

Plant Communities of the Lower New England – Northern Piedmont Ecoregion

June 2000

Edited by
Julie A. Lundgren, Ecologist
The Nature Conservancy
Conservation Science East
201 Devonshire St., 5th Floor
Boston MA 02110

Adapted from: Sneddon, L., M. Anderson and J. Lundgren. 1998. International classification of ecological communities: Terrestrial vegetation of the northeastern United States. January 1999 working draft. Association for Biodiversity Information / The Nature Conservancy, Eastern Resource Office, Boston MA and Natural Heritage Programs of the Northeastern U.S.

Lower New England - Northern Piedmont Ecoregion (61) Classification 4/2000
(subset revised from the National Vegetation Classification 11/1999 version)

I.A.8.N.b Rounded-crowned temperate or subpolar needle-leaved evergreen forest

I.A.8.N.b.13 PINUS STROBUS - TSUGA CANADENSIS FOREST ALLIANCE (A.127 ECS)

Pinus strobus - Tsuga canadensis - Picea rubens Forest (CEGL006324 ECS) — G?

Eastern White Pine - Eastern Hemlock - Red Spruce Forest

[Eastern Hemlock-White Pine-Red Spruce]

Description: This dry hemlock - white pine forest of northern New England occurs on acidic, moderately well-drained sheltered slopes with sandy or stony soils. The closed coniferous canopy is comprised of substantial *Pinus strobus* and *Tsuga canadensis*. *Picea rubens* is characteristic of this vegetation, and although it may not be abundant, its presence indicates a cool climatic regime. Minor deciduous associates may include *Quercus rubra*, *Acer rubrum*, *Betula alleghaniensis*, or *Betula populifolia*. The shrub layer is patchy and sparse. Characteristic species include *Gaylussacia baccata*, *Kalmia angustifolia*, *Viburnum nudum* var. *cassinoides* (= *Viburnum cassinoides*), *Vaccinium angustifolium*, or, less commonly, *Comptonia peregrina*, *Diervilla lonicera*, *Nemopanthus mucronatus*, *Rubus hispidus*, or others. Dense needle accumulation and dry conditions appear to limit understory growth to a sparse herbaceous layer of ferns and herbs. Characteristic species include *Pteridium aquilinum*, *Polypodium virginianum*, *Aralia nudicaulis*, *Maianthemum canadense*, *Gaultheria procumbens*, *Aster acuminatus*, *Aster macrophyllus*, *Cornus canadensis*, and *Clintonia borealis*. This community is less xeric than the *Pinus strobus* - *Pinus resinosa* / *Cornus canadensis* Forest (CEGL006253) and less mesic than the *Tsuga canadensis* - *Betula alleghaniensis* - *Picea rubens* / *Cornus canadensis* Forest (CEGL006129). This community shares many understory species with associations of the *Pinus strobus* - *Quercus (alba, rubra, velutina)* Forest Alliance (A.401), but in contrast, oaks are unimportant.

LNP Scale: Small patch

Distribution: Peripheral

TNC Ecoregions: 61:C, 63:C

References: Dunwiddie and Leverett 1996, Fincher 1991, Gawler 1991, Maine Natural Heritage Program 1991, Moore and Taylor 1927, Reschke 1990, Sperduto 1994, Thompson and Sorenson 2000

<u>State</u>	<u>SRank</u>	<u>State Name</u>
ME	S4	White pine-hemlock/spruce forest community
NH	SU	Red spruce-hemlock-white pine forest
NY	S4	Hemlock - northern hardwood forest+, in part
VT	S4	Hemlock forest, in part
MA	S3	Spruce - fir – northern hardwoods+

Pinus strobus - Tsuga canadensis Lower New England, Northern Piedmont Forest (CEGL006328 ECS) — G5

Eastern White Pine - Eastern Hemlock Lower New England, Northern Piedmont Forest

[White Pine - Hemlock Dry-mesic Coniferous Forest]

Description: This dry-mesic coniferous forest of somewhat sheltered, usually sloping (moderately to steeply) sites is dominated by *Pinus strobus* and *Tsuga canadensis*. Other tree species that are frequent but usually comprise less than 25% canopy cover include *Betula papyrifera*, *Quercus rubra*, *Acer rubrum*, and *Acer pensylvanicum*. *Prunus serotina*, *Betula lenta*, *Acer saccharum*, *Fagus grandifolia*, *Fraxinus americana*, *Betula alleghaniensis*, and *Betula populifolia* occur less frequently. Shrubs are absent or sparse but when present may include *Hamamelis virginiana*, *Vaccinium angustifolium* and *Viburnum acerifolium*. *Kalmia latifolia* is occasional. The herbaceous layer is generally not well-developed nor diverse and is generally characterized by *Gaultheria procumbens*, *Medeola virginiana*, and *Thelypteris noveboracensis*. Other herbaceous associates often include *Aralia nudicaulis*, *Uvularia sessilifolia*, *Mitchella repens*, *Trientalis borealis*, *Monotropa uniflora*, *Dryopteris intermedia* and *Maianthemum canadense*.

Environmental Setting: Soils are moderately to extremely well-drained (dry-mesic to mesic), loamy sands and sandy loams, ranging from acidic to circumneutral. Usually occurs on slopes, often with stones or boulders. Fire is not a particularly important feature of this forest type. The major natural disturbance is generally single-tree blowdowns.

Similar types: To south grades into *CEGL006019 Pinus strobus – Tsuga canadensis* High Alleghany Plateau, Central Appalachian Forest. If *Pinus strobus* is infrequent see related types: *Tsuga canadensis – Betula alleghaniensis* Lower New England / Northern Piedmont Forest (CEGL006109) or *Tsuga canadensis – Betula alleghaniensis - Prunus serotina / Rhododendron maximum* Forest (CEGL006206). Differentiated from the *Pinus strobus - Tsuga canadensis - Picea rubens* Forest Association (CEGL006324) by its absence of *Picea rubens*.

LNP Scale: Matrix

Distribution: Limited

LNP Comments: Most of what is generally referred to as “hemlock forest” in LNE-NP is mixed conifer-hardwood and includes mixtures with *Pinus strobus* as well.

**Lower New England - Northern Piedmont Ecoregion (61) Classification 4/2000
(subset revised from the National Vegetation Classification 11/1999 version)**

TNC Ecoregions: 61:C, 62:C, 63:C

References: Brown et al. 1982, Gordon 1937, Hough 1943, Hough and Forbes 1943, Maine Natural Heritage Program 1991, Metzler and Barrett 1996, Reschke 1990, Sperduto 1996, Sperduto 1997

<u>State</u>	<u>SRank</u>	<u>State Name</u>
CT	S?	<i>Tsuga canadensis</i> Forests
MA	S4	Northern hardwoods – hemlock – white pine forest+
ME	S4	pine-hemlock/spruce forest community+
NH	S5	hemlock-beech-oak-pine forest+
NY	S4	Hemlock - northern hardwood forest+
RI	S?	
PA	S?	Hemlock (white pine) forest
VT	S4	Hemlock forest+

I.A.8.N.b.14 PINUS STROBUS FOREST ALLIANCE (A.128 MCS)

Pinus strobus - Pinus resinosa - Pinus rigida Forest (CEGL006259 ECS) — G4G5

Eastern White Pine - Red Pine - Pitch Pine Forest

Description: This dry pine forest of central New England occurs on well-drained to xeric, coarse-textured, acidic, sand or gravel deposits. The canopy is strongly dominated by *Pinus strobus*, *Pinus resinosa*, and *Pinus rigida*. Occasionally with *Abies balsamea* to north. *Quercus rubra* may occur at low cover, but other tree oak species are absent due to their more southern ranges. The low-shrub layer is dominated by heaths such as *Vaccinium angustifolium*, and herbaceous flora are generally sparsely distributed. NH on eskers, kames, outwash plains such as Ossipee Barrens, NY mostly in Catskills, not in ME or VT. May be better classified as Woodland; needs more data. Similar to pitch pine forest/woodland with more *Pinus strobus* and some *Pinus resinosa*. *Pinus rigida* and *Quercus rubra* differentiate this community from the *Pinus strobus - Pinus resinosa / Cornus canadensis* Forest Association (CEGL006253) of higher elevations or latitudes.

LNP Scale: Large patch **Distribution:** Peripheral

TNC Ecoregions: 61:C, 62:C, 63:?

References: Sperduto 1997

Other Countries:

<u>State</u>	<u>SRank</u>	<u>State Name</u>
NH	S1	Pitch - red - white pine - red oak / heath forest / woodland
NY	S?	

Pinus strobus - Pinus resinosa / Cornus canadensis Forest (CEGL006253 ECS) — G?

Eastern White Pine - Red Pine / Canadian Bunchberry Forest

[Red Pine-White Pine Forest]

Description: This dry pine forest of northern New England occurs on well- to excessively drained, coarse-textured sand and gravel deposits, such as outwash sands, delta sands, eskers, kames, kame terraces, dry lake sands, and some upper slopes. The canopy is dominated by *Pinus strobus* and *Pinus resinosa*, with scattered minor associates including *Quercus rubra*, *Betula alleghaniensis*, *Abies balsamea*, *Picea rubens*, and *Acer rubrum*. The sparse shrub layer includes *Kalmia angustifolia*, *Viburnum nudum var. cassinoides* (= *Viburnum cassinoides*), *Gaylussacia baccata*, *Vaccinium angustifolium*, *Vaccinium myrtilloides*, *Amelanchier canadensis*, and *Acer pensylvanicum*. Characteristic herbs include *Pteridium aquilinum*, *Oryzopsis asperifolia*, *Carex pensylvanica*, *Maianthemum canadense*, *Gaultheria procumbens*, *Cornus canadensis*, *Trientalis borealis*, and *Clintonia borealis*. The herbaceous layer may be sparse due to needle accumulation and dry conditions. This forest type does not exhibit a well-developed moss layer, although species such as *Dicranum polysetum*, *Pleurozium schreberi* and *Brachythecium spp.* may be abundant. This community probably requires periodic fires for maintenance. This association is less mesic and more dependent on fire when compared to the *Pinus strobus - Tsuga canadensis - Picea rubens* Forest (CEGL006324) and occurs farther north in a cooler climate than do mixed pine - oak forests or pitch pine woodland communities. *Picea rubens*, *Viburnum nudum var. cassinoides*, *Betula papyrifera*, *Vaccinium myrtilloides* differentiate this community from those at lower latitudes.

LNP Scale: Small patch **Distribution:** Peripheral (northern type, barely in LNP)

TNC Ecoregions: 61:C, 63:C

References: Curtis 1987, Eyre 1980, Gawler 1991, Heimburger 1934, Maine Natural Heritage Program 1991, Reschke 1990, Roman 1980, Sperduto 1994, Sperduto 1997, Thompson and Sorenson 2000

<u>State</u>	<u>SRank</u>	<u>State Name</u>
--------------	--------------	-------------------

**Lower New England - Northern Piedmont Ecoregion (61) Classification 4/2000
(subset revised from the National Vegetation Classification 11/1999 version)**

MA	S?	
ME	S3	Red pine woodland, in part (forested occurrences)
NH	S2	Red pine forest/woodland, forest variant
NY	S4	Pine - northern hardwood forest
VT	S2	Red pine forest or woodland

I.A.8.N.b.17 PINUS VIRGINIANA FOREST ALLIANCE (A.131 SCS)

Pinus virginiana - Pinus (rigida, echinata) - (Quercus prinus) / Vaccinium pallidum Forest (CEGL007119) G4?

Virginia Pine - (Pitch Pine, Shortleaf Pine) - (Rock Chestnut Oak) / Hillside Blueberry Forest

[Appalachian Low Elevation Mixed Pine Forest]

Description: This community includes forest vegetation of low ridges and slopes where *Pinus virginiana* dominates the canopy. Associates include *Pinus rigida*, *Pinus echinata*, *Pinus taeda*, or *Pinus strobus*. Additionally, *Pinus pungens* may be present, but it is typically absent or only a very minor component. These are often low-stature forests with a somewhat open to closed canopy. Small stems of *Quercus prinus*, *Quercus coccinea*, *Acer rubrum*, *Nyssa sylvatica*, and *Oxydendrum arboreum* are common in the subcanopy and sapling strata, particularly in areas where fire has been excluded. *Quercus velutina*, *Quercus coccinea*, and *Quercus alba* may also be present but to a much lesser degree. Shrub cover ranges from sparse to dense, primarily composed of deciduous ericads such as *Vaccinium spp.*, *Gaylussacia baccata*, *Gaylussacia ursina*. *Kalmia latifolia*, *Rhododendron catawbiense*, *Rhododendron maximum* may be locally dominant in some stands. Other shrub & vine species can include *Vaccinium stamineum*, *Gaylussacia baccata*, *Sassafras albidum* and *Smilax rotundifolia*. Herbaceous cover is typically sparse. Individual stands can be small in size, occurring in a matrix of *Quercus prinus* or *Quercus prinus* - *Quercus alba* forest (e.g. CEGL005022 or CEGL005023), but in more edaphically extreme circumstances.

Environmental setting: natural forests of extremely steep, extremely dry shales and sandstones, narrow bands on southwest- or south-facing ridges. Also includes successional forests of edaphically extreme situations.

LNP Scale: Small patch **Distribution:** Peripheral

LNP Comment: At best is a peripheral type and probably not a target in LNP (61) as any examples that might occur in these subsections are likely to be small or degraded based on land use & context.

TNC Ecoregions: 43:?, 44:C, 49:C, 50:C, 51:C, 59:C, 61:P

References: Allard 1990, Ambrose 1990, Barden 1977, Burns and Honkala 1990a, Cooper 1963, Evans 1991, Eyre 1980, Gettman 1974, Malter 1977, Nelson 1986, Pyne 1994, Racine 1966, Rawinski 1992, Schafale and Weakley 1990, Whittaker 1956

<u>State</u>	<u>SRank</u>	<u>State Name</u>
AL?	SP	
GA	S?	Xeric Pine Forest, Pine - Heath Ridge Forest, in part (GA 1990)
IN	S4	dry upland forest, Virginia pine-chestnut oak subtype =
KY	S?	Virginia Pine Forest, in part; Appalachian pine-oak forest, in part (KY 1991)
MD?	SP	
NC	S?	Pine - Oak/Heath, in part (NC 1990)
OH	SU	oak-pine forest (subtype 2) =
PA	S?	dry pine - mixed hardwood forest +
SC	S?	Pine - Oak/Heath, in part (SC 1986)
TN	S?	Virginia Pine, BR, R&V, CUPL; Virginia Pine - Mixed Oaks HR (TN 1994)
VA?	SP	Oligotrophic Forest (VA 1992)
WV?	SP	

Pinus virginiana / Quercus marilandica Forest (CEGL006266) — GM

Virginia Pine / Blackjack Oak Forest

Successional Virginia pine forests of serpentine barrens. Dominated by *Pinus virginiana* with a sub-canopy of *Quercus marilandica*. Other tree associates are *Quercus stellata*, *Sassafras albidum*, *Prunus serotina*, *Nyssa sylvatica*, *Juniperus virginiana* and *Robinia pseudoacacia*. A dense shrub layer is characteristic in canopy openings. *Smilax spp.* is typical and other shrubs may include *Vaccinium pallidum*, *Vaccinium stamineum*, *Gaylussacia baccata*, *Quercus ilicifolia* and *Quercus prinoides*. Herbs include *Aralia nudicaulis* and *Pteridium aquilinum*.

Environmental setting: Soils underlain and influenced by serpentine bedrock.

LNP Scale: Small patch **Distribution:** Restricted

TNC Ecoregions: 61: C

References: Fike 1999

**Lower New England - Northern Piedmont Ecoregion (61) Classification 4/2000
(subset revised from the National Vegetation Classification 11/1999 version)**

<u>State</u>	<u>SRank</u>	<u>State Name</u>
DE	S?	
MD	S?	
PA	S?	Serpentine Virginia pine – oak forest

I.A.8.N.c Conical-crowned temperate or subpolar needle-leaved evergreen forest

I.A.8.N.c.15 PICEA RUBENS - ABIES BALSAMEA FOREST ALLIANCE (A.150 ECS)

Picea rubens - Abies balsamea - Betula papyrifera Forest (CEGL006273 ECS) — G?

Red Spruce - Balsam Fir - Paper Birch Forest

[Low-elevation Spruce-fir Forest]

Description: Low-diversity, red spruce - balsam fir forests typically associated with poorly drained flats and cold-air drainage areas allowing them to occur in lowlands elevationally below the hardwood forests. They are often adjacent to swamps and wetlands. Closed coniferous canopy of *Picea rubens* and/or *Abies balsamea*. Associate canopy or subcanopy species may include *Picea glauca*, *Picea mariana*, *Pinus strobus*, *Betula alleghaniensis*, *Betula papyrifera*, and minor amounts of *Acer rubrum*, *Populus tremuloides*, *Amelanchier arborescens*, *Prunus serotina* or *Larix laricina*. Shrub layer is patchy and typically includes *Acer pensylvanicum*, *Viburnum alnifolium*, *Viburnum nudum* var. *cassinoides*, *Nemopanthus mucronatus*, and occasionally *Sorbus americana* or *Sorbus decora*. Typical herbaceous plants include *Oxalis montana*, *Cornus canadensis*, *Gaultheria hispidula*, *Clintonia borealis*, *Lycopodium lucidulum*, *Aralia nudicaulis*, *Tiarella cordifolia*, and *Trillium erectum*. The mossy ground layer is well-developed and typified by *Hylocomium splendens*, *Pleurozium schreberi*, *Ptilium crista-castrensis*, *Thuidium delicatulum*, *Bazzania trilobata*, and *Dicranum* spp. In the far north, the percent of *Picea glauca* tends to increase in valley bottoms and lower till slope. The influence of local cold-air drainage and moist soils creates a micro-climate which favors this coniferous forest at elevations below the elevational norm for spruce - fir. As a result certain high-elevation species such as *Dryopteris campyloptera* and *Sorbus decora* are less abundant here while other lower elevation species such as *Aralia nudicaulis*, *Tiarella cordifolia*, and *Trillium erectum* may be more abundant. Other herbs include: *Coptis trifolia*, *Dryopteris intermedia*, *Dennstaedtia punctilobula*, *Pteridium aquilinum*, and *Lycopodium obscurum*, *L. clavatum*, and *L. annotinum*. While the total area of these forests is generally less than 100 acres in extent, these forests are often some of the most productive spruce forests, producing trees of extraordinary size. As a result many have been logged. Environmental setting: Moist well-drained tills of low flats, depressions and river valleys, generally between 1500 - 2500 feet elevation, where cold-air drainage accumulates.

