

***Picea rubens* - (*Betula alleghaniensis*, *Aesculus flava*) / *Rhododendron (maximum, catawbiense)* Forest**

COMMON NAME Red Spruce - (Yellow Birch, Yellow Buckeye) / (Great Rhododendron, Catawba *Rhododendron*) Forest
SYNONYM Red Spruce - Northern Hardwood Forest (Shrub 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 2

USFWS WETLAND SYSTEM Upland

RANGE

Globally

This community is known from the Great Smoky Mountains of Tennessee but is likely in adjacent areas of North Carolina and Tennessee.

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 Alum Cave on steep slopes at 4850 and 5350 feet elevation. It should be sought in other high elevation areas of the Park, between 4500 and 5300 feet elevation.

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).

Great Smoky Mountains National Park

This forest was found on steep to very steep, slightly concave slopes at 5350 feet and 4850 feet elevation, often associated with cliff faces, rock outcroppings, and bouldery situations. Soils are peaty and rocky. This community is subject to disturbance by wind, ice, and landslides.

MOST ABUNDANT SPECIES

Globally

Stratum

Tree canopy

Tall shrub

Species

Picea rubens, *Betula alleghaniensis*, *Fagus grandifolia*, *Aesculus flava*

Rhododendron maximum, *Rhododendron catawbiense*

Great Smoky Mountains National Park

Stratum

Tree canopy

Tall Shrub

Short shrub

Species

Picea rubens, *Betula alleghaniensis*

Ilex montana

Leucothoe fontanesiana

CHARACTERISTIC SPECIES

Globally

Picea rubens, *Betula alleghaniensis*, *Rhododendron maximum*

Great Smoky Mountains National Park

Picea rubens, *Betula alleghaniensis*, *Leucothoe fontanesiana*

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 layer is well-developed and dominated by *Rhododendron maximum* or *Rhododendron catawbiense*. The thick, evergreen shrub layer precludes the establishment of seedlings or herbaceous plants and creates a heavy, slowly decomposing litter layer.

Great Smoky Mountains National Park

The tree canopy is dominated by *Picea rubens* and *Betula alleghaniensis*. Other trees that can occur with minor coverage in the canopy and subcanopy include *Acer rubrum*, *Prunus serotina*, and *Tsuga canadensis*. Shrub cover is dense and dominated by *Leucothoe fontanesiana*. Other shrubs include *Ilex montana*, *Viburnum lantanoides*, *Vaccinium erythrocarpum*, *Rhododendron catawbiense*, and *Rubus allegheniensis*. Herbaceous cover is absent or sparse and consists of scattered ferns and other forbs such as *Dryopteris intermedia*, *Dennstaedtia punctilobula*, *Oxalis montana*, *Rugelia nudicaulis*, *Circaea alpina*, *Arisaema triphyllum*, and *Trillium undulatum*. Bryophyte cover can be high (over 50 percent), and the ground is covered with downed and decaying logs.

OTHER NOTEWORTHY SPECIES

No information

CONSERVATION RANK G1?

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, and it has only been described from the Great Smoky Mountains.

DATABASE CODE C EGL004983

COMMENTS

Globally

This association is known from the Great Smoky Mountains of Tennessee but may possibly occur in the Blue Ridge of North Carolina and Virginia. This association should be compared with other vegetation farther north in the Appalachians.

Great Smoky Mountains National Park

Examples of this community on more exposed, rocky sites may transition to heath shrublands. At high elevations, this community grades into *Picea rubens*-dominated forests.

REFERENCES

Golden 1974, Golden 1981, Livingston and Mitchell 1976