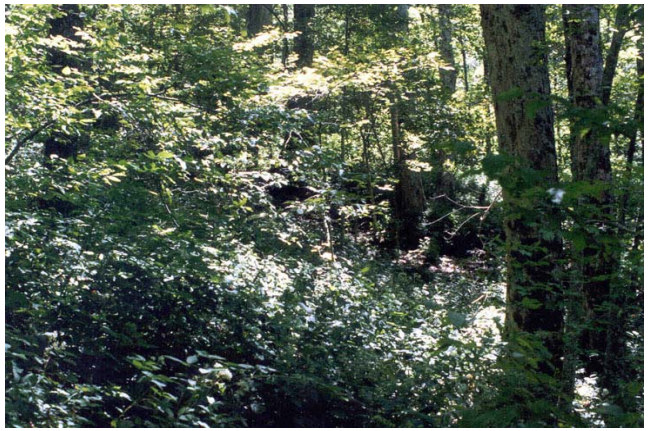
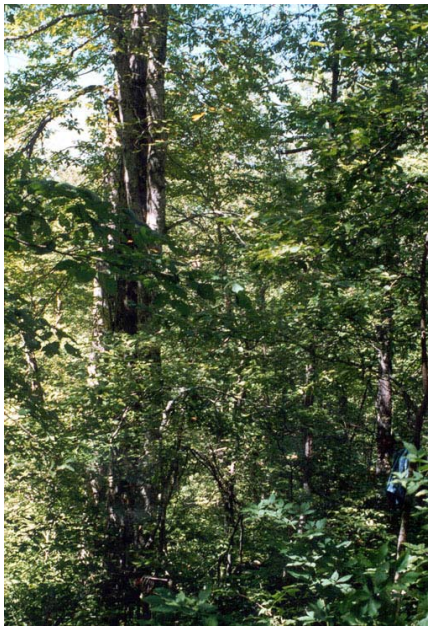
Great Smoky Mountains National Park
photographs of
Aesculus flava - Betula alleghaniensis - Acer saccharum / Acer spicatum / Caulophyllum thalictroides - Laportea canadensis Forest





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COMMON NAME	Yellow Buckeye - Yellow Birch - Sugar Maple / Mountain Maple / Blue Cohosh – Wood-nettle Forest
SYNONYM	Southern Appalachian Northern Hardwood Forest (Rich Type)
PHYSIOGNOMIC CLASS	Forest (I)
PHYSIOGNOMIC SUBCLASS	Deciduous forest (I.B)
PHYSIOGNOMIC GROUP	Cold-deciduous forest (I.B.2)
PHYSIOGNOMIC SUBGROUP	Natural/Semi-natural (I.B.2.N)
FORMATION	Lowland or submontane cold-deciduous forest (I.B.2.N.a)
ALLIANCE	*Betula alleghaniensis - Fagus grandifolia - Aesculus flava* Forest Alliance
CLASSIFICATION CONFIDENCE LEVEL	2
USFWS WETLAND SYSTEM	Upland

RANGE
Globally
This community occurs in the southern Blue Ridge of Georgia, North Carolina, Tennessee, and Virginia.

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This community was sampled on the Mount Le Conte and Cades Cove quadrangles. Additional historic samples are from the Thunderhead Mountain quadrangle. On the Cades Cove quadrangle, historic and recent samples of this community ranged from 3580 to 4610 feet elevation. Samples from the southern portion of the Cades Cove quadrangle came from upper coves north of Gregory Bald; slopes below Rich Gap; and the western slopes of Forge Knob. In the central and eastern portion of the Cades Cove quadrangle this community was sampled from the protected high slopes on the west side of Mud Gap; a cove north of Ekaneetlee Gap; high slopes in the vicinity of Devil's Tater Patch; McCampbell Gap, McCampbell Knob, an upper cove north of McCampbell Gap; northwest slopes below McCampbell Knob; and a cove in the upper reaches of Pole Knob Branch. This community was sampled in the southwest portion of the Mount Le Conte quadrangle on the low slopes above Alum Cave Creek (4050 feet) and Walker Camp Prong (3990 feet); on the low slopes above Road Prong in the vicinity of Beech Flats (3650 feet); and in a upper cove below Chimney Tops (4620 feet).

ENVIRONMENTAL DESCRIPTION
Globally
This forest occurs on deep, rocky soils on the upper slopes of coves and on other protected landforms, at elevations 3500-5000 feet and can be associated with mafic substrates.

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This community occurs on concave or protected landforms such as the upper portions of draws and coves, protected slopes, and gaps. Sites sampled had northerly aspects and a mean elevation of 4200 feet, ranging from 3580 to 4620 feet.