LNP Scale: Large patch **Distribution:** Peripheral

LNP Comments: example on Rensselaer Plateau, NY

References: Cogbill 1987, Eyre 1980, Gawler 1991, Reschke 1990, Sperduto 1994, Thompson and Sorenson 2000

<u>State</u>	<u>SRank</u>	<u>State Name</u>
ME	S4	Spruce-fir flats, spruce slope, in part
NH	S1S2	Lowland spruce fir forest (NH has two variants) =
NY	S?	Balsam flats and spruce flats, in part
VT	S?	Lowland spruce fir forest

Picea rubens - Abies balsamea - Sorbus americana Forest (CEGL006128 ECS) — G3G5

Red Spruce - Balsam Fir - American Mountain-ash Forest

[Montane Spruce-fir Forest]

Description: High-elevation coniferous forests characterized by a mixture of red spruce, balsam fir and various amounts of mountain or yellow birch. Matrix forest of elevations between 2500 and 4200 feet, patchy elsewhere where appropriate conditions occur. Closed-canopy forests typified by *Picea rubens* and *Abies balsamea* with associates including *Betula papyrifera* var. *cordifolia*, *Betula alleghaniensis*, and *Picea mariana*. Sparse shrub layer of *Sorbus americana*, *Sorbus decora*, *Amelanchier bartramiana*, *Nemopanthus mucronata*, and *Vaccinium myrtilloides*. Herbaceous understory of ferns such as *Dryopteris campyloptera*, *Dryopteris intermedia*, *Thelypteris phegopteris*, and *Huperzia lucidula*. Herbs such as *Oxalis montana*, *Trientalis borealis*, *Maianthemum canadense*, *Clintonia borealis*, *Cornus canadensis*, *Linnaea borealis*, *Coptis groenlandica*, and *Gaultheria hispidula*. Well-developed ground layer of mosses including *Bazzania trilobata*, *Dicranum scoparium*, *Hypnum curvifolium*, *Pleurozium schreberi*, and *Ptilium crista-castrensis*. Forests of upper mountain slopes and ridgetops where they are associated with high winds, cold temperatures and shallow, acidic, nutrient-poor soils (Inceptisols, Spodosols). The evergreen habit of the dominant trees increases nutrient retention, limits wind desiccation and allows for a slightly longer

**Lower New England - Northern Piedmont Ecoregion (61) Classification 4/2000
(subset revised from the National Vegetation Classification 11/1999 version)**

photosynthetic season than broadleaf types. High winds and associated windthrow are probably the dominant disturbance factors. Over time this creates old-growth stands with mixed age classes and abundant decaying woody material. Associated tree species are generally short-lived, disturbance-adapted species which colonize light gaps created by windthrow, extensive blowdowns or (in some cases) old logging roads. Within the shaded, relatively persistent needle litter, shrub and herbaceous cover is patchy and tends to increase in association with light gaps. Moderate to low light levels, subsequent persistent snow pack and high moisture availability creates favorable conditions for mosses and ferns.

LNP Scale: Large patch **Distribution:** Limited

LNP Comments: examples are VT (Mt Equinox) and NY (Rensselaer Plateau).

TNC Ecoregions: 61:C, 63:C

References: Cogbill 1987, Cogbill and White 1991, Eyre 1980, Fincher 1991, Gawler 1991, Heimburger 1934, Leak and Graber 1974, Leopold et al. 1988, Reschke 1990, Roman 1980, Royte et al. 1996, Sperduto 1994, Thompson and Sorenson 2000

<u>State</u>	<u>SRank</u>	<u>State Name</u>
MA	S2	High Elevation Spruce Fir Forest
ME	S3	Subalpine spruce firs, in part (also includes <i>Abies balsamea</i>)
NH	S?	High elevation mountain spruce-fir forest, typic variant
NY	S?	Mountain Spruce Fir
VT	S3	Montane spruce fir forest, in part

I.A.8.N.g Saturated temperate or subpolar needle-leaved evergreen forest

I.A.8.N.g.2 CHAMAECYPARIS THYOIDES SATURATED FOREST ALLIANCE (A.196 ECS)

**Chamaecyparis thyoides - Picea rubens / Gaylussacia baccata / Gaultheria hispidula Forest (CEGL006363 ECS)
G3?**

Atlantic White-cedar - Red Spruce / Black Huckleberry / Creeping Teaberry Forest

[Boreal Atlantic White-cedar Swamp]

Description: Atlantic white-cedar swamp characterized by the presence of boreal species. This association occurs at the northernmost range limit of *Chamaecyparis thyoides*, in New Hampshire, Maine, and northern Massachusetts. Canopy associates include *Picea rubens*, *Betula alleghaniensis*, and occasionally *Tsuga canadensis*, *Picea mariana*, *Abies balsamea*, *Larix laricina*. Shrub species may include *Kalmia angustifolia*, *Gaylussacia baccata*, and herbs include *Clintonia borealis*, *Gaultheria hispidula*, *Carex trisperma*, and *Cornus canadensis*. Species of southern affinity, such as *Clethra alnifolia*, *Thelypteris simulata*, *Symplocarpus foetidus*, *Rhododendron viscosum* are generally lacking (Sperduto and Ritter 1994).

LNP Scale: Small patch **Distribution:** Limited **Ecological group:** Atlantic white cedar swamp

TNC Ecoregions: 61:C, 62:C, 63:P

References: Motzkin 1990, Sperduto and Ritter 1994

<u>State</u>	<u>SRank</u>	<u>State Name</u>
MA	S2	Northern Atlantic White Cedar Swamp
ME	S2	Atlantic white cedar swamp community+
NH	S?	Boreal Atlantic white cedar swamp=

Chamaecyparis thyoides / Ilex glabra Forest (CEGL006188 ECS) — G3

Atlantic White-cedar / Inkberry Forest

[Coastal Plain Atlantic White Cedar Swamp]

Description: A conifer swamp that occurs on organic soils (usually peat) along streams and in poorly drained depressions of the coastal plain of New England, Long Island, New Jersey, and southward. The characteristic tree is Atlantic white cedar, typically 15-20 meters high. *Tsuga canadensis* and *Pinus rigida* are infrequent associates, with few hardwoods, primarily *Acer rubrum* and *Nyssa sylvatica*. Characteristic small trees and shrubs are *Clethra alnifolia*, *Ilex glabra*, *Myrica pensylvanica*, *Gaylussacia frondosa*, *Leucothoe racemosa*, and *Vaccinium corymbosum*. Characteristic herbs, typically sparsely distributed or confined to sunny openings in the swamp, may include *Osmunda cinnamomea*, *Thelypteris palustris*, *Woodwardia spp.*, *Gaultheria procumbens*, *Drosera intermedia*, *Sarracenia purpurea*, *Arethusa bulbosa*, *Pogonia ophioglossoides*, *Helonias bullata*, *Mitchella repens*, and sedges such as *Carex striata*, *Carex collinsii*, *Carex atlantica*. the groundcover is predominantly bryophytes, including several species of *Sphagnum*, commonly *Sphagnum fallax*, *Sphagnum flavicomans*, *Sphagnum magellanicum*, *Sphagnum*

**Lower New England - Northern Piedmont Ecoregion (61) Classification 4/2000
(subset revised from the National Vegetation Classification 11/1999 version)**

pulchrum, *Sphagnum recurvum* and *Sphagnum palustre*.

LNP Scale: Large patch **Distribution:** Peripheral **Ecological group:** Atlantic white cedar swamp

LNP Comments: Type primarily on coastal plain but possibly some examples in LNE-NP in CT, MA and RI

TNC Ecoregions: 58:?, 61:P, 62:C

References: Laderman 1989, McCormick 1979, Olsson 1979

<u>State</u>	<u>SRank</u>	<u>State Name</u>
CT?	SP	<i>Chamaecyparis thyoides</i> / <i>Vaccinium corymbosum</i> Forest+
MA	S2	Coastal Atlantic white cedar swamp
MD?	SP	
NJ		S4? coastal plain Atlantic white cedar swamp
NY	S1	coastal plain Atlantic white cedar swamp
RI	S?	Coastal plain Atlantic white cedar swamp

***Chamaecyparis thyoides* / *Ilex verticillata* Forest (CEGL006189 ECS) — G3**

Atlantic White-cedar / Winterberry Forest

[Inland Atlantic White-cedar Swamp]

Description: An Atlantic white-cedar swamp that occurs on peat in poorly drained depressions of the lowlands of southern New England and the Hudson Highlands of New York. It is characterized by many of the same species as the coastal plain counterpart, dominated by *Chamaecyparis thyoides* with canopy associates such as *Acer rubrum*, *Nyssa sylvatica*, shrubs *Vaccinium corymbosum*, *Clethra alnifolia*, and herbs *Osmunda cinnamomea*, *Maianthemum canadense*, *Trientalis borealis*, *Gaultheria procumbens*, *Aralia nudicaulis*. The herbaceous layer is primarily *Sphagnum* mosses, including *Sphagnum fallax*, *Sphagnum flavicomans*, *Sphagnum magellanicum*, *Sphagnum pulchrum*, and *Sphagnum palustre*. Reschke (1990) notes the presence of the liverwort *Pallavicinia lyelli*. A seepage variant contains indicators such as *Lindera benzoin* and *Geum rivale* and is often transitional to hemlock swamps. Similar types: differentiated from the coastal plain type by the presence or greater abundance of *Tsuga canadensis*, *Betula alleghaniensis*, *Ilex verticillata*, *Ilex laevigata*, *Nemopanthus mucronata*, *Alnus incana*, *Carex trisperma*, and by the general absence of species with coastal plain affinities such as *Ilex glabra*, *Myrica pensylvanica*, and *Carex striata*. To the north, grades into CEGL006363 *Chamaecyparis thyoides* – *Picea rubens* / *Gaylussacia baccata* / *Gaultheria hispida* Forest. A seepage variant that had been classified as *Chamaecyparis thyoides* - *Tsuga canadensis* / *Lindera benzoin* Forest CEGL006089 has been recommended to merge into CEGL006189 above.

LNP Scale: Large patch **Distribution:** Limited **Ecological group:** Atlantic white cedar swamp

TNC Ecoregions: 61:C, 62:C, 63:C

References: Enser n.d., Laderman 1989, McCormick 1979, Metzler 1997, Motzkin 1990, Reschke 1990, Sperduto and Ritter 1994

<u>State</u>	<u>SRank</u>	<u>State Name</u>
CT	S?	<i>Chamaecyparis thyoides</i> / <i>Vaccinium corymbosum</i> Forest
MA	S2	Inland Atlantic White Cedar Swamp+
ME	S2	Atlantic white cedar swamp community+
NH	S?	Atlantic white cedar - yellow birch / sweet pepperbush swamp=
NY	S1	Inland Atlantic white cedar swamp+
RI	S?	Inland Atlantic white cedar swamp+

***Chamaecyparis thyoides* / *Rhododendron maximum* Forest (CEGL006355 ECS) — G?**

Atlantic White-cedar / Great-laurel Forest

[Inland Atlantic White-cedar Swamp]

Description: Saturated peatland forest dominated by *Chamaecyparis thyoides* with a dense shrub layer dominated by *Rhododendron maximum*. Associated canopy trees may include *Acer rubrum*, *Betula alleghaniensis*, *Tsuga canadensis*, or *Nyssa sylvatica*. *Picea mariana* occurs infrequently. Associated shrubs are generally few and of low cover but may include *Kalmia latifolia*, *Vaccinium corymbosum*, *Rhododendron viscosum*, *Ilex verticillata*, *Nemopanthus mucronata* and *Kalmia angustifolia*. The herbaceous layer is generally sparse due to the dense shade cast by shrubs, but may include *Trientalis borealis*, *Carex collinsii*, *Osmunda cinnamomea*, *Coptis groenlandica*, *Carex trisperma*, *Calla palustris* and *Symplocarpus foetidus*. Typical *Sphagnum* mosses include *Sphagnum magellanicum*, *Sphagnum fallax*, *Sphagnum fimbriatum*, *Sphagnum russowii*, *Sphagnum recurvum* (Karlín 1988). This association occurs in southern New Hampshire, southern Rhode Island and Connecticut, southeastern New York (e.g. Sterling Forest) and as small patch (0.25 – 15 acre) in northern New Jersey.

LNP Scale: Small patch to Large patch **Distribution:** Limited **Ecological group:** Atlantic white cedar swamp

**Lower New England - Northern Piedmont Ecoregion (61) Classification 4/2000
(subset revised from the National Vegetation Classification 11/1999 version)**

TNC Ecoregions: 61:C, 62:C

References: Breden 1989, Enser n.d., Karlin 1988, Metzler 1997, Reschke 1990, Sperduto and Ritter 1994

<u>State</u>	<u>SRank</u>	<u>State Name</u>
CT	S?	<i>Chamaecyparis thyoides</i> / <i>Rhododendron maximum</i> community
MA	S2	Inland Atlantic White Cedar Swamp+
NH	S?	North Coastal Atlantic white cedar - yellow birch - sweet pepperbush Type, <i>Chamaecyparis thyoides</i> / <i>Rhododendron maximum</i> subtype
NJ		S1 Inland Atlantic white cedar swamp
NY	S1	Inland Atlantic white cedar swamp+
RI	S?	Coastal plain Atlantic white cedar swamp

I.A.8.N.g.3 PICEA MARIANA SATURATED FOREST ALLIANCE (A.197 ECS)

***Picea mariana* / *Kalmia angustifolia* / *Sphagnum* spp. Forest (CEGL006168 ECS) — G5**

Black Spruce / Northern Sheepkill / Peatmoss species Forest

[Black Spruce - Larch Bog Forest]

Description: Closed-canopy black spruce bog of acidic peatlands occurring in High Alleghenies (HAL), Lower New England / Northern Piedmont (LNE), Great Lakes (GL), Northern Appalachians (NAP) ecoregions. Dominant trees are *Picea mariana* and *Larix laricina*. Heaths dominate the shrub layer, including *Chamaedaphne calyculata*, *Ledum groenlandicum*, *Rhododendron canadense*, *Kalmia angustifolia*. Tall shrubs are sparse or absent, but when present may include *Vaccinium corymbosum*, *Nemopanthus mucronata*, *Aronia* spp. or *Lyonia ligustrina*. Herbs: *Carex trisperma*. Dense *Sphagnum* spp. Environmental setting: acidic, nutrient-poor conditions. Closely related to the more open canopy black spruce bog: *Picea mariana* / *Sphagnum* (Lower New England / Northern Piedmont, North Atlantic Coast) Woodland CEGL006098.

LNP Scale: Small patch **Distribution:** Widespread

TNC Ecoregions: 61:C, 62:C, 63:C

References: Enser n.d., Maine Natural Heritage Program 1991, Reschke 1990, Sperduto 1997, Thompson and Sorenson 2000

<u>State</u>	<u>SRank</u>	<u>State Name</u>
MA	S2	Spruce – Tamarack Bog
ME	S4	Forested bog community+
NH	S2S3	conifer basin swamp (black spruce-larch type)
NY	S3	black spruce-tamarack bog, closed canopy part of
PA	S?	Black spruce – tamarack peatland forest
RI	S1?	Black spruce bog
VT	S2	Black spruce swamp

I.A.8.N.g.8 PICEA RUBENS - ABIES BALSAMEA SATURATED FOREST ALLIANCE (A.202 ECS)

***Picea rubens* - *Abies balsamea* / *Gaultheria hispidula* / *Sphagnum* spp. Forest (CEGL006312 ECS) — G?**

Red Spruce - Balsam Fir / Creeping Teaberry / Peatmoss species Forest

[Spruce-fir Swamp]

Description: Spruce swamp of Northern Appalachians (NAP) and Lower New England – Northern Piedmont (LNE-NP) ecoregions. Mineral soil or shallow peat conifer swamp of boreal regions. Dense forested conifer swamp dominated by *Picea rubens*, *Picea mariana*, *Picea glauca*, and *Abies balsamea*. *Larix laricina* may be present in some occurrences and a small percent of hardwoods such as *Acer rubrum*, *Betula alleghaniensis*. Sparse shrub layer of *Nemopanthus mucronata*, *Sorbus americana*, *Alnus viridis*, and *Viburnum nudum* var. *cassinoides*. Herb layer is scattered. Characteristic species include *Osmunda cinnamomea*, *Dryopteris campyloptera*, *Gaultheria hispidula*, *Dalibarda repens*, *Coptis trifolia*, *Clintonia borealis*, and *Carex trisperma*. Mossy ground layer of *Sphagnum* spp. (including *S. girghensonii*), *Bazzania trilobata*, *Pleurozium schreberi*. Soggy mineral soils or shallow organic deposits along the margins of drainage basins or lowland slopes. Usually situated in areas with some surface seepage. Similar types: mixed forest type with greater percent of hardwoods see CEGL006198 *Picea rubens* – *Acer rubrum* / *Nemopanthus mucronata* Forest. *Abies balsamea* and more northern species distinguish from CEGL006311 below.

LNP Scale: Small patch **Distribution:** Limited

TNC Ecoregions: 61:C, 63:C

**Lower New England - Northern Piedmont Ecoregion (61) Classification 4/2000
(subset revised from the National Vegetation Classification 11/1999 version)**

References:

<u>State</u>	<u>SRank</u>	<u>State Name</u>
MA	S3	Spruce – Fir Boreal Swamp+
ME	S4	Spruce fir swamp
NH	S?	Red spruce cinnamon fern-three seeded sedge /sphagnum swamp, conifer basin swamp (red spruce balsam fir type)
NY	S?	spruce fir swamp+
VT	S3	Spruce – fir - tamarack swamp+

Picea rubens - Abies balsamea / Sphagnum magellanicum Forest (CEGL006311 ECS) — G?

