Tsuga canadensis – Betula alleghaniensis / Rhododendron maximum / Leucothoe fontanesiana Forest

COMMON NAME	Eastern Hemlock – Yellow Birch / Great Rhododendron / Doghobble Forest
SYNONYM	Blue Ridge Hemlock - Northern Hardwood Forest
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	*Tsuga canadensis - Betula alleghaniensis* Forest Alliance
CLASSIFICATION CONFIDENCE LEVEL	2
USFWS WETLAND SYSTEM	Upland

RANGE

Globally

This association was described from high elevations in the Great Smoky Mountains National Park and needs further regional and national assessment. It is likely that is also occurs in the high mountain areas of western North Carolina.

Great Smoky Mountains National Park

This community was sampled only on the Mount Le Conte quadrangle but is possible on the Cades Cove quadrangle, and certainly in other areas of the Park. On the Mount Le Conte quadrangle, samples of this ranged from 3400 to 4400 feet elevation and was found on lower slopes on the northern flanks of Mount Le Conte, the steep south-facing slopes southwest of Balsam Point, as well as on the north-facing slopes above the West Prong of the Pigeon River and its tributaries, Walker Camp Prong and Trout Branch, and the steep slopes above and lower slopes and flats along Alum Cave Creek. [*This community made up all or part of the photointerpreter's polygons 28, 30, 33, 34, and 35 on the Mount Le Conte quadrangle.*] An historic sample from the southwestern portion of the Cades Cove quadrangle, at 3800 feet, at the head of a cove east of High Point, may represent this community.

ENVIRONMENTAL DESCRIPTION

Globally

No information

Great Smoky Mountains National Park

This community was found on steep, mostly north-facing slopes, and on slopes and flats along and above streams. These forests occur on middle slope or toe slope positions, protected by higher landforms. The elevations of samples ranged from as low as 3400 feet elevation to around 4400 feet, but the community can probably occur as high as 5000 feet or until *Picea rubens* begins to dominate. Sites are rocky, often with many large boulders and talus. Soils are stony with heavy litter layers. These forests are affected by occasional disturbance by ice, wind, and landslides.

MOST ABUNDANT SPECIES

Globally

Stratum	Species
No information	

Great Smoky Mountains National Park

Stratum	Species
Tree canopy	*Tsuga canadensis, Betula alleghaniensis*
Tall Shrub	*Rhododendron maximum*
Short shrub	*Leucothoe fontanesiana*
Herbaceous	*Dryopteris intermedia*

CHARACTERISTIC SPECIES

Globally

No information

Great Smoky Mountains National Park
Tsuga canadensis, Betula alleghaniensis, Rhododendron maximum, Leucothoe fontanesiana

VEGETATION DESCRIPTION
Globally
No information

Great Smoky Mountains National Park
This mixed forest type has an open to closed canopy dominated by *Tsuga canadensis* and *Betula alleghaniensis*, although either of these species may be locally dominant at a small scale. Other minor canopy and subcanopy species may include *Aesculus flava, Picea rubens, Prunus pensylvanica, Betula lenta, Tilia americana* var. *heterophylla*, and at lower elevations*, Magnolia fraseri, Acer rubrum, Liriodendron tulipifera*, and *Halesia tetraptera* var. *monticola*. The tall-shrub stratum is over 2 meters in height, very dense (50 to 100 percent coverage) and dominated by *Rhododendron maximum*. The dense low-shrub stratum is dominated by *Leucothoe fontanesiana.* Other minor shrubs can include *Acer pensylvanicum, Ilex montana, Kalmia latifolia, Rubus allegheniensis, Sambucus racemosa* var. *pubens, Tsuga canadensis,* and *Vaccinium erythrocarpum.* The ground layer is dominated by leaf litter, fallen trees, and rocks. Herbaceous cover is sparse (0 to 5 percent) and is composed of scattered plants typical of middle to high elevation acid forests. Some of the more characteristic species include *Dryopteris intermedia, Medeola virginiana, Mitchella repens, Tiarella cordifolia, Oxalis montana*, and *Polypodium appalachianum.* Additional herb species found in this community include *Arisaema dracontium, Arisaema triphyllum, Aristolochia macrophylla, Aster acuminatus, Aster divaricatus, Circaea alpina, Goodyera pubescens, Goodyera repens, Huperzia lucidula, Laportea canadensis, Monotropa uniflora, Polygonatum pubescens, Prenanthes altissima*, and *Viola blanda*.

OTHER NOTEWORTHY SPECIES
No information

CONSERVATION RANK G3G4Q

RANK JUSTIFICATION
This association was described from the Great Smoky Mountains National Park. It needs to be compared with other associations in this alliance to determine its taxonomy, range, and conservation status.

DATABASE CODE CEGL007861

COMMENTS
Globally
This association was described from the Great Smoky Mountains National Park. It should be compared with and distinguished from other associations in this alliance (*Tsuga canadensis - Betula alleghaniensis* Lower New England, Northern Piedmont Forest (CEGL006109) and *Tsuga canadensis - Betula alleghaniensis - Prunus serotina / Rhododendron maximum* Forest (CEGL006206)), as well as other vegetation in the southern Blue Ridge.

Great Smoky Mountains National Park
On aerial photography, this community may appear similar to other Hemlock-Hardwood communities (*i.e. Tsuga canadensis - Liriodendron tulipifera / Rhododendron maximum / Tiarella cordifolia* Forest (CEGL007543) and *Tsuga canadensis - Halesia tetraptera - (Fagus grandifolia, Magnolia fraseri) / Rhododendron maximum / Dryopteris intermedia* Forest (CEGL007693)) but should be distinguishable by its higher elevation and topographic position. Grades into forest dominated by *Picea rubens* or *Tsuga canadensis* at higher elevations.

REFERENCES
Livingston and Mitchell 1976, Newell 1997, Newell et al. 1997