MOST ABUNDANT SPECIES
Globally

Stratum	Species
Tree canopy	*Acer saccharum, Aesculus flava, Betula alleghaniensis, Fagus grandifolia*
Herbaceous	*Cimicifuga racemosa, Laportea Canadensis*

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Stratum	Species
Tree canopy	*Acer saccharum, Aesculus flava, Betula alleghaniensis, Fagus grandifolia*
Herbaceous	(variable)

CHARACTERISTIC SPECIES
Globally
No information

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Betula alleghaniensis, Fagus grandifolia, Acer saccharum, Halesia tetraptera var. *monticola, Deparia acrostichoides, Viola*

canadensis

VEGETATION DESCRIPTION
Globally
This forest is dominated by species typically known as "northern hardwoods" (*Aesculus flava, Fagus grandifolia, Betula alleghaniensis, Acer saccharum*) and has a rich herbaceous flora dominated by forbs. Other canopy species can include *Tilia americana* var. *heterophylla* and *Quercus rubra*. In the Great Smoky Mountains, *Halesia tetraptera* var. *monticola* is an important canopy component. The shrub stratum is typically open, but small trees such as *Acer spicatum, Acer pensylvanicum*, and *Amelanchier laevis* are common. Herbaceous cover can be lush, quite diverse, and is typically dominated and characterized by large forbs such as *Caulophyllum thalictroides, Cimicifuga racemosa, Collinsonia canadensis, Ageratina altissima* var. *roanensis, Laportea canadensis, Campanulastrum americanum*, and *Tiarella cordifolia.*

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The canopy of these forests always have a component of *Betula alleghaniensis* and *Fagus grandifolia*, codominating with *Acer saccharum, Aesculus flava*, and *Halesia tetraptera* var. *monticola*. Occasionally *Quercus rubra, Tilia americana* var. *heterophylla,* and *Fraxinus americana* may have coverage in the canopy, but this situation is not typical. The subcanopy, if present, contains species from the canopy as well as *Prunus pensylvanica* and *Prunus serotina*. The shrub stratum is typically open with scattered shrubs, but shrubs can dominate in patches. Typical shrub species include *Acer pensylvanicum, Acer saccharum, Acer spicatum, Aesculus flava, Cornus alternifolia, Fagus grandifolia, Hydrangea arborescens, Ilex montana, Rubus allegheniensis, Rubus canadensis*, and *Viburnum lantanoides*. The herbaceous stratum is lush and diverse. Species with the highest coverage and constancy include *Ageratina altissima (*var. *altissima* and var. *roanensis), Aster divaricatus, Cimicifuga americana, Cimicifuga racemosa, Deparia acrostichoides, Dryopteris intermedia, Laportea canadensis, Solidago caesia* var. *curtisii, Tiarella cordifolia,* and *Viola blanda.* Other species with greater than 50 percent constancy include *Arisaema triphyllum* ssp. *triphyllum, Athyrium filix-femina* ssp. *asplenioides, Carex* spp. *(e.g. Carex aestivalis, Carex debilis, Carex laxiflora* var. *laxiflora, Carex pensylvanica, Carex plantaginea), Disporum lanuginosum, Eupatorium* spp. *(e.g. Eupatorium dubium, Eupatorium fistulosum, Eupatorium purpureum, Eupatorium steelei), Galium* spp. *(e.g. Galium lanceolatum, Galium latifolium, Galium triflorum), Impatiens* spp.*, Polygonatum pubescens, Polystichum acrostichoides* var. *acrostichoides, Stellaria corei, Stellaria pubera*, and *Viola canadensis.*

OTHER NOTEWORTHY SPECIES
No information

CONSERVATION RANK G3

RANK JUSTIFICATION
No information

DATABASE CODE CEGL004973

COMMENTS
Globally
These forests occur above the elevational limit of some of the typical "cove" canopy species such as *Fraxinus americana, Liriodendron tulipifera*, and *Carya cordiformis* (see the *Liriodendron tulipifera - Tilia americana* var. *heterophylla - Aesculus flava - Acer saccharum* Forest Alliance).

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Some examples of this community, particularly at low elevations, may begin to resemble forests in the *Liriodendron tulipifera - Tilia americana* var. *heterophylla - Aesculus flava - Acer saccharum* Forest Alliance. The canopy of this forest is distinguished by *Betula alleghaniensis* and *Fagus grandifolia* occurring in combination with *Aesculus flava* and Acer *saccharum*. In some areas, signature distinctions between this association and *Betula alleghaniensis - Fagus grandifolia - Aesculus flava / Viburnum lantanoides / Aster chlorolepis - Dryopteris intermedia* Forest (CEGL007285) may be difficult to make and mapping may have to be done at the alliance level.

REFERENCES
Schafale and Weakley 1990