Proposed new name: “Picea rubens / Vaccinium corymbosum / Sphagnum magellanicum Forest”

Red Spruce - Balsam Fir / Magellan's Peatmoss Forest

[Spruce - Fir Swamp]

Description: Red spruce swamp of Lower New England (LNE), High Alleghany (HAL) and eastern Great Lakes (GL) ecoregions. *Picea rubens* is the dominant tree, with other canopy associates including *Tsuga canadensis*, *Acer rubrum*, *Betula alleghaniensis*, *Pinus strobus*. *Abies balsamea* may be present but is not characteristic. The shrub layer is of variable cover and includes *Vaccinium corymbosum*, *Ilex verticillata*, *Kalmia latifolia*, *Rhododendron viscosum*, *Nemopanthus mucronata*. Herbs include *Osmunda cinnamomea*, *Carex trisperma*, *Coptis trifolia*, *Mitchella repens*, *Viola spp.* The bryophyte layer is well-developed, dominated by *Sphagnum* species. Mound and pool topography is typical. Environmental setting: shallow peat or mineral soil with accumulation of organic matter. Similar types: If hardwoods comprise over 30% cover see CEGL00 6198 *Picea rubens – Acer rubrum / Nemopanthus mucronata* Forest. If *Abies balsamea* is prevalent, see CEGL006312 *Picea rubens - Abies balsamea / Gaultheria hispidula / Sphagnum spp.* Forest.

LNP Scale: Small patch **Distribution:** Limited

LNP Comments: Proposed new name (dropping *Abies*) originated in 5/98 and is better fit for LNP & HAL type.

TNC Ecoregions: 61:C, 62:C, 63:?

References: Fike 1999, Thompson and Sorenson 2000

<u>State</u>	<u>SRank</u>	<u>State Name</u>
CT	S?	<i>Picea rubens / Nemopanthus mucronata</i> Community=
MA	S3	Spruce – Fir Boreal Swamp+
NH	S?	
NY	S?	Spruce – fir swamp+
PA	S?	Red spruce palustrine forest+

I.A.8.N.g.6 THUJA OCCIDENTALIS SATURATED FOREST ALLIANCE (A.200 MCS)

Thuja occidentalis / Hylocomium splendens Forest (CEGL006007 ECS) — G?

Northern White-cedar / Stairstep Moss Forest

[Northern White-cedar Peatland Swamp]

Description: Closed-canopy conifer swamp/bog with sparse shrub layer, low delicate herbs, a well-developed moss layer (*Sphagnum* present but not the dominant moss), some peat accumulation. Generally in gently sloping lowlands, open basins or shallow depressions with seepage occasionally in closed basins. Closed-canopy dominated by *Thuja occidentalis* with associates of *Picea mariana*, *Abies balsamea*, *Tsuga canadensis*, and *Larix laricina*. Other associates include *Acer rubrum*, *Betula alleghaniensis* and *Fraxinus nigra*. Shrub layer is sparse to non-existent depending on the canopy density. Typical species include *Alnus incana*, *Ilex verticillata*, *Ledum groenlandicum*, *Lonicera canadensis*, *Lonicera oblongifolia*, *Alnus incana*, *Viburnum nudum var. cassinoides*, *Rhamnus alnifolia*. The ground layer is hummocky and overlain by a luxuriant and spongy carpet of sphagnum (*Sphagnum warnstorffii*, *Sphagnum girgensohnii*), other mosses (*Bazzania trilobata*, *Thuidium delicatulum*, *Hylocomium splendens*, *Sphagnum spp.*, *Trichocolea tomentella*) and liverworts. Herbaceous layer consists of small stature individuals or small colonies of herbs scattered thinly throughout. Characteristic species include *Cornus canadensis*, *Coptis groenlandica*, *Mitella nuda*, *Tiarella cordifolia*, *Gaultheria hispidula* and a variety of sedges and ferns, such as *Carex trisperma*, *Carex leptalea*, *Gymnocarpium dryopteris*, and *Onoclea sensibilis*. Other associates are *Gaultheria procumbens*, *Maianthemum canadense*, *Sarracenia purpurea*, *Trientalis borealis*, *Linnaea borealis*. A few unusual orchids may occasionally be found here including *Cypripedium reginae*, *Cypripedium calceolus* and *Calypso bulbosa*. Often occurring within or associated with more acidic swamps and bogs (e.g. black spruce bogs, spruce – fir swamps). Environmental Setting: Occurs along lakes or stream, on wet slopes or in poorly drained depressions where peat accumulates. This forest is associated with spring-fed peatlands or other areas where there

**Lower New England - Northern Piedmont Ecoregion (61) Classification 4/2000
(subset revised from the National Vegetation Classification 11/1999 version)**

is seepage of cold, minerotrophic groundwater, often rich in calcium. Organic to mineral soils.

LNP Scale: Small patch **Distribution:** Widespread? **Ecological group:** Northern white cedar swamp

LNP Comments: Also used by Great Lakes plan; list of states below is incomplete.

TNC Ecoregions: 59:C, 61:C, 63:C

References: Gawler 1991, Reschke 1990, Sperduto 1994, Thompson and Sorenson 2000

<u>State</u>	<u>SRank</u>	<u>State Name</u>
CT	S?	<i>Thuja occidentalis</i> Forests+
ME	S4	Northern white cedar swamp =, seepage forest
NH	S1S2	Northern white cedar seepage swamp =
NY	S?	Northern White Cedar swamp
VT	S3	Northern White Cedar swamp

I.A.8.N.g.7 TSUGA CANADENSIS SATURATED FOREST ALLIANCE (A.201 MCS)

***Tsuga canadensis* - *Betula alleghaniensis* / *Ilex verticillata* / *Sphagnum* spp. Forest (CEGL006226 ECS) — G5**

LNP Suggested Name: *Tsuga canadensis*/ *Osmunda cinnamomea* – *Carex trisperma* / *Sphagnum* Forest

Eastern Hemlock - Yellow Birch / Winterberry / Peatmoss species Forest

[Hemlock-hardwood Swamp]

Description: "Typical" hemlock swamp of northeastern United States. Most often a mix of conifer and hardwood species. *Tsuga canadensis* comprises 30% to 80% of the canopy cover and hardwoods such as *Betula alleghaniensis* and *Acer rubrum* may be frequent. Other associates include *Pinus strobus*, *Picea rubens*, *Larix laricina*, *Nyssa sylvatica* and occasionally *Fraxinus* spp. The shrub layer is often well-developed and includes *Vaccinium corymbosum*, *Rhododendron viscosum*, *Ilex verticillata*, *Viburnum recognitum*, *Viburnum cassinoides* and *Nemopanthus mucronatus*. *Rhododendron maximum* lacking or infrequent which distinguishes this from the *Tsuga canadensis* / *Rhododendron maximum* / *Sphagnum* Forest (6279). *Osmunda cinnamomea* and *Carex trisperma* are characteristic herbs. Other associates are *Thelypteris palustris*, *Coptis trifolia*, *Carex folliculata*, *Trientalis borealis*, *Maianthemum canadense*, *Viola* spp., *Dalibarda repens*, *Symplocarpus foetidus*, *Veratrum viride*. Mosses are abundant, particularly *Sphagnum* spp. Environmental setting: Occurs in shallow basins; acidic, poorly-drained peat or mineral soils. Similar types: For related hardwood swamp see CEGL006014 *Acer rubrum* – *Nyssa sylvatica* – *Betula alleghaniensis* / *Sphagnum* spp. Forest

LNP Scale: Large patch **Distribution:** Widespread

LNP Comments: Although occasionally occurs as pure conifer type, most examples of what states call hemlock swamp are mixed conifer-hardwood and are lumped together under 6226.

TNC Ecoregions: 61:C, 62:P, 63:C

References: Fike 1999, Thompson and Sorenson 2000

<u>State</u>	<u>SRank</u>	<u>State Name</u>
CT	S?	
MA	S4	Hemlock – Hardwood Swamp
ME	S2	perched hemlock-hardwood swamp
NY	S4	Hemlock-hardwood swamp+
RI	S?	
VT	S2	Hemlock swamp+ (including Hemlock - hardwood swamp variant)
PA	S?	Hemlock palustrine forest+ and Hemlock – mixed hardwood palustrine forest+
NH	S?	

***Tsuga canadensis* / *Rhododendron maximum* / *Sphagnum* spp. Forest (CEGL006279 ECS) — G?**

Eastern Hemlock / Great Rhododendron / Peatmoss species Forest

[Eastern Hemlock - Great Laurel Swamp]

Description: Hemlock swamp of Central Appalachians (CAP) and Lower New England – Northern Piedmont ecoregions. Usually has a prominent shrub layer dominated by *Rhododendron maximum*. Closed-canopy conifer forest dominated by *Tsuga canadensis*. Associates: *Acer rubrum*, *Nyssa sylvatica*, *Pinus strobus*, *Betula alleghaniensis*. Well-developed shrub layer: *Ilex verticillata*, *Rhododendron maximum*, *Rhododendron viscosum*, *Vaccinium corymbosum*, *Lyonia ligustrina*. Sparse herb layer: *Carex folliculata*, *Carex trisperma*, *Carex leptalea*, *Osmunda cinnamomea*, *Osmunda regalis*, *Viola* spp., *Onoclea sensibilis*, *Maianthemum canadense*, *Cornus canadensis*, *Coptis trifolia*. *Sphagnum* mosses. Environmental setting: saturated acidic muck to imperfectly drained

**Lower New England - Northern Piedmont Ecoregion (61) Classification 4/2000
(subset revised from the National Vegetation Classification 11/1999 version)**

mineral soils. Upland valleys, bedrock depressions, low slopes, adjacent to streams and lakes. Mounds and depressions caused by uprooted trees are typical.

LNP Scale: Small patch **Distribution:** Peripheral

TNC Ecoregions: 59:C, 61:C

References: Fike 1999

<u>State</u>	<u>SRank</u>	<u>State Name</u>
MD	S?	
NJ		S? Hardwood – conifer swamp+
NY?	S?	Hemlock – hardwood swamp+
OH?	SP	
PA	S?	Hemlock palustrine forest+ and Hemlock – mixed hardwood palustrine forest+
WV	S?	

I.B.2.N.a Lowland or submontane cold-deciduous forest

I.B.2.N.a.4 ACER SACCHARUM - BETULA ALLEGHANIENSIS - (FAGUS GRANDIFOLIA) FOREST ALLIANCE (A.216 ECS)

Acer saccharum - Betula alleghaniensis - Fagus grandifolia / Viburnum lantanoides Forest (CEGL006252 ECS) — G3G5

Sugar Maple - Yellow Birch - American Beech / Hobblebush Forest

[Northern Hardwood Forest]

Description: "Core" northern hardwood forest of Northern Appalachians, Great Lakes, and Lower New England. Generally closed-canopy forests dominated by *Acer saccharum*, *Fagus grandifolia*, and *Betula alleghaniensis* with associated hardwood species including *Betula papyrifera* and *Fraxinus americana*. *Quercus rubra* and *Quercus alba* may be present but infrequent. Conifers are usually present at low abundance. Characteristic species include *Pinus strobus*, *Tsuga canadensis*, and *Picea rubens* (to north). Characteristic understory shrubs or subcanopy trees include *Viburnum alnifolium*, *Acer spicatum*, and *Acer pensylvanicum*. The patchy herbaceous layer is a mix of ferns, rhizomatous herbs and clubmosses. Characteristic species include *Dryopteris intermedia*, *Dryopteris campyloptera*, *Huperzia lucidula*, *Maianthemum canadense*, *Clintonia borealis*, *Oxalismontana*, *Trientalis borealis*, *Aster acuminatus*, *Uvularia sessilifolia*. Occasional species include *Aralia nudicaulis*, *Trillium erectum*, *Trillium undulatum*, *Streptopus roseus*, *Cinna latifolia*, *Thelypteris noveboracensis*, *Solidago macrophylla*, and *Medeola virginiana*. At higher elevations any of the understory herbs characteristic of montane spruce - fir forests may be present and abundant. Widespread matrix forest occurring on acid, moderate to well-drained tills at elevations generally below 2500 feet. Sugar maple leaf litter is high in nitrogen relative to lignin and thus decomposes rapidly increasing the nutrient pool in the soil organic layer. Structure and composition of the forest are maintained primarily by single small tree-fall gaps. Yellow birch is maintained in the system by mineral soils on "tip up mounds." This is broadly defined type and includes range from hardwood dominated to conifer-hardwood mixed forest. Similar types: with greater percent *Picea* (> 25% cover) see CEGL006267 *Picea rubens* – *Betula alleghaniensis* / *Dryopteris campyloptera* Forest.

LNP Scale: Matrix **Distribution:** Widespread

TNC Ecoregions: 61:C, 62:C, 63:C

References: Adamus 1978, Baldwin 1977, Campbell and Eastman 1978, Flaccus 1972, Gordon 1937, Harshberger 1905, Kern 1985, Kuchler 1964, Little 1974, McIntosh 1972, Niering 1953, Ohmann and Buell 1968, Simko 1987, Thompson and Sorenson 2000, Woods 1987

<u>State</u>	<u>SRank</u>	<u>State Name</u>
CT	S?	<i>Acer saccharum</i> - <i>Fagus grandifolia</i> - <i>Betula alleghaniensis</i> / <i>Viburnum alnifolium</i> Community=; <i>Acer saccharum</i> - <i>Fagus grandifolia</i> / <i>Dryopteris intermedia</i> Community
MA	S5	Northern Hardwood – Hemlock – White Pine Forest
ME	S4	mesic northern hardwood, maple-beech-birch =
NH	S3S4	semi-rich mesic sugar maple-beech forest, Sugar maple-beech-yellow birch typic Variant (variant is S2)
NJ		S3S4 Mesic hemlock - hardwood forest
NY	S4	beech-maple mesic forest
RI	S?	Maple –Beech Mesic Forest+
VT	S5	Northern hardwood forest

**Lower New England - Northern Piedmont Ecoregion (61) Classification 4/2000
(subset revised from the National Vegetation Classification 11/1999 version)**

VAS?
WV S?

**I.B.2.N.a.5 ACER SACCHARUM - FRAXINUS AMERICANA - TILIA AMERICANA FOREST ALLIANCE
(A.217 ECS)**

Acer saccharum - Fraxinus americana - Juglans cinerea / Staphylea trifolia Forest (CEGL006020 ECS) — G?

Sugar Maple - White Ash - Butternut / Bladdernut Forest

Description: Semi-rich to rich forest or woodland on talus slopes or shallow soils. Dominated by *Acer saccharum* with *Fraxinus americana*. Canopy associates are *Juglans cinerea*, *Quercus rubra*, *Tilia americana*, *Carya cordiformis*, *Ostrya virginiana*, *Quercus muhlenbergii* and *Carpinus caroliniana*. *Betula alleghaniensis*, *Fagus grandifolia* and *Ulmus* spp. may also occur. The shrub layer is fairly open, characterized by *Staphylea trifolia*, *Corylus* spp. and *Hamamelis virginiana* and with *Kalmia latifolia*, *Rubus odoratus*, *Parthenocissus quinquefolia*, *Toxicodendron radicans*, *Vitis* spp. This community is characterized by a fairly diverse herbaceous flora but lacks the calciphiles of more basic soils. Typical herbs include *Actaea pachyopoda*, *Allium tricoccum*, *Aralia nudicaulis*, *Aralia racemosa*, *Asplenium platyneuron*, *Asarum canadense*, *Aster divaricatus*, *Circaea quadrisulcata*, *Cystopteris fragilis*, *Cystopteris bulbifera*, *Dryopteris* spp., *Polystichum acrostichoides*, *Sanguinaria canadensis*, *Solidago flexicaulis*, *Trillium erectum*, *Woodsia obtusa* and others. Characteristic graminoids include *Carex laxiflora*, *Carex sprengei*, *Carex virescens*, *Hystrix patula* and *Oryzopsis racemosa*. Grades into open woodland (see related woodland types CEGL006204 and CEGL005058) and bedrock upslope. Environmental setting: Talus slopes or shallow soil overlaying calcareous or circumneutral bedrock

LNP Scale: Small patch? **Distribution:** Limited?

TNC Ecoregions: 59:C, 61:C

References: Thompson and Sorenson 2000

<u>State</u>	<u>SRank</u>	<u>State Name</u>
CT	S?	
MA	S?	Rich Mesic Forest+ or Calcareous Talus Forest/Woodland+
NH	S?	
NJ		S? Talus slope community
NY	S?	Calcareous slope woodland+
PA	S?	
VT	S3	Transition Hardwood Talus Woodland+

Acer saccharum - Fraxinus americana - Tilia americana - Magnolia acuminata / Cimicifuga racemosa Forest (CEGL006237 ECS) — G?

Sugar Maple - White Ash - American Basswood - Cucumber-tree / Common Black-cohosh Forest

Description: Rich forests of the High Alleghenies, Western Allegheny Plateau, and Central Appalachians. Closed-canopy, rich, mesic, deciduous forests dominated by *Acer saccharum* with *Fraxinus americana* and *Tilia americana* being very characteristic. Associated canopy trees: *Quercus rubra*, *Ostrya virginiana*, *Ulmus rubra*, *Acer rubrum*, *Betula alleghaniensis*, *Betula lenta*, *Fagus grandifolia*, *Juglans nigra*, *Liriodendron tulipifera*, *Magnolia virginiana*, *Prunus serotina*. Variable shrub layer: *Cornus alternifolia*, *Hamamelis virginiana*, *Lindera benzoin*, *Asimina triloba*, *Lonicera canadensis*, *Rhododendron nudiflorum*, *Staphylea trifoliata*, and *Viburnum acerifolium*. Diverse herb layer: *Adiantum pedatum*, *Asarum canadense*, *Cimicifuga racemosa*, *Dentaria* spp., *Hepatica americana*, *Hydrophyllum virginianum*, *Hystrix patula*, *Osmorhiza* spp., *Trillium grandiflorum*, *Viola* spp., *Dryopteris marginalis*, *Botrychium virginianum*, *Anemone quinquefolia*, *Geranium maculatum*, *Caulophyllum thalictroides*, *Sanguinaria canadensis*, *Claytonia virginica*, *Allium tricoccum*, *Cardamine concatenata*, *Arisaema triphyllum*, *Laportea* sp. Environmental setting: Coves, slope bases, lower slopes, moderate slopes with enriched, deep, moderately to well-drained, alkaline sands, loams, and silt loams. Soils are of high fertility, often derived from calcareous parent materials.

