

Fagus grandifolia / *Ageratina altissima* var. *roanensis* Forest

COMMON NAME American Beech / Appalachian White Snakeroot Forest
SYNONYM Southern Appalachian Beech Gap (North Slope Tall Herb 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 1

USFWS WETLAND SYSTEM Upland

RANGE

Globally

This community is found in scattered sites on high elevations of the southern Appalachian Mountains. The majority of this community is distributed within the mountains of North Carolina, but it also occurs in Tennessee and may extend into Georgia and Virginia.

Great Smoky Mountains National Park

This association was not observed or sampled on the Mount Le Conte or Cades Cove quadrangles. However, this association is likely within the Park boundary.

ENVIRONMENTAL DESCRIPTION

Globally

This community typically occurs on northerly facing, steep, upper slopes and on the north and northeast side of gaps, at elevations greater than 1370 m (4500 feet) (Whittaker 1956; Crandell 1958). High rainfall and low temperatures create mesic conditions. Strong winds and ice storms periodically damage these forests, creating canopy gaps and contributing to its stunted appearance. This community commonly occurs as small patches surrounded by other forest types.

Great Smoky Mountains National Park

No information

MOST ABUNDANT SPECIES

Globally

Stratum

Tree canopy
subcanopy
Herbaceous

Species

Fagus grandifolia, *Betula alleghaniensis*, *Aesculus flava*
Acer spicatum, *Acer pensylvanicum*, *Amelanchier laevis*
Athyrium filix-femina ssp. *asplenioides*, *Ageratina altissima* var. *roanensis*, *Aster chlorolepis*, *Cimicifuga racemosa*

Great Smoky Mountains National Park

Stratum

No information

Species

CHARACTERISTIC SPECIES

Globally

Fagus grandifolia, *Athyrium filix-femina* ssp. *asplenioides*, *Epifagus virginiana*

Great Smoky Mountains National Park

No information

VEGETATION DESCRIPTION

Globally

This community is a broad-leaved deciduous forest with a canopy dominated by low-stature, small-stemmed (< 38 cm) *Fagus grandifolia*, with lesser amounts of *Aesculus flava* and *Betula alleghaniensis*. The subcanopy may include small stems of canopy species as well as *Acer spicatum*, *Acer pensylvanicum*, *Amelanchier laevis*, and *Sorbus americana*. Typically there is little shrub development (2-10 percent) with such species as *Crataegus punctata*, *Ribes* spp., *Viburnum lantanoides*, *Rubus canadensis*,

Hydrangea arborescens, and *Cornus alternifolia*. The herbaceous stratum is moderately dense (40-60 percent cover) and is dominated by large herbs and patches of ferns, with lesser amounts of sedges (Bratton 1975; Crandall 1958; Whittaker 1956). Herbaceous species in this community are typical of rich southern Appalachian forests and may include *Ageratina altissima* var. *roanensis*, *Anemone quinquefolia*, *Arisaema triphyllum*, *Aster chlorolepis*, *Athyrium filix-femina* ssp. *asplenioides*, *Carex aestivalis*, *Carex brunnescens*, *Carex debilis*, *Carex intumescens*, *Carex pennsylvanica*, *Cimicifuga racemosa*, *Dryopteris campyloptera*, *Epifagus virginiana*, *Impatiens pallida*, *Oxalis montana*, *Laportea canadensis*, *Luzula acuminata*, *Phacelia bipinnatifida*, *Poa alsodes*, *Prenanthes altissima*, *Prenanthes roanensis*, *Stellaria pubera*, *Thelypteris noveboracensis*, and *Trillium erectum*.

Great Smoky Mountains National Park

No information

OTHER NOTEWORTHY SPECIES

Note-worthy plant species that are known to occur in this community include *Lilium grayi*, *Platanthera grandiflora*, *Prenanthes roanensis*, *Stellaria corei*, and *Streptopus roseus* var. *roseus*. Animals found in association with this forest include Bobcat (*Lynx rufus*) and Black Bear (*Ursus americanus*). The exotic European Wild Boar (*Sus scrofa*) has become well-established in the southern Appalachian Mountains and has had negative impacts on the native animals and vegetation in this community.

CONSERVATION RANK G2

RANK JUSTIFICATION

This community has a very restricted range with scattered occurrences of small acreage. Many occurrences have been, and continue to be, severely damaged by the European Wild Boar (*Sus scrofa*). Grazing and soil disturbance by this animal reduces understory herb cover to 10-30 percent of undisturbed levels and may affect tree growth and nutrient cycling (Singer *et al.* 1984). Beech bark disease, a complex made up of the Beech scale insect (*Crytococcus fagisuga*) and a closely associated fungus (*Nectria coccinea* var. *faginata*) may pose a threat to this community. Another potential threat to this high elevation community is atmospheric deposition of air pollutants, which may result in tree growth decline.

DATABASE CODE C EGL006246

COMMENTS

Globally

A similar community, *Fagus grandifolia* / *Carex* spp. Forest, dominated by stunted, gnarled *Fagus grandifolia* with an understory primarily of *Carex* species, occurs on exposed, south-facing slopes above 1370 m (4500 feet) in the southern Appalachian Mountains of North Carolina and Tennessee. The mesic north slope community described here is distinguished from the south slope variant by having a more diverse canopy, a more developed subcanopy, and a less dense (40-60 percent) herbaceous stratum dominated by species other than sedges, although sedges do occur (Crandall 1958; Whittaker 1956). Additionally, *Fagus grandifolia* / *Ageratina altissima* var. *roanensis* Forest is thought to be more similar to northern hardwood forests (i.e. upper cove forests) and to extend farther into the southwestern Appalachian mountain ranges than does the south slope, sedge-dominated variant, which is thought to be limited to the range of *Picea rubens* and *Abies fraseri* (Whittaker 1958).

Great Smoky Mountains National Park

None.

REFERENCES

Bratton 1975, Crandall 1958, Fuller 1977, Golden 1981, McLeod 1988, Pittillo and Smathers 1979, Ramseur 1960, Rheinhardt 1981, Russell 1953, Schafale and Weakley 1990, Schofield 1960, Singer *et al.* 1984, White *et al.* 1993, Whittaker 1956