopteris intermedia, Oxalis montana, Solidago glomerata*

Great Smoky Mountains National Park

Stratum	Species
Tree canopy	*Picea rubens, Betula alleghaniensis*
Subcanopy	*Betula alleghaniensis*
Tall shrub	*Viburnum lantanoides, Acer spicatum*
Short shrub	*Vaccinium erythrocarpum*
Herbaceous	*Dryopteris campyloptera, Solidago glomerata*

CHARACTERISTIC SPECIES

Globally

Picea rubens, Betula alleghaniensis, Fagus grandifolia, Aesculus flava, Abies fraseri, Viburnum lantanoides, Dryopteris campyloptera, Solidago glomerata

Great Smoky Mountains National Park

See above

VEGETATION DESCRIPTION

Globally

The canopy is comprised of *Picea rubens* codominating with the deciduous species *Betula alleghaniensis, Fagus grandifolia*, and *Aesculus flava*, occurring singly or in combination. At higher elevations, *Abies fraseri* may be a minor canopy component. The shrub stratum is open to absent. *Viburnum lantanoides* is a common shrub, and *Acer pensylvanicum* and *Amelanchier laevis* often occur as small trees. The herbaceous stratum is lush and diverse. Typical herbs include *Aster acuminatus, Carex pensylvanica, Dryopteris campyloptera, Dryopteris intermedia, Maianthemum canadense, Oxalis montana, Solidago glomerata*, and *Rugelia nudicaulis* (in the Great Smoky Mountains).

Great Smoky Mountains National Park

The forest canopy and subcanopy is codominated by large *Picea rubens* and *Betula alleghaniensis*. In some occurrences, *Picea rubens* can overtop *Betula alleghaniensis*. Other subcanopy trees include *Abies fraseri, Aesculus flava*, and *Prunus pensylvanica*. Shrub cover can be sparse to moderate (20 to 90 percent) but is always dominated by deciduous species. The tall- and short-shrub strata share many species. The most constant shrubs are *Abies fraseri, Acer spicatum, Vaccinium erythrocarpum, Viburnum lantanoides, Sorbus americana,* and *Rubus canadensis*. Other shrubs include *Acer pensylvanicum, Ilex montana, Lonicera canadensis, Ribes cynosbati, Ribes glandulosum, Hydrangea arborescens, Rubus allegheniensis, Betula alleghaniensis, Sambucus racemosa* var. *pubens, Viburnum nudum* var. *cassinoides, Cornus alternifolia, Menziesia pilosa, Rhododendron maximum*, and *Rhododendron catawbiense.* Herbaceous cover is moderate to dense (30 to 100 percent) and is dominated by ferns and other forbs. Herbaceous dominance may vary from site to site, but the most constant herb species are *Dryopteris campyloptera, Oxalis montana, Solidago glomerata, Clintonia borealis,* and *Rugelia nudicaulis*. Other herbaceous species include *Ageratina altissima* var. *roanensis, Asplenium montanum, Aster acuminatus, Aster chlorolepis, Athyrium filix-femina, Chelone lyonii, Cimicifuga americana, Cinna latifolia, Circaea alpina, Dryopteris intermedia, Huperzia lucidula, Impatiens pallida, Melanthium parviflorum, Monotropa uniflora, Polypodium appalachianum, Tiarella cordifolia*, and *Trillium undulatum*.

OTHER NOTEWORTHY SPECIES

No information

CONSERVATION RANK G2

RANK JUSTIFICATION

The community is geographically and environmentally restricted to the highest elevations of the southern Blue Ridge. Very few occurrences are known to exist.

DATABASE CODE CEGL006256

COMMENTS

Globally

This forest is known from the Black and Craggy mountains and Grandfather Mountain in North Carolina and from the Great Smoky Mountains in Tennessee. This association was formerly *Picea rubens - Betula alleghaniensis / Vaccinium erythrocarpum* Forest but split into two forest associations (see also CEGL004983).

Great Smoky Mountains National Park

On Mount Le Conte this community grades into forests dominated by *Picea rubens* or by *Picea rubens* and *Abies fraseri* at higher elevations, and to Northern Hardwood and Cove forests at lower elevations.

REFERENCES

Golden 1974, Golden 1981, Livingston and Mitchell 1976, McLeod pers. comm., Schafale and Weakley 1990