LNP Scale: Small patch (if present) **Distribution:** Peripheral if present

LNP Comments: Possible in LNE-NP in PA & MD.

TNC Ecoregions: 59:C, 61:P

References:

<u>State</u>	<u>SRank</u>	<u>State Name</u>
MD	S?	
NJ	S?	
NY	S?	

**Lower New England - Northern Piedmont Ecoregion (61) Classification 4/2000
(subset revised from the National Vegetation Classification 11/1999 version)**

PA S? Sugar maple - Basswood forest+
WV S?

Acer saccharum - Fraxinus spp. - Tilia americana / Osmorhiza claytonii - Caulophyllum thalictroides Forest (CEGL005008 ECS) — G?

Sugar Maple - Ash species - American Basswood / Blank Sweet-cicely - Blue Cohosh Forest
[Sugar Maple - Ash - Basswood Rich Mesic Forest]

Description: This rich forest association is found from the northeastern United States to the central Great Lakes area on nutrient-rich, mesic or, sometimes, wet-mesic situations on flat to rolling terrain. The surface soils are deep sand, loamy sand, or loam and underlain by sandy clay loam to clay loam. The sites are somewhat poorly drained to well-drained. Closed canopy dominated by *Acer saccharum*, *Fraxinus americana*, and *Tilia americana*. *Ostrya virginiana* and *Quercus rubra* are very common. *Acer rubrum*, *Betula alleghaniensis*, *Fagus grandifolia*, *Liriodendron tulipifera* (to the south), *Prunus serotina*, *Ulmus rubra*, *Carya cordiformis*, *Juglans cinerea* are typical associates. Shrub layer of *Acer spicatum*, *Cornus alternifolia*, *Hamamelis virginiana*, *Lonicera canadensis*, *Staphylea trifolia*, *Viburnum alnifolium*. The ground flora, much of which is spring ephemerals, is diverse and contains species such as *Adiantum pedatum*, *Actaea pachypoda*, *Allium tricoccum*, *Arisaema triphyllum*, *Asarum canadense*, *Botrychium virginianum*, *Caulophyllum thalictroides*, *Dicentra spp.*, *Hydrophyllum canadense*, *Osmorhiza claytonii*, *Panax quinquefolium*, *Sanguinaria canadensis*, *Uvularia perfoliata*, *Viola canadense*, *Viola rotundifolia*, *Asarum canadense*, *Thalictrum dioicum*, *Cystopteris bulbifera*, *Hydrophyllum virginianum*. Characteristic ferns include *Adiantum pedatum*, *Athyrium thelypteroides*, *Dryopteris goldiana*, *Dryopteris filix-mas*, *Botrychium virginianum*, *Thelypteris hexagonoptera*, *Thelypteris noveboracensis*. Various sedges are present (particularly the Laxiflora group) such as *Carex laxiflora*, *Carex platyphylla*, *Carex plantaginea*, *Carex leptonevia*, *Carex hitchcockiana*, *Carex aestivalis*, *Carex davisii*, and others., and many others. Enriched concave and convex slopes within northern hardwood forests. Elevation of known examples ranges from 380 to 2700 feet. Groundcover is deciduous litter, predominantly of nitrogen-rich sugar maple leaves. Environ setting: Occurs on deep, rich colluvium or on drier, shallow soils influenced by calcareous bedrock (e.g. over limestone). May contain boulder fields or rock outcrops. Similar types: CEGl005008 is more mesic than CEGl005010 *Acer saccharum* – *Quercus muehlenbergii* Forest [Provisional].

LNP Scale: Large patch **Distribution:** Widespread

TNC Ecoregions: 47:P, 48:C, 59:C, 61:C, 62:C, 63:C

References: Thompson and Sorenson 2000

<u>State</u>	<u>SRank</u>	<u>State Name</u>
CT	S?	
MA	S3	Rich Mesic Forest
ME	S?	maple-basswood rich mesic forest
MI	S3	mesic northern forest +
NH	S3	rich mesic forest; high elevation S1S2
NJ	S?	
NY	S?	maple-basswood rich mesic forest
ON	S?	Dry - Fresh White Ash Deciduous Forest Type, Dry - Fresh Sugar Maple – Ironwood Deciduous Forest Type, Dry - Fresh Sugar Maple - Hickory Deciduous Forest Type, Dry - Fresh Sugar Maple - Basswood Deciduous Forest Type, Dry - Fresh Sugar Maple - Black Cherry Forest
RI?	SP	
VT	S4	Rich northern hardwood forest

I.B.2.N.a.46 CARYA (GLABRA, OVATA) - FRAXINUS AMERICANA - QUERCUS (ALBA, RUBRA) FOREST ALLIANCE (A.258 ECS)

Carya (glabra, ovata) - Fraxinus americana - Quercus spp. Central Appalachian Forest (CEGL006236 ECS) — G?

(Pignut Hickory, Shagbark Hickory) - White Ash - Oak species Central Appalachian Forest

Description: Oak hickory forests of circumneutral soils of Piedmont, Central Appalachians, Western Allegheny Plateau (WAP) ecoregions. Closed- to somewhat open-canopy, dry-rich forests dominated by *Quercus* species (*Quercus alba*, *Quercus velutina*, *Quercus rubra*) with *Carya ovalis*, *Carya glabra* and *Fraxinus americana* as prominent (rarely codominant) feature. Sub-canopy of *Cornus florida*, *Carpinus caroliniana*, *Corylus cornuta*, *Amelanchier arborea*, *Cercis canadensis*, and *Ostrya virginiana*. Interrupted shrub layer: *Viburnum rafinesquianum*, *Vaccinium spp.*,

**Lower New England - Northern Piedmont Ecoregion (61) Classification 4/2000
(subset revised from the National Vegetation Classification 11/1999 version)**

Viburnum acerifolium. Ericaceous species present but not prominent. Moderately diverse herbaceous layer: *Carex pensylvanica*, *Asplenium platyneuron*, *Schizachyrium scoparium*, *Hepatica americana*, *Asclepias quadrifolia*, *Desmodium spp.*, *Arabis canadensis*, *Aralia nudicaulis*, *Hieracium venosum*, *Maianthemum racemosum*..
Environmental setting: Dry, southern or southeastern, mid to upper slopes. Slightly acidic to circumneutral, moderately dry, well-drained loams or sandy loams. Similar types: Need better distinction between 6236 & 6301 below; both are mixed oak – hickory. Related to CEG006336 *Quercus (alba, rubra, velutina) / Cornus florida / Viburnum acerifolium* Forest.

LNP Scale: Large patch **Distribution:** Limited

TNC Ecoregions: 59:C, 61:C

References: Fike 1999

<u>State</u>	<u>SRank</u>	<u>State Name</u>
DE?	SP	
MD	S?	
NJ?	SP	
NY	S?	
PA	S?	Dry oak-mixed hardwood forest, in part
VAS?		
WV	S?	

Quercus rubra - Carya (glabra, ovata) - Ostrya virginiana / Carex pensylvanica Forest (CEGL006301 ECS) — G?

Red Oak - (Pignut Hickory, Shagbark Hickory) - Eastern Hop-hornbeam / Pennsylvania Sedge Forest

[Oak - Hickory - Hop-hornbeam Forest]

Description: Dry rich forests primarily of Lower New England – Northern Piedmont (LNE-NP) and Northern Appalachians (NAP) ecoregions. Low-elevation ridgetops, upper slopes, south- or west-facing sideslopes dominated by oaks, hickories, and ash. Closed canopy of *Quercus rubra*, *Quercus alba*, *Quercus velutina*, *Quercus prinus*, *Carya glabra*, *Carya ovata*, *Carya ovalis*, *Ostrya virginiana*, *Fraxinus americana*, *Acer rubrum*. *Acer saccharum*, *Pinus strobus*, and *Thuja occidentalis* are often present in small quantities. Subcanopy of *Hamamelis virginiana*, *Cornus florida*, *Amelanchier arborea*, and *Prunus virginiana*. Shrub layer of *Viburnum acerifolium*, *Vaccinium angustifolium*, *Vaccinium pallidum*, *Rubus idaeus*, *Corylus cornuta* and *Viburnum rafinesqianum*, *Viburnum prunifolium*, *Rhus aromatica*.. Diverse herb layer of *Aralia nudicaulis*, *Maianthemum racemosum* (= *Smilacina racemosa*), *Desmodium glutinosum*, *Desmodium paniculatum*, *Prenanthes alba*, *Solidago bicolor*, *Hepatica americana*, *Carex (laxiflorae group)*, *Carex pensylvanica* (sometimes forming a lawn-like layer), *Deschampsia flexuosa*, *Senecio paupercula*, *Senecio obovatus*, *Aster undulatus*, *Aster patens*, *Polystichum acrostichoides*, *Dicranthelium* spp.. Also includes spring ephemerals such as *Erythronium americanum*, *Claytonia virginica* and others. May form mosaic with *Quercus prinus* forests. Characteristic spp.: *Viburnum acerifolium*, *Cornus florida* (absent from examples in northern states), *Ostrya virginiana*, *Desmodium paniculatum*, *Desmodium glutinosum*, *Hepatica americana*. This community is similar in many respects to Rich Red Oak - Sugar Maple / Ironwood Talus Forest Woodland, but is characterized by certain Appalachian or southern species that reach their northern range edge in southern New Hampshire. Similar types: this type is drier and tends to be more species-rich than CEG006336 *Quercus (alba, rubra, velutina) / Cornus florida / Viburnum acerifolium* Forest. Environmental Setting: Low-elevation ridgetops, upper slopes, south- or west-facing sideslopes. Well -drained loams or sandy loams, often derived from alkaline bedrock or on shallow soils overlaying circumneutral bedrock or on traprock ridges.

LNP Scale: Large patch to matrix **Distribution:** Limited

TNC Ecoregions: 61:C, 62:C, 63:C

References: Breden 1989, Metzler and Barrett 1996, Reschke 1990, Sperduto 1997, Thompson and Sorenson 2000

<u>State</u>	<u>SRank</u>	<u>State Name</u>
CT	S?	<i>Carya glabra</i> - <i>Fraxinus americana</i> / <i>Carex pensylvanica</i> community
MA	S2	Southern New England dry rich forest, hickory hornbeam association+
ME	S2	Oak-hickory forest
NH	S2S3	rich Appalachian oak-hickory talus forest woodland
NJ		S? Dry – mesic inland mixed forest
NY	S4	Appalachian oak - hickory forest+
VT	S3	Dry oak - hickory - hop-hornbeam forest+

I.B.2.N.a.15 FAGUS GRANDIFOLIA - ACER SACCHARUM - (LIRIODENDRON TULIPIFERA) FOREST ALLIANCE (A.227 MCS)

**Lower New England - Northern Piedmont Ecoregion (61) Classification 4/2000
(subset revised from the National Vegetation Classification 11/1999 version)**

Acer saccharum - Liriodendron tulipifera - Fraxinus americana / Staphylea trifolia Forest (CEGL006201 SCS) — G3G5

Sugar Maple - Tuliptree - White Ash / Bladdernut Forest

[Ridge and Valley Calcareous Forest]

Description: Closed-canopy, rich, mesic forests dominated by *Acer saccharum*, *Fagus grandifolia*. Associates: *Carpinus caroliniana*, *Carya* spp., *Fraxinus americana*, *Liriodendron tulipifera*, *Ostrya virginiana*, *Quercus alba*, *Quercus rubra*, *Tilia americana*, *Ulmus americana* and *Ulmus rubra*. In the South, also with *Aesculus glabra*, *Liquidambar styraciflua*, *Nyssa sylvatica*. Shrub strata: *Asimina triloba*, *Corylus americana*, *Diervilla lonicera*, *Euonymus obovatus*, *Lindera benzoin*, *Morus rubra*, *Sambucus* spp. *Staphylea trifolia* may be present. Sparse to well-developed herb layer *Adiantum pedatum*, *Arisaema triphyllum*, *Claytonia virginica*, *Dicentra canadensis*, *Dryopteris intermedia*, *Galium aparine*, *Impatiens pallida*, *Impatiens capensis*, *Maianthemum canadense*, *Maianthemum racemosum*, *Menispermum canadense*, *Osmorhiza claytonii*, *Phegopteris hexagonoptera*, *Podophyllum peltatum*, *Polygonatum peltatum*, *Sanguinaria canadensis*, *Trillium grandiflorum*, *Viola* spp. Environmental setting: fertile well-drained, silt, silt loam, sandy loam, or loams. Flat, rolling, or dissected topography on northern or northeastern slopes. In southern part of range also occurs on slopes along rocky bottomed ephemeral and intermittent creeks, over soils weathered from calcareous shale and calcareous sandstone.

LNP Scale: Small patch **Distribution:** Widespread

LNP Comments: Occurs in LNE-NP in PA and possibly in MD.

TNC Ecoregions: 50:C, 59:C, 61:C

References: Andreu and Tukman 1995

<u>State</u>	<u>SRank</u>	<u>State Name</u>
KY?	SP	
MD	S?	
PA	S?	Tuliptree – beech – maple forest+
TN	S?	
VA?	SP	
WV	S?	

I.B.2.N.a.27 QUERCUS ALBA - (QUERCUS RUBRA, CARYA SPP.) FOREST ALLIANCE (A.239 MCS)

Quercus (alba, rubra, velutina) / Cornus florida / Viburnum acerifolium Forest (CEGL006336 ECS) —G?

(White Oak, Red Oak, Black Oak) / Flowering Dogwood / Mapleleaf Viburnum Forest

[Mesic Oak Forest]

Description: Oak - hickory forests transitional between dry-rich oak - hickory and dry, acidic oak forests; center of range primarily Lower New England / Northern Piedmont. Oaks and hickories are prominent in the canopy, particularly *Quercus alba* and *Quercus rubra* to the north; *Quercus prinus* and *Quercus coccinea* to the south and *Carya glabra* and *Carya ovata* throughout. *Quercus velutina* is a common associate. *Fraxinus americana* may be present. *Cornus florida* is a characteristic understory tree. Other associates include *Sassafras albidum*, *Betula lenta*, *Acer rubrum*, *Amelanchier arborea*, *Ostrya virginiana*, *Pinus strobus* and *Tsuga canadensis*. Shrubs are *Hamamelis virginiana*, *Corylus cornuta*, *Corylus americana*, *Viburnum acerifolium*, *Viburnum prunifolium*. Low shrubs are *Vaccinium angustifolium*, *Vaccinium pallidum*, *Gaylussacia baccata*. Herbs are *Carex pensylvanica*, *Carex lucorum*, *Maianthemum racemosum* (= *Smilacina racemosa*), *Aralia nudicaulis*, *Hieracium venosum*, *Aureolaria* spp., *Helianthemum canadense*. Environmental setting: Moderately dry acidic, well-drained soils. Also on gneiss & schists near serpentine barrens. Similar types: Greater diversity of forbs than *Quercus (pinus, velutina) / Gaylussacia baccata* forest CEGL006282. Grades into oak / ericad forest or mixed conifer – hardwood forests upslope. Similar to *Quercus rubra – Acer saccharum / Viburnum acerifolium – Corylus cornuta* Forest CEGL006173.

LNP Scale: Matrix **Distribution:** Limited?

LNP Comments: NY does not have this in LNP (see CEGL006301 above instead)

TNC Ecoregions: 58:?, 61:P, 62:C

References: Breden 1989, Damman 1977, Hunt 1997, Maine Natural Heritage Program 1991, Sperduto 1997, Thompson and Sorenson 2000

<u>State</u>	<u>SRank</u>	<u>State Name</u>
CT	S?	<i>Quercus rubra / Viburnum acerifolium</i> community+
MA	S5	Oak – Hickory Forest
MD?	SP	

**Lower New England - Northern Piedmont Ecoregion (61) Classification 4/2000
(subset revised from the National Vegetation Classification 11/1999 version)**

ME	S3?	Red oak - white oak forest
NH	S1S3	dry Appalachian oak-hickory forest, Appal. oak/herbaceous variant
NJ		S4S5 Dry-mesic inland mixed oak forest
NY	S?	Coastal oak - hickory forest
RI	S?	Oak - hickory forest
PA	S?	Dry oak – mixed hardwood forest+
VT	S3	Mesic Maple – Ash – Hickory Forest+

I.B.2.N.a.101 QUERCUS MUEHLENBERGII - (ACER SACCHARUM) FOREST ALLIANCE (A.1912 SCS)

Acer saccharum - Quercus muehlenbergii / Cercis canadensis Forest (CEGL006017 ECS) — G?

Sugar Maple - Chinquapin Oak / Redbud Forest

[Limestone Forest]

Description: Dry to dry-mesic calcareous forests of the High Alleghenies, Central Appalachian, Lower New England – Northern Piedmont and other ecoregions. Sometimes occurring in association with limestone glades. Closed to somewhat open-canopy of *Acer saccharum*, *Quercus muehlenbergii*, *Fraxinus americana*, *Ostrya virginiana*.

Associates: *Quercus alba*, *Tilia americana*, *Carya ovalis*, *Carya ovata*. Variable subcanopy and shrub layer: *Cornus florida*, *Cercis canadensis*, *Celtis occidentalis*, *Hamamelis virginiana*, *Zanthoxylum americanum*, *Rhus aromatica*, *Rosa carolina*. Sparse to well-developed herb layer: *Danthonia spicata*, *Elymus hystrix*, *Antennaria plantaginifolia*, *Senecio obovatus*, *Houstonia tenuifolia*, *Polygonum scandens*, *Sanicula canadensis*, *Eupatorium rugosum*, *Asclepias quadrifolia*, *Clematis verticillata*, *Saxifraga virginiana*, *Arabis laevigata*, *Senecio obovatus*, *Aquilegia canadensis*, *Bouteloua curtipendula*. Concept also includes the following that may be a separate type: mesic forests of steep slopes in the southern Ridge and Valley which are dominated by *Acer saccharum* and some combination of *Quercus alba* and/or *Quercus muehlenbergii* with *Liriodendron tulipifera*, *Carya spp.*, and *Aesculus flava* in either the canopy or subcanopy. The same, or related forests, are known from limestones of the lower Cumberland Plateau escarpment of Tennessee and possibly Alabama. Environmental setting: Upper slopes or summits of limestone or marble ridges with dry soils with exposed outcrops or boulders. Soils are well-drained, dry shallow.

LNP Scale: Small patch? **Distribution:** Widespread (but too broadly defined)

LNP Comments: Broadly defined at present & thus encompassing many ecoregions; need additional data to discern likely split of northern vs southern expression. Possible in PA & MD in LNP and maybe NJ.

TNC Ecoregions: 44:C, 49:C, 50:C, 59:C, 61:P

References: Andreu and Tukman 1995, Bowen et al. 1995, Fike 1999

Other Countries:

<u>State</u>	<u>SRank</u>	<u>State Name</u>
AL?	SP	
IL?	SP	
IN?	SP	
KY	S?	
MD	S?	
NJ?	SP	
OH	S?	
PA	S?	Yellow oak – redbud woodland
TN	S?	
VAS?		
WV	S?	

Acer saccharum - Quercus muehlenbergii Forest [Provisional] (CEGL005010 ECS) — G?

Sugar Maple - Chinquapin Oak Forest

[Sugar Maple - Chinquapin Oak Forest]

Description: This dry-mesic forest community is found from the eastern seaboard to the central United States on calcareous substrates. The tree canopy is typically dominated by *Quercus muehlenbergii*, the diagnostic species, and *Acer saccharum* although relative percents vary widely. Oaks in general comprise at least 50 percent of the stand and sugar maple at least 20 percent. Other oak associates include *Quercus alba*, *Quercus rubra*, and, locally, *Quercus shumardii*. Other hardwoods include *Carya ovata*, *Celtis occidentalis*, *Fraxinus americana*, *Fraxinus quadrangulata*, and *Tilia americana*. *Betula spp.*, *Pinus strobus* and *Prunus serotina* are occasional. Shrub and small tree species include *Amelanchier sanguinea*, *Carpinus caroliniana*, *Cercis canadensis*, *Cornus alternifolia*, *Cornus florida*, *Cornus racemosa*, *Diervilla lonicera*, *Hamamelis virginiana*, *Hydrangea arborescens*, *Lindera benzoin*, *Ostrya*

**Lower New England - Northern Piedmont Ecoregion (61) Classification 4/2000
(subset revised from the National Vegetation Classification 11/1999 version)**

virginiana, *Ribes americana*, *Staphylea trifoliata*, *Viburnum prunifolium* and *Zanthoxylum americanum*. Sparse to well-developed herb layer includes *Asclepias quadrifolia*, *Carex eburnea*, *Carex platyphylla*, *Clematis verticillata*, *Senecio obovatus*, *Phryma leptostachya*, *Sanicula marilandica*, *Saxifraga virginensis*, *Arabis laevigata*, *Triosteum aurantiacum* among many others. This type is not well described across its range; often grades into woodland. Similar types: *Quercus muehlenbergii* / *Andropogon gerardii* - *Anemone cylindrica* Woodland, CEGLO06230. Also in unglaciated areas to the south is the related *Acer saccharum* - *Quercus muehlenbergii* / *Cercis canadensis* Forest CEGLO06017. See also *Acer saccharum* - *Fraxinus* spp. - *Tilia americana* / *Osmorhiza claytonii* - *Caulophyllum thalictroides* Forest CEGLO05008. Environmental setting: thin, dry soils on upper slopes or summits of limestone or marble ridges. Limestone outcrops or dolomite, boulders or talus often present.

LNP Scale: Small patch **Distribution:** Widespread

TNC Ecoregions: 45:C, 48:C, 59:C, 61:C

References: Anderson 1996

Other Countries: Canada

<u>State</u>	<u>SRank</u>	<u>State Name</u>
CT	S?	
IL	S4	mesic upland forest, oak - maple subtype =
MA?	SP	
MI?	SP	
NJ		S? Dry – mesic calcareous forest+
NY	S?	Limestone Woodland+
OH	S4	oak-maple forest (subtype 1) =
ON	S?	Dry Chinquapin Oak - Pine Mixed Forest Type =

**I.B.2.N.a.36 QUERCUS PRINUS - (QUERCUS COCCINEA, QUERCUS VELUTINA) FOREST ALLIANCE
(A.248 ECS)**

Quercus (prinus, velutina) / Gaylussacia baccata Forest (CEGL006282 ECS) — G3G5

LNP suggested name change to: Quercus prinus – Quercus (rubra, velutina) / Gaylussacia baccata Forest

(Rock Chestnut Oak, Black Oak) / Black Huckleberry Forest

[Northern Appalachian Dry Oak Forest]

Description: Dry oak forests of upper slopes and other well-drained habitats. Influenced by fire. Closed to somewhat open canopy of *Quercus prinus* and *Quercus rubra* with smaller percents of *Quercus alba*, *Quercus velutina*, *Quercus coccinea* and *Acer rubrum* (may be dominant in the sub-canopy). *Quercus velutina* and *Quercus coccinea* may be co-dominant in some locales, particularly on sandy soils or glacial till. Other associates are *Amelanchier arboreum*, *Betula lenta*, *Nyssa sylvatica*, *Pinus rigida*, *Pinus strobus* and *Sassafras albidum*. *Robinia pseudoacacia* may be abundant in disturbance sites. Tall-shrub layer is generally lacking except where patches of *Kalmia latifolia* occur. Well-developed ericaceous low-shrub cover of *Vaccinium angustifolium*, *Vaccinium pallidum*, *Vaccinium stamineum*, *Gaylussacia baccata*, *Kalmia angustifolia*, *Rhododendron maximum* (to south). Other shrub species: *Chionanthus virginicus*, *Symplocos tinctoria* (to south), *Viburnum acerifolium*, *Viburnum prunifolium* (NY and south) and *Quercus prinoides* (occasional). Characteristic herbs are *Carex pensylvanica*, *Gaultheria procumbens*, *Aralia nudicaulis*, *Deschampsia flexuosa*, *Danthonia spicata*. Others include *Antennaria plantaginifolia*, *Aureolaria laevigata*, *Chamaelirium luteum*, *Chimaphila maculata*, *Carex rosea*, *Cypripedium acaule*, *Dioscorea quaternata* (to south), *Epigaea repens*, *Galium latifolium*, *Gaultheria procumbens*, *Goodyera pubescens*, *Hieracium venosum*, *Lysimachia quadrifolia*, *Medeola virginiana*, *Monotropa uniflora*, *Potentilla canadensis*, *Pteridium aquilinum*, *Uvularia puberula* (to south), and *Uvularia sessilifolia*. Grades into red oak woodland or pitch pine – oak woodland upslope. Downslope grades into more mesic forest types. Historically, some of these areas supported chestnut forest. Environmental setting: Thin, rocky or sandy, infertile soils; convex, upper slopes and ridgetops, south-facing slopes below 3500 feet. Windthrow and ice damage are common natural disturbances and fire is important in some locales. Similar type to *Quercus coccinea* - *Quercus velutina* / *Sassafras albidum* / *Vaccinium pallidum* Forest CEGLO06375 which is more prevalent in coastal vicinities.

LNP Scale: Matrix (in NY Hudson Highlands) **Distribution:** Widespread

TNC Ecoregions: 59:C, 61:C, 63:C

References: Fike 1999, Thompson and Sorenson 2000

<u>State</u>	<u>SRank</u>	<u>State Name</u>
CT	S?	
DE	S?	
MA	S4	Ridgetop Chestnut Oak Forest /Woodland

**Lower New England - Northern Piedmont Ecoregion (61) Classification 4/2000
(subset revised from the National Vegetation Classification 11/1999 version)**

MD	S?	
ME	S?	Chestnut oak woodland, closed canopy version
NH	S?	
NJ		S? Chestnut oak forest
NY	S?	chestnut oak forest
PA	S?	Dry oak heath forest, in part
RI	S?	Chestnut oak forest
VAS?		
VT	S3	Dry oak Forest

I.B.2.N.a.39 QUERCUS RUBRA - (ACER SACCHARUM) FOREST ALLIANCE (A.251 MCS)

Quercus rubra - Acer saccharum - Fagus grandifolia / Viburnum acerifolium Forest (CEGL006173 ECS) — G?

Red Oak - Sugar Maple - American Beech / Mapleleaf Arrow-wood Forest

[Red Oak - Northern Hardwood Forest]

Descript: Mesic oak forest with significant component of *Acer saccharum* and/or *Fagus grandifolia*. Occurs on slightly acidic soils of intermediate fertility; well-drained loams of mid-slopes and coves. Lacking abundant ericads with the exception of *Kalmia latifolia* which may be locally abundant. *Tsuga canadensis* and *Pinus strobus* may be present at less than 25% cover. *Liriodendron tulipifera* absent or very infrequent. Other associates include *Viburnum acerifolium*, *Medeola virginiana*, *Trillium* spp., *Cypripedium acaule*, *Polystichum acrostichoides*, *Polygonatum pubescens*. Differential species: *Fagus grandifolia*, *Corylus cornuta*, *Acer pensylvanicum*. Occurs downslope of oak-hickory forest or grades into northern hardwood forest upslope or to north. To south, transitions to *Quercus rubra* – *Acer saccharum* – *Liriodendron tulipifera* Forest (CEGL006125). Similar types: More mesic and somewhat less rich than *Quercus (alba, rubra, velutina) / Cornus florida/Viburnum acerifolium* Forest CEGL006336).

LNP Scale: Matrix **Distribution:** Limited?

TNC Ecoregions: 61:C, 62:C, 63:C

References: Thompson and Sorenson 2000

<u>State</u>	<u>SRank</u>	<u>State Name</u>
CT	S?	<i>Quercus rubra</i> / <i>Viburnum acerifolium</i> Forest+
MA	S?	Red Oak – Sugar Maple Forest
ME	S2S3	Oak – Beech Forest
NH	S2S3	mesic Appalachian oak-sugar maple-beech-hemlock forest+
NY	S?	beech – maple mesic forest+
RI	S?	Beech – Maple Mesic Forest+
VT	S3	Red oak - northern hardwood forest

Quercus rubra - Acer saccharum - Liriodendron tulipifera Forest (CEGL006125 ECS) — G?

Northern Red Oak - Sugar Maple - Tuliptree Forest

[High Allegheny Rich Red Oak - Sugar Maple Forest]

Description: Closed-canopy, dry-mesic deciduous forests found primarily in the Allegheny Plateau and Appalachian Mountain regions of the United States, as well as on Piedmont and north to the Hudson Valley with possible extensions west of those areas. It is typically found in coves, on moist north- and east-facing slopes and on well-drained flats. Soils are slightly acid and of intermediate fertility. Canopy dominated by *Quercus rubra* with notable presence of *Acer saccharum* and *Liriodendron tulipifera*. Associates: *Fagus grandifolia*, *Quercus alba*, *Quercus velutina*, *Quercus prinus*, *Quercus coccinea*, *Betula lenta*, *Fraxinus americana*, *Tilia americana*, *Ulmus rubra*, *Acer rubrum* and *Carya* spp. Subcanopy often well-developed: *Cornus florida*, *Prunus virginiana*, *Prunus serotina*, *Ostrya virginiana*. Shrub layer not strongly ericaceous: *Kalmia latifolia*, *Hamamelis virginiana*, *Acer pensylvanicum*, *Lindera benzoin*, *Amelanchier* spp., *Corylus cornuta*, *Viburnum acerifolium*, *Hamamelis virginiana*, *Viburnum recognitum*, and *Vitis riparia*. Ground layer variable, typically sparse, with *Polystichum acrostichoides*, *Medeola virginiana*, *Geranium maculatum*, *Dryopteris marginalis*, *Thelypteris noveboracensis*, *Dennstaedtia punctiloba*, *Podophyllum peltatum*, *Maianthemum racemosum* (= *Smilacina racemosa*), and *Uvularia sessilifolia*. Occurs downslope of *Quercus prinus* forests. Environmental setting: Deep, moist to well-drained loams and silt loams on northern and eastern mid-slopes and coves. Historically, may have been fire-maintained. Current distribution may result from natural and human-caused disturbances. Similar types: To the north grades into *Quercus rubra* - *Acer saccharum* - *Fagus grandifolia* / *Viburnum acerifolium* Forest CEGL006173.

LNP Scale: Matrix **Distribution:** Widespread

**Lower New England - Northern Piedmont Ecoregion (61) Classification 4/2000
(subset revised from the National Vegetation Classification 11/1999 version)**

TNC Ecoregions: 48:C, 49:C, 50:C, 59:C, 61:C

References: Anderson 1982, Braun 1950

<u>State</u>	<u>SRank</u>	<u>State Name</u>
NJ	S?	
NY	S?	Oak - tuliptree forest+
OH?	SP	Oak - maple - tuliptree forest=
PA	S?	Tulip tree – beech – maple forest
VAS?		
WV?	SP	
MD	S?	

Quercus rubra - Betula alleghaniensis / Osmunda cinnamomea Forest (CEGL006000 ECS) — G?

Red Oak - Yellow Birch / Cinnamon Fern Forest

Description: Lower slope forest of glacial lake basins, generally adjacent to wetlands. *Fagus grandifolia* is a typical canopy associate, with *Osmunda cinnamomea* a common herb.

LNP Scale: Small patch **Distribution:** (type needs further definition)

LNP Comments: Needs further definition to see if solid type. Not using as target but keep as possible small patch community.

TNC Ecoregions: 61:C, 62:C, 63:?

References: Damman and Kershner 1977

<u>State</u>	<u>SRank</u>	<u>State Name</u>
CT	S?	<i>Quercus rubra</i> - <i>Betula alleghaniensis</i> / <i>Osmunda cinnamomea</i> community
MA	S?	
RI	S?	

**I.B.2.N.a.100 QUERCUS VELUTINA - QUERCUS ALBA - (QUERCUS COCCINEA) FOREST ALLIANCE
(A.1911 ECS)**

Quercus coccinea - Quercus velutina / Sassafras albidum / Vaccinium pallidum Forest (CEGL006375 ECS) G?

Scarlet Oak - Black Oak / Sassafras / Hillside Blueberry Forest

[Coastal Oak - Heath Forest]

Description: Matrix oak forest of southern New England to New Jersey, particularly near the coast. Canopy characterized by *Quercus coccinea*, *Quercus velutina*, and *Quercus alba* (*Q. alba* occurring particularly on gravel substrates). Other less abundant associates include *Quercus prinus*, *Betula lenta* and *Ilex opaca* (at less than 15% cover). *Pinus rigida* is a common associate but occurs at low cover. Although *Sassafras albidum* may occur in low cover and does not occur in all stands, it is characteristic of this type and may indicate influence by coastal (but not maritime) climate. A shrub heath layer dominated by *Vaccinium pallidum*, *Vaccinium angustifolium* and *Gaylussacia baccata* is characteristic. *Gaylussacia frondosa* is an occasional component. The understory ranges from a lawn-like dwarf-shrub layer to a layer of tall shrubs. The herbaceous layer is typically sparse, with *Carex pensylvanica*, *Pteridium aquilinum*, *Gaultheria procumbens* being the most common associates. Herb diversity is greater in small canopy gaps, where *Helianthemum canadense*, *Lespedeza spp.*, *Lechea spp.*, and *Arctostaphylos uva-ursi* occur. In some cases, *Carex pensylvanica* may be abundant; has been suggested that this is an indication of past grazing.

Environmental setting: Sandy or gravel soils on glacial outwash or till.

LNP Scale: Matrix **Distribution:** Limited

TNC Ecoregions: 61:C, 62:C

References:

<u>State</u>	<u>SRank</u>	<u>State Name</u>
CT	S?	<i>Quercus velutina</i> / <i>Vaccinium pallidum</i> community+
MA	S?	Coastal Forest, Mixed Oak Coastal Forest subtype
NH	S1S3	Dry Appalachian Oak - Hickory Forest, Appalachian oak / heath variant
NJ	S4?	Dry oak - pine forest, scarlet oak - shortleaf pine forest subtype
NY	S2S3	Coastal oak forest+
RI	S?	Mixed oak - pine forest+

Quercus velutina - Quercus coccinea - Quercus prinus / Kalmia latifolia Forest (CEGL006374 ECS) — G?

Black Oak - Scarlet Oak - Chestnut Oak / Mountain Laurel Forest

[Coastal Oak / Laurel Forest]

**Lower New England - Northern Piedmont Ecoregion (61) Classification 4/2000
(subset revised from the National Vegetation Classification 11/1999 version)**

Description: Large-patch coastal and Piedmont oak forest on sandy and gravelly soils. Characteristic dominants are *Quercus coccinea*, *Quercus velutina*, *Quercus prinus*, *Quercus alba*. Pines (*Pinus rigida*, as well as *Pinus echinata* in New Jersey) are commonly present at low cover. *Kalmia latifolia* is the dominant shrub, with other ericaceous shrubs such as *Vaccinium pallidum* and *Gaylussacia baccata* contributing significant cover. The herbaceous layer is sparse, and may include *Pteridium aquilinum*, *Gaultheria procumbens*, *Carex pensylvanica*. Similar to *Quercus coccinea* - *Quercus velutina* / *Sassafras albidum* / *Vaccinium pallidum* Forest CEG006375 but with prevalence of *Kalmia latifolia*.

LNP Scale: Large patch **Distribution:** Peripheral

TNC Ecoregions: 58:?, 61:C, 62:C

References: Hunt 1997, Windisch 1995

<u>State</u>	<u>SRank</u>	<u>State Name</u>
MD?	SP	
NJ		S? Oak - mountain laurel forest
NY	S?	Coastal oak - laurel forest

I.B.2.N.b Montane or boreal cold-deciduous forest

I.B.2.N.b.3 BETULA PAPYRIFERA FOREST ALLIANCE (A.267 MCS)

Betula papyrifera / Acer saccharum - Mixed Hardwoods Forest (CEGL002464 MCS) — G4?

Paper Birch / Sugar Maple - Mixed Hardwoods Forest

[Paper Birch / Sugar Maple - Mixed Hardwoods Forest]

Description: This paper birch boreal forest type is found in the boreal regions of the Great Lakes and central Canada. Stands are often small, and found on shaded north-facing slopes or in recently burned areas. It has a moderately open to closed canopy dominated strongly (>90 percent) by *Betula papyrifera*. *Populus tremuloides* may be present in small amounts. Tree reproduction layers are dominated by later successional deciduous trees. *Acer saccharum* is often the dominant species in these layers. *Acer rubrum*, *Betula alleghaniensis*, and *Quercus rubra* are common components. The shrub layer is dominated by *Acer spicatum* and *Corylus cornuta*. The understory contains species such as *Aralia nudicaulis*, *Aster macrophyllus*, *Clintonia borealis*, *Cornus canadensis*, *Maianthemum canadense*, and *Trientalis borealis*. Diagnostic features include strong dominance by *Betula papyrifera*, and the presence of a variety of hardwood species in the understory, including *Acer saccharum*, *Acer rubrum*, *Betula alleghaniensis*, and *Quercus rubra*. Early successional stage in northern hardwoods. Similar types: may be indistinguishable from *Populus tremuloides* - *Betula papyrifera* / *Acer saccharum* - Mixed Hardwoods Forest CEG002468.

LNP Scale: Large patch **Distribution:** Widespread

TNC Ecoregions: 35:C, 47:P, 48:C, 61:C, 63:C

References:

<u>State</u>	<u>SRank</u>	<u>State Name</u>
ME	S?	
MN	S4?	paper birch forest northern hardwoods subtype =
NH	S?	
NY	S?	Successional northern hardwoods
ON	S?	Dry - Fresh White Birch Deciduous Forest =
VT	S?	Northern Hardwood Forest+

I.B.2.N.d Temporarily flooded cold-deciduous forest

I.B.2.N.d.24 ACER (RUBRUM, SACCHARINUM) - ULMUS AMERICANA TEMPORARILY FLOODED FOREST ALLIANCE (A.299 ECS)

Acer saccharinum - Ulmus americana / Onoclea sensibilis Forest (CEGL006001 ECS) — G?

Silver Maple - American Elm / Sensitive Fern Forest

Description: Freely drained floodplain forest of Lower New England – Northern Piedmont (LNE-NP) and northeastern Great Lakes (GL) ecoregions characterized by winter flooding and mineral soils; diverse tree, shrub, herb layers. Often occurs in association with *Acer saccharinum* - *Populus deltoides* floodplain forests. Similar types: *Acer saccharinum* – *Ulmus americana* / *Physocarpus opulifolius* Forest CEG006042 and *Acer saccharinum* / *Onoclea sensibilis* – *Boehmeria cylindrica* Forest CEG006176.

**Lower New England - Northern Piedmont Ecoregion (61) Classification 4/2000
(subset revised from the National Vegetation Classification 11/1999 version)**

LNP Scale: Small patch **Distribution:** type needs more work before can determine distribution

Ecological group: Floodplain forest.

LNP Comments: Possible merge with 6042 but need more data to define the floodplain forest associations. Range may include other states.

TNC Ecoregions: 61:C, 63:C

References: Kearsley 1999

<u>State</u>	<u>SRank</u>	<u>State Name</u>
CT	S?	
MA	S2	Transitional Floodplain Forest
ME	S3	Hardwood floodplain forest+
NY	S2S3	floodplain forest, in part

Acer saccharinum - Ulmus americana / Physocarpus opulifolius Forest (CEGL006042 ECS) — G?

Silver Maple - American Elm / Eastern Ninebark Forest

Description: Closed-canopy deciduous floodplain forests characterized by *Acer rubrum*, *Acer saccharinum*, and *Ulmus americana*. Associates: *Carpinus caroliniana*, *Carya cordiformis*, *Tilia americana*, *Juglans nigra*, *Juglans cinerea*, *Fraxinus americana*, *Populus deltoides*, *Platanus occidentalis*, *Quercus rubra*. Shrubs, vines and herbs often abundant: *Lindera benzoin*, *Cornus amomum*, *Boehmeria cylindrica*, *Toxicodendron radicans*, *Onoclea sensibilis*, *Urtica* spp. Environmental setting: freely drained floodplain forest of smaller rivers, characterized by winter flooding and mineral soils. Often groundwater-influenced.

LNP Scale: Small patch **Distribution:** type needs more work **Ecological group:** Floodplain forest

LNP Comments: *Physocarpus* mentioned only in name, not description; typical or not. This association and CEGL006001 may be variants of same thing; need more data

TNC Ecoregions: 59:?, 61:C

References:

<u>State</u>	<u>SRank</u>	<u>State Name</u>
MD?	SP	(possibly <i>Acer saccharinum</i> - <i>Ulmus</i> – <i>Populus</i> forest)
NJ?	SP	
PA	S?	Silver maple floodplain forest+
WV?	SP	

I.B.2.N.d.4 ACER SACCHARINUM TEMPORARILY FLOODED FOREST ALLIANCE (A.279 MCS)

Acer saccharinum - (Populus deltoides) / Matteuccia struthiopteris Forest (CEGL006147 ECS) —

Silver Maple - (Eastern Cottonwood) / Ostrich Fern Forest

[Silver Maple Floodplain Forest]

Description: Floodplain forests of levees subjected to spring flooding. Occurs on point bars, islands and riverbanks of large, high-energy rivers with heavy erosion and sedimentation and medium-energy, moderate-gradient streams. On coarse gravel and sand. Dominated by *Acer saccharinum* and *Matteuccia struthiopteris*. Closed to somewhat open canopy of *Acer saccharinum* with the characteristic associates *Acer negundo*, *Ulmus rubra*, *Fraxinus pennsylvanica*, *Populus deltoides* (localized), and *Prunus virginiana*. Shrubs may include *Lindera benzoin*, *Cornus amomum* and *Sambucus canadensis*. The ground layer is dominated by *Matteuccia struthiopteris* and vines such as *Vitis riparia*. Other associates are *Amphicarpaea bracteata*, *Elymus riparius*, *Elymus virginicus*, *Eupatorium rugosum*, *Polygonum virginianum* (= *Tovara virginiana*), *Laportea canadensis*, *Parthenocissus quinquefolia*, *Toxicodendron radicans*. Other associates include *Celtis occidentalis*, *Laportea canadense*, *Arisaema triphyllum*, *Circaea lutetiana*, *Thalictrum pubescens*, *Onoclea sensibilis*, *Impatiens pallida*, *Geum canadense*. Environmental setting: Floodplains of large to medium-energy streams, of moderate radients, with coarse substrates (usually tills) or non-hydric, sandy - loams.

Similar types: *Acer saccharinum* / *Onoclea sensibilis* – *Boehmeria cylindrica* Forest CEGL006176

LNP Scale: Small to Large patch **Distribution:** Widespread **Ecological group:** Floodplain forest

TNC Ecoregions: 61:C, 62:C, 63:C

References: Enser n.d., Kearsley 1999, Maine Natural Heritage Program 1991, Metzler 1984, Metzler and Barrett 1982, Metzler and Damman 1985, Reschke 1990, Sperduto 1997, Thompson and Sorenson 2000

<u>State</u>	<u>SRank</u>	<u>State Name</u>
CT	S?	<i>Acer saccharinum</i> / <i>Onoclea sensibilis</i> community, <i>Matteuccia struthiopteris</i> variant
MA	S?	Major River Floodplain Forest
MD?	SP	

**Lower New England - Northern Piedmont Ecoregion (61) Classification 4/2000
(subset revised from the National Vegetation Classification 11/1999 version)**

ME	S3	Hardwood floodplain forest community+
NH	S1S2	Silver maple floodplain forest+
NY	S2S3	floodplain forest, silver maple-green ash +
PA?	SP	
VT	S3	Silver maple ostrich fern riverine floodplain forest (riverine floodplain forest)

Acer saccharinum / Onoclea sensibilis - Boehmeria cylindrica Forest (CEGL006176 ECS) — G?

Silver Maple / Sensitive Fern - False-nettle Forest

[Silver Maple Floodplain Forest]

Description: Floodplain forest of low-elevation streams or lakesides with fine soils. Closed to somewhat open canopy of *Acer saccharinum*. Associates: *Celtis laevigata*, *Carya illinoensis* (to south), *Ulmus americana*, *Acer negundo*, *Salix nigra*, *Betula nigra*, *Fraxinus pennsylvanica*, *Ulmus rubra*, *Ulmus americana*. Occasional *Populus deltoides* or *Quercus bicolor*. Sparse shrubs: *Lindera benzoin*, *Ilex decidua*, *Forestiera acuminata*. Characteristic herbs include nettles and ferns: *Boehmeria cylindrica*, *Urtica dioica*, *Laportea canadensis*, *Pilea pumila*, *Onoclea sensibilis*, *Matteuccia struthiopteris*, *Thelypteris palustris*. Also present are *Bidens frondosa*, *Iris versicolor*, *Lycopus uniflorus*, *Lysimachia terrestris*, *Scutellaria lateriflora*, *Polygonum virginianum* (= *Tovara virginiana*), *Impatiens capensis* and *Toxicodendron radicans*. Environmental setting: on poorly-drained to somewhat poorly drained mineral soils (silt loam or fine sandy loams) on infrequently flooded bottomlands, on levees, and on deep silts on lake plains and stabilized sites along larger rivers. NJ also has this or related type around some limestone sinkhole ponds. Similar types: *Acer saccharinum* - (*Populus deltoides*) / *Matteuccia struthiopteris* Forest CEGL006147 is similar and considered synonymous with CEGL006147 by some states.

LNP Scale: Small (historically large patch) **Distribution:** Widespread **Ecological group:** Floodplain forest

LNP Comments: Need more data to clarify & revise associations

TNC Ecoregions: 59:C, 61:C, 62:C, 63:C

References: Fike 1999, Kearsley 1999, Thompson and Sorenson 2000

<u>State</u>	<u>SRank</u>	<u>State Name</u>
CT	S?	
MA		Small River Floodplain Forest+
MD?	SP	(possibly <i>Acer saccharinum</i> - <i>Ulmus</i> - <i>Populus</i> low terrace)
ME	S3	Hardwood floodplain forest+
NH	S?	SNE floodplain forest (Silver maple-falsenettle-wood reed forest)
NJ		S3?
NY	S?	Silver maple-ash swamp,
PA	S?	Silver maple floodplain forest+
VT	S3	Silver maple – sensitive fern riverine floodplain forest

I.B.2.N.d.27 ACER SACCHARUM - CARYA CORDIFORMIS TEMPORARILY FLOODED FOREST ALLIANCE (A.302 ECS)

Acer saccharum - Fraxinus spp. - Tilia americana / Matteuccia struthiopteris - Ageratina altissima Forest (CEGL006114 ECS) — G?

Sugar Maple - Ash species - American Basswood / Ostrich Fern - White Snakeroot Forest

[High Terrace Floodplain Forest]

Description: High-terrace, rich floodplain forest of glaciated Northeast characterized by closed to somewhat open canopy of *Acer saccharum*, *Tilia americana*, *Ulmus americana*, *Fraxinus americana*. Associates include *Carpinus caroliniana*, *Carya cordiformis*, *Platanus occidentalis*, *Prunus serotina*, *Juglans cinerea*, *Fraxinus nigra*, *Acer rubrum*, *Quercus rubra*, and *Prunus virginiana*. *Staphylea trifolia* may be present. The understory is dominated by *Matteuccia struthiopteris*, vines such as *Parthenocissus quinquefolia*, *Toxicodendron radicans* or *Vitis rupestris* and a mixture of herbaceous annuals and perennials. Characteristic species include *Ageratina altissima* (= *Eupatorium rugosum*), *Adiantum pedatum*, *Asarum canadense*, *Elymus virginicus*, *Elymus riparius*, *Elymus canadensis* var. *wiegandii*, *Erythronium americanum*, *Hepatica spp.*, and *Hydrophyllum virginianum*. *Osmunda claytoniana*, *Carex gracillima*, *Carex intumescens*, *Podophyllum pelatum*, *Solidago flexicaulis*, *Solidago rugosa*, *Solidago gigantea*. Exotic species, such as *Lysimachia nummularia*, *Glechoma hederacea*, and *Hesperis matronalis* and *Robinia pseudoacacia* are common. Environmental setting: coarse alluvial soils on high terraces up from riverbank. May occur very close to the riverbank if the water channel is well entrenched. Less regular flooding than the floodplains supporting silver maple associations. Many of our examples occur on slightly calcareous soils. Subject to infrequent flooding, up to 100 year interval or frequent (1-3 year intervals) but short duration floods. Can occur on more frequently

**Lower New England - Northern Piedmont Ecoregion (61) Classification 4/2000
(subset revised from the National Vegetation Classification 11/1999 version)**

flooded, well-drained slopes as well.

LNP Scale: Small patch **Distribution:** Widespread or Limited? **Ecological group:** Floodplain forest
TNC Ecoregions: 61:C, 62:C, 63:C

References: Breden 1989, Kearsley 1999, Reschke 1990, Sperduto 1997, Thompson and Sorenson 2000

<u>State</u>	<u>SRank</u>	<u>State Name</u>
CT	S?	
MA	S?	High Terrace Floodplain Forest
MD	S?	(possibly matches High terrace floodplain forest)
ME	S3	Hardwood floodplain forest (terraces)
NH	S1S2	Silver Maple Floodplain Forest, rich sugar maple-ash-oak-hickory forest, in part
NJ		S? Floodplain forest+
NY	S2S3	Floodplain forest+;
VT	S3	Sugar Maple – Ostrich Fern Riverine Floodplain Forest

Tilia americana - Acer saccharum - Acer nigrum / Laportea canadensis Forest (CEGL006405 ECS)

— G?

American Basswood - Sugar Maple - Black Maple / Wood Nettle Forest

[Rich Floodplain Forest]

Description: Floodplain forest of coastal streams with small (less than 2 square mile) watersheds, currently known only from Great Bay watershed of New Hampshire and also occurs in Maine. Dominant or constant species are *Tilia americana*, *Fraxinus americana*, *Carpinus caroliniana*, *Ulmus americana*, with less abundant or less frequent associates *Acer saccharum*, *Carya ovata*, *Acer nigrum*, *Quercus rubra*, and *Acer rubrum*. Shrubs may include *Cornus amomum*, *Viburnum lentago*, and associated herbs include *Laportea canadensis*, *Solidago rugosa*, *Athyrium filix-femina*, *Boehmeria cylindrica*, *Impatiens capensis*. Similar to and possibly a variant of CEGL006114.

LNP Scale: Small patch (if present) **Distribution:** Peripheral if present

Ecological group: Floodplain forest

TNC Ecoregions: 61:P, 62:C

References: Sperduto 1997

<u>State</u>	<u>SRank</u>	<u>State Name</u>
MA?	SP	
ME?	SP	
NH	S?	Basswood - white ash - black maple stream bottom floodplain

I.B.2.N.d.5 BETULA NIGRA - (PLATANUS OCCIDENTALIS) TEMPORARILY FLOODED FOREST ALLIANCE (A.280 SCS)

Betula nigra - Platanus occidentalis / Impatiens pallida Forest (CEGL006184 ECS) — G?

River Birch - Sycamore / Yellow Jewelweed Forest

Description: Floodplain forests of High Allegheny (HAL), Central Appalachians (CAP) and Lower New England – Northern Piedmont ecoregions (LNE-NP). Closed-canopy deciduous floodplain forests dominated by *Betula nigra* and *Platanus occidentalis*. Associates: *Acer negundo*, *Populus deltoides*, *Acer saccharinum*. Sparse shrub layer: *Asimina triloba*, *Lindera benzoin*. Lush and diverse vine and herb layer: *Boehmeria cylindrica*, *Elymus hystrix*, *Stellaria pubera*, *Impatiens capensis*, *Pilea pumila*, *Toxicodendron radicans*, *Parthenocissus quinquefolia*, *Vitis rotundifolia*, *Uniola latifolia*, *Podophyllum peltatum*, *Polygonatum virginicum*, *Apocynum cannabinum*, *Urtica sp.* Exotics are typical: *Lysimachia sp.*, *Microstegium vimineum*, *Lonicera japonica*. More exposed, heavily scoured shores often support related shrubland with stunted *Betula nigra* and *Platanus occidentalis*. Environmental setting: Sandy, gravely, well-drained soils of levees, gravel bars, braided channels and other areas of frequent flooding. Similar types: for related shrubland see CEGL003896 *Betula nigra* – *Salix* Shrubland (Temporarily Flooded)

LNP Scale: Small patch? **Distribution:** Limited **Ecological group:** Floodplain forest

TNC Ecoregions: 59:C, 61:C

References:

<u>State</u>	<u>SRank</u>	<u>State Name</u>
MD?	SP	
PA	S?	Sycamore - (river birch) – box-elder floodplain forest+
WV?	SP	
NJ?	SP	
NY	S?	

Lower New England - Northern Piedmont Ecoregion (61) Classification 4/2000
(subset revised from the National Vegetation Classification 11/1999 version)

I.B.2.N.d.13 PLATANUS OCCIDENTALIS - (FRAXINUS PENNSYLVANICA, CELTIS LAEVIGATA, ACER SACCHARINUM) TEMPORARILY FLOODED FOREST ALLIANCE (A.288 SCS)

Platanus occidentalis - Fraxinus pennsylvanica Forest (CEGL006036 ECS) — G?

Sycamore - Green Ash Forest

[Riverine Floodplain Forest (Successional/young Type)]

Description: *Platanus occidentalis* floodplain forests of Lower New England – Northern Piedmont (LNE-NP) and Great Lakes (GL) ecoregions. Broadly defined successional or young version of medium-gradient stream floodplain forest [see *Acer saccharinum* - *Populus deltoides* / *Matteuccia struthiopteris* Forest (CEGL006147)]. Closed to somewhat open canopy of hardwoods of which *Acer negundo*, *Juglans cinerea*, and *Platanus occidentalis* are particularly characteristic. Other common species include *Fraxinus americana* or *Fraxinus pensylvanica*, *Populus deltoides*, *Ulmus americana*. The understory is dominated by *Matteuccia struthiopteris* and shares many other species with the *Acer saccharum* - *Matteuccia struthiopteris* community. However, the canopy appears younger, *Acer saccharinum* is not typically present, and there is typically a very high component of disturbance-tolerant exotic species such as *Lysimachia nummularia*, *Glechoma hederacea*, *Hesperis matronalis*, *Aegopodium podagraria*, *Polygonum cuspidatum*, and *Lonicera morrowii*. Common widespread type on variable soils from well-drained, coarse-textured soils to silts and clays. Typically along moderate-gradient, medium-energy rivers. Related to CEGL006114 (may be considered an early successional stage of 6114). Closely related to proposed new type CEGL006901 (*Platanus occidentalis* – *Fraxinus pensylvanica* – *Ulmus americana* / *Cornus sericea* / *Scutellaria lateriflora* Forest) of the temporarily flooded zone around limestone sinkhole ponds.

LNP Scale: Small or large patch? (linear) **Distribution:** Widespread? **Ecological group:** Floodplain forest

LNP Comments: Need more data to define associations.

TNC Ecoregions: 58:?, 61:C, 63:C

References:

<u>State</u>	<u>SRank</u>	<u>State Name</u>
CT	S?	
DE	S?	
MD?	SP	
NY	S?	
PA?	SP	
RI	S?	
NJ	S?	

I.B.2.N.d.300 QUERCUS BICOLOR - ACER RUBRUM TEMPORARILY FLOODED FOREST ALLIANCE (A.3004 ECS)

Quercus bicolor - Acer rubrum / Carpinus caroliniana Forest (CEGL006386 ECS) — G?

Swamp White Oak - Red Maple / Musclewood Forest

[Swamp White Oak Floodplain Forest]

Description: Swamp white oak floodplain forest of lower floodplains and terraces. Sediments are silty and of marine or recent origin. Characteristic canopy species are *Quercus bicolor*, *Acer rubrum* with an understory of *Carpinus caroliniana*. The shrub layer is characterized by *Viburnum recognitum*, *Ilex verticillata*, *Viburnum lentago*, *Toxicodendron radicans*. The lower floodplain is more poorly drained and characterized by *Carex stricta*, *Carex crinita*, *Iris versicolor*, *Lysimachia terrestris*, while the drier terrace is characterized by *Athyrium filix-femina*, *Solidago rugosa*. This association was described from the coastal lowlands region of New Hampshire but may occur elsewhere. Similar types: *Quercus bicolor* variant of *Quercus palustris* - *Acer rubrum* / *Osmunda cinnamomea* Forest CEGL006240; possible merge into one type.

LNP Scale: Small patch **Distribution:** Limited or restricted* **Ecological group:** Floodplain forest

LNP Comments: Mostly coastal. *Classification may be too fine scale; states currently consider as variant of CEGL006176 or CEGL006240 but need more data to define.

TNC Ecoregions: 61:C, 62:C

References: Kearsley 1998, Sperduto 1997

<u>State</u>	<u>SRank</u>	<u>State Name</u>
MA	S?	Alluvial Red Maple Swamp+
NH	S?	Swamp white oak floodplain forest

Lower New England - Northern Piedmont Ecoregion (61) Classification 4/2000
(subset revised from the National Vegetation Classification 11/1999 version)

NY? SP (possibly part of Red maple – hardwood swamp)

**I.B.2.N.d.26 QUERCUS PALUSTRIS - ACER RUBRUM TEMPORARILY FLOODED FOREST ALLIANCE
(A.301 ECS)**

Quercus palustris - Acer rubrum / Carex grayi - Geum canadense Forest (CEGL006185 ECS) — G?

Pin Oak - Red Maple / Gray's Sedge - Canada Avens Forest

Description: Freely drained floodplain forest of smaller rivers. Dominated by *Quercus palustris* and *Acer rubrum*. Characteristic species include *Cinna arundinacea*, *Carex lurida*, *Carex crinita*, *Carex intumescens*, *Carex lupulina*, *Polygonum virginianum* (= *Tovara virginiana*), *Onoclea sensibilis*. May be variant of *Quercus palustris* - *Acer rubrum* / *Osmunda cinnamomea* [Seasonally Flooded] Forest CEGL006240 (see below).

LNP Scale: Small patch **Distribution:** Restricted (but classification may be too finely split)

Ecological group: Floodplain forest

LNP Comments: Possible in LNE-NP in PA, NH, NJ.

TNC Ecoregions: 61:C

References: Kearsley 1999

<u>State</u>	<u>SRank</u>	<u>State Name</u>
CT	S?	
MA	S?	Small River Floodplain Forest+
NH	S?	
RI	S?	
NY	S?	Floodplain forest +

I.B.2.N.e Seasonally flooded cold-deciduous forest

**I.B.2.N.e.1 ACER RUBRUM - FRAXINUS PENNSYLVANICA SEASONALLY FLOODED FOREST ALLIANCE
(A.316 MCS)**

**Acer rubrum - Fraxinus (pennsylvanica, americana) / Lindera benzoin / Symplocarpus foetidus Forest
(CEGL006406 ECS) — G4G5**

Red Maple - (Green Ash, White Ash) / Spicebush / Skunk Cabbage Forest
[Red Maple Swamp]

Description: Seasonally flooded red maple swamp influenced by overland flow as well as groundwater seepage. In general, these swamps are acidic and have some seepage indicators, but are not particularly species rich. *Acer rubrum* dominates the canopy; *Fraxinus pennsylvanica* or *Fraxinus americana* are usually also found in the canopy and *Acer saccharinum* may be present. *Fraxinus nigra* is not generally associated with this type, and if present, usually occurs only as scattered individuals. The shrub layer may be fairly open to quite dense, depending on the amount of canopy closure. Shrubs include *Vaccinium corymbosum*, *Rhododendron viscosum*, *Clethra alnifolia*, *Lindera benzoin*, and *Ilex verticillata*, *Viburnum recognitum*, *Cornus amomum*, *Alnus sp.* Vines include *Parthenocissus quinquefolius* and *Toxicodendron radicans*. The herbs *Symplocarpus foetidus* and *Osmunda cinnamomea* are nearly always present. Other herbaceous species are *Impatiens capensis*, *Carex stricta*, *Veratrum viride*, *Osmunda regalis*, *Onoclea sensibilis* and *Boehmeria cylindrica*. Abundance of ferns is characteristic. *Sphagnum* mosses are common on hummocks, but do not in general form extensive carpets. Environmental setting: They may occur on slightly sloping hillsides, along small streams, or in basins that receive overland flooding in addition to groundwater influence. Soils are shallow to moderately deep mucks over mineral soils, acidic to approaching circumneutral. Also occurs in traprock areas. Similar types: *Acer rubrum* - *Nyssa sylvatica* - *Betula alleghaniensis* / *Sphagnum* spp. Forest CEGL006014 (basin swamp) and *Acer rubrum* - *Fraxinus nigra* / *Nemopanthus mucronata* - *Vaccinium corymbosum* Forest CEGL006220

LNP Scale: Large patch? **Distribution:** Limited to widespread

LNP Comments: This is one of the most common red maple swamp types in LNE-NP. Commonly referred to as Acidic Seepage Swamp. May include NY's *Fraxinus nigra* "basin" which have some seepage but are not calcareous; may fit in 6220. PA – present in state but missing from 1999 classification. MA – e.g. Schenob Brook.

TNC Ecoregions: 58:P, 61:C, 62:C

References: Breden 1989, Enser n.d., Golet et al. 1993, Kearsley 1998, Maine Natural Heritage Program 1991, Metzler and Barrett 1996, Reschke 1990, Thompson and Sorenson 2000

<u>State</u>	<u>SRank</u>	<u>State Name</u>
--------------	--------------	-------------------

**Lower New England - Northern Piedmont Ecoregion (61) Classification 4/2000
(subset revised from the National Vegetation Classification 11/1999 version)**

CT	S?	<i>Acer rubrum</i> / <i>Lindera benzoin</i> community
MA	S2	Alluvial Red Maple Swamp+
MD	S?	(Piedmont seepage forest MD6801?)
ME	S?	Hardwood seepage forest+
NH	S?	Red maple / sensitive fern - tussock sedge basin / seepage swamp; <i>Acer rubrum</i> / <i>Symplocarpus foetidus</i> - <i>Veratrum viride</i> community+
NJ		S5 Inland red maple swamp+
NY	S4S5	Red maple - hardwood swamp+
RI	S?	Red maple - deciduous shrub association+
PA	S?	
VT	S3	Red or silver maple – green ash swamp

I.B.2.N.e.6 LIQUIDAMBAR STYRACIFLUA - (ACER RUBRUM) SEASONALLY FLOODED FOREST ALLIANCE (A.321 SCS)

Liquidambar styraciflua - Acer rubrum - Quercus phellos / Leucothoe racemosa Forest (CEGL006110 ECS) G?

Sweetgum - Red Maple - Willow Oak / Swamp Fetterbush Forest

[Red Maple - Sweetgum Swamp]

Description: Forested wetlands of seasonally flooded Coastal Plain pond margins. This association is a seasonally flooded forest of shallow basins and other depressions of mineral soils, generally acidic gleyed to mottled sandy or clay loams. Characteristic species include *Acer rubrum*, *Liquidambar styraciflua*, and *Nyssa sylvatica*, which are nearly constant in the canopy. Associates include *Ilex opaca*, *Magnolia virginiana*, *Sassafras albidum*, *Quercus palustris*, *Pinus taeda*, and *Quercus phellos*. The shrub layer is characterized by *Leucothoe racemosa*, *Vaccinium corymbosum*, *Clethra alnifolia*, and *Rhododendron viscosum*. *Smilax rotundifolia* is a particularly characteristic vine. The herbaceous layer is generally sparse but may include *Mitchella repens*, *Osmunda cinnamomea*, *Woodwardia areolata*, *Onoclea sensibilis*, and *Polygonum* spp. The *Leucothoe racemosa* communities of Tyndall et al. (1990) are likely synonymous with this community. In NJ (e.g. at Great Swamp) occurs in association with *Acer rubrum* - *Nyssa sylvatica* / *Rhododendron viscosum* - *Clethra alnifolia* Forest CEGL006156.

LNP Scale: Small patch **Distribution:** Peripheral

LNP Comments: Small occurrences in LNE-NP in NY and NJ (Great Swamp-NJ)

TNC Ecoregions: 52:?, 58:C, 61:C, 62:C

References: Breden 1989, Clancy 1996, Hunt 1998, Sneddon and Anderson 1994, Sneddon et al. 1996, Tyndall et al. 1990

<u>State</u>	<u>SRank</u>	<u>State Name</u>
DE	S?	<i>Acer rubrum</i> - <i>Liquidambar styraciflua</i> - <i>Nyssa sylvatica</i> Swamp Forest Variant+
MD	S?	
NJ		S3S4 Liquidambar / Acer swamp
NY	S1S2	Red maple - sweetgum swamp=
PA?	SP	
VAS?		

I.B.2.N.e.14 QUERCUS PALUSTRIS - (QUERCUS BICOLOR) SEASONALLY FLOODED FOREST ALLIANCE (A.329 MCS)

Quercus bicolor / Vaccinium corymbosum / Carex stipata Forest (CEGL006241 ECS) — G?

Swamp White Oak / Highbush Blueberry / Stalkgrain Sedge Forest

[Perched Swamp White Oak Swamp]

Description: Swamp white oak swamp of seasonally flooded flats and shallow depressions. The dominant tree is *Quercus bicolor*, which varies from nearly pure, open canopy dominance in areas that are more permanently saturated to more closed in seasonally dry areas. The canopy may include *Acer rubrum*, *Pinus rigida*, *Pinus strobus*, *Quercus alba*, and *Quercus coccinea*. The shrub layer is fairly open, with scattered *Gaylussacia baccata*, *Rhododendron periclymenoides*, *Vaccinium corymbosum*, and *Viburnum recognitum*. The herbaceous and moss layers may be sparse under more closed canopy or more extensive in saturated, open canopy, where *Sphagnum* spp. may form extensive carpets mixed with *Carex stipata*, *Glyceria striata*, *Scirpus cyperinus*, *Thelypteris palustris*, *Boehmeria cylindrica*, *Osmunda cinnamomea* and *Toxicodendron radicans*. Environmental setting: seasonally flooded flats, edges of vernal pools/ponds or shallow depressions on hillsides where the water table is locally

**Lower New England - Northern Piedmont Ecoregion (61) Classification 4/2000
(subset revised from the National Vegetation Classification 11/1999 version)**

perched above the surrounding groundwater level. Typically, flooded in spring and nearly dry by late summer.

LNP Scale: Small patch **Distribution:** Widespread

LNP Comments: Described in Great Lakes ecoregion and occurs in LNP and North Atlantic Coast ecoregion.

TNC Ecoregions: 48:C, 60:C, 61:C, 62:C

References: Metzler and Barrett 1996, Reschke 1990, Sperduto 1997

<u>State</u>	<u>SRank</u>	<u>State Name</u>
CT	S?	<i>Acer rubrum</i> / <i>Onoclea sensibilis</i> community+
MA?	SP	
NH	S?	Swamp white oak basin swamp
NY	S1S2	Perched swamp white oak swamp

Quercus palustris - Acer rubrum / Osmunda cinnamomea Forest (CEGL006240 ECS) — G?

Pin Oak - Red Maple / Cinnamon Fern Forest

Description: Seasonally flooded pin oak community. 12/98 CAP Closed to partially open, deciduous, seasonally flooded, forest dominated by *Quercus bicolor* and/or *Quercus palustris* and *Acer rubrum*. Associates: *Liquidambar styraciflua* (to south), *Quercus alba*, *Carya ovata*, *Nyssa sylvatica*. Sparse shrub layer: *Ilex verticillata*, *Vaccinium corymbosum*, *Alnus serrulata*, *Cephalanthus occidentalis*. Sparse herb layer: *Dirca palustris*, *Scirpus cyperinus*, *Thelypteris palustris*, *Thelypteris simulata*, *Carex frankii*, *Glyceria striata*, *Isoetes spp.*, *Carex crinita*, *Onoclea sensibilis*, *Osmunda regalis*. Environmental setting: Seasonally wet (winter and early spring) with a shallow, perched water table. Tend to be dry in late summer and early fall. May receive groundwater seepage. Loamy sand, or clayey alluvium, muck, or peat. Similar types: Possible merge of CEGL006386 (above) into revised CEGL006240 renamed to *Quercus (palustris, bicolor) – Acer rubrum / Osmunda cinnamomea* Forest but need more data. Also see *Quercus palustris - Acer rubrum / Carex grayi - Geum canadense* Forest (Temporarily Flooded) CEGL006185.

LNP Scale: Small patch **Distribution:** Limited?

TNC Ecoregions: 59:C, 61:C

References:

<u>State</u>	<u>SRank</u>	<u>State Name</u>
CT	S?	
MA	S?	
MD	SP	
NY	S?	Red maple-hardwood swamp+
PA	S?	Bottomland oak-hardwood forest

I.B.2.N.g Saturated cold-deciduous forest

I.B.2.N.g.2 ACER RUBRUM - NYSSA SYLVATICA SATURATED FOREST ALLIANCE (A.348 ECS)

Acer rubrum - (Chamaecyparis thyoides) / Rhododendron maximum Forest (CEGL006396 ECS) G?

Red Maple - (Atlantic White-cedar) / Great Rhododendron Forest

[Red Maple - Rhododendron Swamp]

Description: Red maple swamp of southern New England. *Acer rubrum* dominates the canopy; *Chamaecyparis thyoides* may occur in low abundance and cover. The understory is dominated by *Rhododendron maximum*. Other shrubs that may occur include *Rhododendron viscosum*, *Vaccinium corymbosum*. The herbaceous layer is poorly developed as a result of the thick evergreen shrub layer; herbs that may occur include *Carex folliculata*, *Cornus canadensis*, *Gaultheria hispidula* (uncommon). At least some occurrences have been altered from their original composition by the heavy logging of *Chamaecyparis thyoides*. Similar types: for coniferous type see CEGL006355 *Chamaecyparis thyoides / Rhododendron maximum* Forest.

LNP Scale: Large patch **Distribution:** Limited

LNP Comments: Uncertain whether red maple has come back as a result of past logging of Atlantic white cedar swamps or if this was the natural composition of these swamps prior to logging.

TNC Ecoregions: 61:C, 62:C

References: Enser n.d., Golet et al. 1993

<u>State</u>	<u>SRank</u>	<u>State Name</u>
CT?	SP	
RI	S?	Red maple - Rhododendron maximum association=

**Lower New England - Northern Piedmont Ecoregion (61) Classification 4/2000
(subset revised from the National Vegetation Classification 11/1999 version)**

Acer rubrum - Nyssa sylvatica - Betula alleghaniensis / Sphagnum spp. Forest (CEGL006014 ECS) — G?

Red Maple - Blackgum - Yellow Birch / Peatmoss species Forest

[Red Maple - Black Gum Basin Swamp]

Description: Acidic basin swamp of Lower New England / Northern Piedmont, High Allegheny, characterized by dominance of *Acer rubrum* and *Nyssa sylvatica* with *Betula alleghaniensis*, and low abundance of *Tsuga canadensis* and occasionally *Picea rubens*. Shrubs include *Viburnum nudum* var. *cassinoides*, *Vaccinium corymbosum*, *Nemopanthus mucronata* and occasionally *Kalmia latifolia*. Associated herbs: *Coptis trifolia*, *Carex trisperma*, *Osmunda cinnamomea*, *Sphagnum magellanicum*, *Sphagnum palustre*. May occur at edge of or as patches within basin swamps dominated by CEGL006406. Similar types: If *Tsuga* comprises 30-75% cover, see *Tsuga canadensis* – *Betula alleghaniensis* / *Ilex verticillata* / *Sphagnum* Forest CEGL006226. In contrast to *Acer rubrum* – *Nyssa sylvatica* / *Rhododendron viscosum* – *Clethra alnifolia* Forest CEGL006156, CEGL00614 is characterized by presence of *Betula alleghaniensis*, *Tsuga canadensis*, *Picea rubens*, *Nemopanthus mucronata* and Less prevalence of more coastal or southerly species such as *Clethra alnifolia*, *Ilex glabra* and *Rhododendron viscosum*; can be difficult to differentiate the two types.

LNP Scale: Small patch **Distribution:** Widespread

TNC Ecoregions: 60:C, 61:C, 62:C, 63:C

References: Cain and Penfound 1938, Sperduto 1997, Thompson and Sorenson 2000, Vogelmann 1976, Zebryk 1990

<u>State</u>	<u>SRank</u>	<u>State Name</u>
MA	S2	Black Gum Swamp
MD?	SP	
ME	S2	Hemlock – hardwood pocket swamp community swamp
NH	S?	Black gum - red maple basin swamp
NY	S4	Red maple – blackgum swamp+
PA	S?	Red maple – black-gum palustrine forest+
VT	S1	Red maple - Black gum swamp

Acer rubrum - Nyssa sylvatica - Magnolia virginiana Forest (CEGL006238 ECS) — G3?

Red Maple - Blackgum - Sweetbay Forest

[Southern Red Maple - Black Gum Swamp Forest]

Description: This community is a nutrient-poor wetland forest occurring in poorly drained depressions. Soils are typically moderately deep to deep muck over mineral soil, with pools of standing water at the surface. Water pH is acidic. This community is characterized by *Acer rubrum* and *Nyssa sylvatica* in the canopy, which may be quite open in some examples. Canopy associates include *Magnolia virginiana*, *Liquidambar styraciflua*, and *Persea palustris*. The shrub layer is characterized by *Vaccinium formosum*, as well as *Clethra alnifolia*, *Ilex verticillata*, and *Rhododendron viscosum*. The herbaceous layer is generally poorly developed and may include *Symplocarpus foetidus*, *Triadenum virginicum*, *Lythrum lineare*, *Osmunda regalis* var. *spectabilis*, *Woodwardia areolata*, and *Osmunda cinnamomea*. *Sphagnum* spp. and other mosses are common. Occurs primarily on the coastal plain in New Jersey, Pennsylvania, Delaware, Maryland, and northern Virginia and less frequently on the Piedmont.

LNP Scale: Small patch **Distribution:** Peripheral

LNP Comments: In LNP in PA (Chester & Lancaster Co) and possibly in MD and NY.

TNC Ecoregions: 58:C, 61:C, 62:C

References: Breden 1989, Ehrenfeld and Gulick 1981, Fike 1999, Harvill 1967, Heckscher 1994, Hill 1986, McCormick 1979, Robichaud and Buell 1973, Sipple and Klockner 1984, Windisch 1995

<u>State</u>	<u>SRank</u>	<u>State Name</u>
DE	S?	<i>Acer rubrum</i> - <i>Liquidambar styraciflua</i> - <i>Nyssa sylvatica</i> Swamp forest variant+
MD	S?	
NJ		S4 Pine barren hardwood swamp
NY	S4S5	Red maple - hardwood swamp+
PA	S?	Red maple – magnolia Coastal Plain palustrine forest+
VAS?		

Acer rubrum - Nyssa sylvatica / Rhododendron viscosum - Clethra alnifolia Forest (CEGL006156 ECS) — G?

Red Maple - Blackgum / Swamp Azalea - Coastal Sweet-pepperbush Forest

[Lower New England Red Maple - Black Gum Swamp]

Description: Red maple swamp of poorly drained depressions characterized by acidic, tannic water that does not receive substantial nutrient input from overland flow. Core of distribution is Lower New England / Northern Piedmont

**Lower New England - Northern Piedmont Ecoregion (61) Classification 4/2000
(subset revised from the National Vegetation Classification 11/1999 version)**

and North Atlantic Coast. *Acer rubrum*, *Nyssa sylvatica* are canopy dominants (except in northern states where *Nyssa* drops out). The shrub layer is characterized by *Vaccinium corymbosum*, *Clethra alnifolia*, *Ilex verticillata*, *Rhododendron viscosum*, *Leucothoe racemosa*, and on the Atlantic and coastal plains, *Ilex glabra* may also be present. The herbaceous layer is not particularly diverse, characterized by *Osmunda cinnamomea*, *Symplocarpus foetidus*, *Carex intumescens*, *Osmunda regalis*, and *Onoclea sensibilis*. Hummock - hollow microtopography is evident, and *Sphagnum* mosses make up the bryophyte layer. This community is differentiated from *Acer rubrum* - *Nyssa sylvatica* - *Betula alleghaniensis* / *Sphagnum* spp. association (CEGL006014) by the absence or infrequent occurrence of *Tsuga canadensis*, *Betula alleghaniensis*, *Nemopanthus mucronata*, *Carex trisperma*, *Clintonia borealis*, and by the presence of species with more southern affinities such as *Clethra alnifolia*, *Ilex glabra*, *Rhododendron viscosum*.

LNP Scale: Large patch **Distribution:** Limited?

TNC Ecoregions: 61:C, 62:C

References: Breden 1989, Golet et al. 1993, Metzler and Barrett 1996, Reschke 1990

<u>State</u>	<u>SRank</u>	<u>State Name</u>
CT	S?	<i>Acer rubrum</i> - <i>Nyssa sylvatica</i> / <i>Clethra alnifolia</i> community=
MA	S2	Black gum swamp+
NH?	SP	
NJ		S3S4 Inland red maple swamp+
NY	S4S5	Red maple - blackgum swamp+
PA	S?	Red maple - black gum palustrine forest+
RI	S?	Red maple - deciduous shrub association+

I.B.2.N.g.1 FRAXINUS NIGRA - ACER RUBRUM SATURATED FOREST ALLIANCE (A.347 MCS)

***Acer rubrum* - *Fraxinus nigra* / *Nemopanthus mucronata* - *Vaccinium corymbosum* Forest (CEGL006220 ECS)G?**

Red Maple - Black Ash / Mountain-holly - Highbush Blueberry Forest

[Northern Hardwood Seepage Swamp]

Description: Deciduous seepage swamp. Hardwood swamps on mineral/muck soils generally dominated by red maple, with small components of conifers. Closed deciduous canopy characteristically dominated by *Acer rubrum* with associates of *Fraxinus nigra*, *Betula alleghaniensis*, *Ulmus americana*, *Ulmus rubra*, *Tsuga canadensis*, and *Picea rubens*. A shrub understory is often well developed, with characteristic species including *Lindera benzoin*, *Ilex verticillata*, *Nemopanthus mucronata*, *Viburnum nudum* var. *cassinoides*, *Viburnum recognitum*, and *Vaccinium corymbosum*. Herb layer is often fern-dominated. Characteristic species include *Osmunda cinnamomea*, *Osmunda regalis*, *Onoclea sensibilis*. Characteristic herbs include *Symplocarpus foetidus*, *Impatiens capensis*, *Scutellaria galericulata*, *Saxifraga pensylvanica*, *Carex intumescens*, *Carex lacustris*. Poorly drained depressions with mineral soils but may be somewhat peat accumulating, water regime unclear, probably flooded by groundwater or overland flow for a small part of the growing season; water somewhat enriched. Similar types: *Acer rubrum* - *Fraxinus* (*pensylvanica*, *americana*) *Lindera benzoin* / *Symplocarpus foetidus* Forest CEGL006406. Not as rich as CEGL006009 or CEGL007441 below.

LNP Scale: Small to large patch **Distribution:** Limited?

TNC Ecoregions: 61:C, 62:C, 63:C

References: Golet et al. 1993, Maine Natural Heritage Program 1991, Reschke 1990, Sperduto 1997, Thompson and Sorenson 2000

<u>State</u>	<u>SRank</u>	<u>State Name</u>
MA	S?	Black Ash Swamp+
ME	S3?	Hardwood seepage forest+, Red maple swamp, in part
NH	S?	Red maple - black ash / swamp saxifrage seepage swamp=, Hardwood-conifer basin swamp
NY	S4S5	Red Maple - Hardwood Swamp+
VT	S4	Red maple - Black ash swamp+

***Fraxinus nigra* - *Acer rubrum* - (*Larix laricina*) / *Rhamnus alnifolia* Forest (CEGL006009 ECS) — G?**

Black Ash - Red Maple - (Tamarack) / American Alder-buckthorn Forest

[Rich Red Maple - Black Ash Swamp]

Description: Calcareous or circumneutral seepage swamp of Lower New England - Northern Piedmont (LNE-NP), Central Appalachians (CAP) and High Allegheny (HAL) ecoregions. Dominated by *Acer rubrum* and *Fraxinus nigra*. Associates include *Betula alleghaniensis*, *Larix laricina*, *Ulmus rubra*, *Ulmus americana* and *Pinus strobus*. Patchy

**Lower New England - Northern Piedmont Ecoregion (61) Classification 4/2000
(subset revised from the National Vegetation Classification 11/1999 version)**

understory, ranging from shrub-dominated to sedge meadows. Shrubs: *Lindera benzoin*, *Toxicodendron vernix*, *Alnus incana*, *Salix spp.*, and *Rhamnus alnifolia*. Diverse herb indicative of groundwater seepage include *Saxifraga pensylvanica*, *Cardamine bulbosa*, *Geum rivale*, *Symplocarpus foetidus*; *Veratrum viride*. Other associates are *Carex leptalea*, *Carex bromoides*, *Caltha palustris*, *Platanthera grandiflora*, *Osmunda cinnamomea*, *Impatiens capensis*, *Dryopteris cristata*, *Carex lacustris* and more calciphilic herbs such as *Cypripedium reginae*, *Cypripedium calceolus*, *Trollius laxus*. Environmental setting: Poorly drained depressions (narrow zones to small inclusions to large swamps), seepage zones at the base of river terraces with muck soils. Generally not substantial peat development. Often occurs in areas of calcareous bedrock. Similar types: *Acer rubrum* – *Larix laricina* Woodland CEG006188 and *Acer rubrum* - *Fraxinus (pensylvanica, americana)* / *Lindera benzoin* / *Symplocarpus foetidus* Forest CEG006406.

LNP Scale: Small patch (large patch?) **Distribution:** Widespread

TNC Ecoregions: 59:C, 61:C, 62:C, 63:C

References: Thompson and Sorenson 2000

<u>State</u>	<u>SRank</u>	<u>State Name</u>
CT	S?	
MA	S2	Black Ash – Red Maple – Tamarack Calcareous Seepage Swamp
NH	S1	Calcareous/circumneutral hardwood seepage swamp
NJ		S? Calcareous seepage swamp
NY	S?	Red maple-tamarack peat swamp
PA	S?	
RI	S?	
VT	S2	Calcareous tamarack -red maple swamp

I.C.3.N.a Mixed needle-leaved evergreen - cold-deciduous forest

I.C.3.N.a.4 PICEA RUBENS - BETULA ALLEGHANIENSIS FOREST ALLIANCE (A.384 ECS)

Picea rubens - Betula alleghaniensis / Dryopteris campyloptera Forest (CEGL006267 ECS) — G?

Red Spruce - Yellow Birch / Mountain Woodfern Forest

[Red Spruce - Hardwoods Forest]

Description: Transitional hardwood - spruce forest of Northern Appalachians (NAP) and Lower New England-Northern Piedmont (LNE-NP) ecoregions. Closed-canopy forests co-dominated by *Acer saccharum*, *Fagus grandifolia* and conifers *Picea rubens* and/or *Abies balsamea* (total conifer cover less than 75%). Other canopy associates include *Betula alleghaniensis*, *Betula papyrifera*, *Acer rubrum*, *Fraxinus pensylvanica*. Shrub and herbaceous layers contain species common to both northern hardwood and spruce fir forests. Characteristic shrubs include *Sorbus americana*, *Sorbus decora*, *Acer pensylvanicum*, *Acer spicatum*, and *Viburnum alnifolium*. Characteristic herbs include *Dryopteris intermedia*, *Dryopteris campyloptera*, *Clintonia borealis*, *Coptis trifolia*, *Oxalis montana*, *Linnaea borealis*, *Maianthemum canadense*, *Trientalis borealis* and *Aralia nudicaulis*. Mid elevations between 2000-2500 feet, these forests form a transitional zone between northern hardwood forests and montane spruce-fir. Occurring on shallow, rocky, nutrient-poor till soils. Similar types: see CEG006373 for related coniferous forest and CEG006252 for related deciduous forest type.

LNP Scale: Large patch **Distribution:** Limited

TNC Ecoregions: 61:C, 63:C

References: Thompson and Sorenson 2000

<u>State</u>	<u>SRank</u>	<u>State Name</u>
MA	S?	Spruce – Fir Northern Hardwood Forest+
ME	S5	beech-birch-maple+ and mixed hardwood-conifer forest+
NH	S4	Northern hardwood-spruce fir
NY	S?	spruce-northern hardwoods
VT	S3	Montane yellow birch – red spruce forest

I.C.3.N.a.35 PINUS (RIGIDA, ECHINATA) - QUERCUS COCCINEA FOREST ALLIANCE (A.415 ECS)

Pinus rigida - Quercus coccinea / Vaccinium pallidum - (Myrica pensylvanica) Forest (CEGL006381 ECS) — G?

Pitch Pine - Scarlet Oak / Bayberry Forest

[Pitch pine - Oak Forest]

Description: Matrix forest type of North Atlantic Coast ecoregion (e.g. central pine barrens of Long Island, New York,

**Lower New England - Northern Piedmont Ecoregion (61) Classification 4/2000
(subset revised from the National Vegetation Classification 11/1999 version)**

and possibly elsewhere.) and large patch forest in Lower New England – Northern Piedmont ecoregion. Canopy species include *Pinus rigida*, *Quercus coccinea*, *Quercus velutina*, *Quercus alba*. *Quercus ilicifolia*, *Vaccinium pallidum*, *Myrica pensylvanica* form a shrub layer, and the sparse herb layer is characterized by *Pteridium aquilinum* and *Carex pensylvanica*. Grades into *Pinus rigida* – *Quercus (coccinea, velutina)* / *Schizachyrium scoparium* Woodland CEGLO06166. Environmental setting: Sandy soils of glacial outwash and till.

LNP Scale: Small to Large patch **Distribution:** Limited

TNC Ecoregions: 61:C, 62:C

References: Breden 1989, Reschke 1990, Windisch 1995

<u>State</u>	<u>SRank</u>	<u>State Name</u>
CT	S?	
MA?	SP	
NJ		S4 Dry Pine - Oak Forest+
NY	S4	Pitch pine - oak forest, var. oak - pitch pine forest
RI	S?	Pitch pine – oak forest

I.C.3.N.a.36 PINUS RIGIDA - QUERCUS (VELUTINA, PRINUS) FOREST ALLIANCE (A.416 ECS)

Pinus rigida – Quercus (velutina, prinus) Lower New England, Northern Piedmont Forest (CEGL006290 ECS) G?
[LNP suggested name: **Pinus rigida - Quercus (velutina, coccinea, prinus) Forest**]

Pitch Pine - (Black Oak, Rock Chestnut Oak) Lower New England, Northern Piedmont Forest

Description: Dry oak-pine forest co-dominated by *Pinus rigida* and several oak species including *Quercus velutina*, *Quercus coccinea*, *Quercus alba* and *Quercus prinus* and an understory of ericaceous species. Canopy associates include *Pinus strobus*, and less frequently *Quercus rubra*, *Pinus resinosa* (to the north) or *Pinus virginiana* (to the south). The shrub layer tends to be fairly open with *Quercus ilicifolia*, *Kalmia latifolia*, *Gaylussacia baccata*, *Vaccinium angustifolium* and *Vaccinium pallidum*. Typical herbs include *Aralia nudicaulis*, *Pteridium aquilinum*, *Gaultheria procumbens*, *Comptonia peregrina*, *Carex pensylvanica* and *Carex communis*. *Lespedeza capitata*, *Desmodium* spp., *Solidago odora* are associates as well. Grades into *Pinus rigida* – *Quercus (coccinea, velutina)* / *Schizachyrium scoparium* Woodland CEGLO06166. Environmental Setting: This association occurs on well-drained to droughty soils of glacial outwash or till and on shallow soils on ridges and south-facing slopes.

LNP Scale: Matrix **Distribution:** Widespread?

TNC Ecoregions: 49:C, 59:C, 61:C, 62:C

References:

<u>State</u>	<u>SRank</u>	<u>State Name</u>
CT	S?	
MA	S?	Pitch Pine – Oak Forest+
ME	S3	Pitch Pine Woodland+
NH	S?	
NY	S?	Pitch pine – oak forest+ or Appalachian oak – pine forest+
ON	S?	Dry Pitch Pine - Oak Mixed Forest Type =
PA	S?	Pitch pine – mixed oak forest+
RI	S?	Pitch pine – oak forest

I.C.3.N.a.21 PINUS STROBUS - QUERCUS (ALBA, RUBRA, VELUTINA) FOREST ALLIANCE (A.401)

Pinus strobus - Quercus (rubra, velutina) - Fagus grandifolia Forest (CEGL006293 ECS) — G5

White Pine - (Red Oak, Black Oak) - American Beech Forest

[White Pine - Oak Forest]

Description: White pine - oak forest of Northeast; acidic, nutrient-poor soils, ericaceous shrub layer sparse to prominent; includes much second-growth. Differential spp.: *Fagus grandifolia* and *Betula papyrifera* often present. Closed-canopy mixed forest dominated by *Pinus strobus* (canopy and supercanopy), *Quercus alba*, *Quercus rubra*, *Quercus velutina*, and *Fagus grandifolia*. Other associates: *Acer rubrum*, *Carya alba*, *Populus tremuloides*, *Tsuga canadensis*, *Quercus prinus* and *Quercus coccinea* (to the south). Variable subcanopy: *Carpinus caroliniana*, *Cornus florida*, *Hamamelis virginiana*, *Oxydendrum arboreum* (to south), *Nyssa sylvatica*. Sparse to well-developed, generally ericaceous shrub layer: *Gaylussacia* spp., *Kalmia latifolia*, *Rubus* spp., *Vaccinium* spp., *Corylus americana*, *Gaultheria procumbens*, *Sassafras albidum*, *Viburnum prunifolium*. Sparse to moderate herb layer: *Ageratina*

**Lower New England - Northern Piedmont Ecoregion (61) Classification 4/2000
(subset revised from the National Vegetation Classification 11/1999 version)**

altissima, Amphicarpaea bracteata, Aralia nudicaulis, Brachyelytrum erectum, Carex communis, Carex platyphylla, Carex woodii, Carex pensylvanica, Carex lucorum, Carex debilis, Chimaphila maculata, Desmodium nudiflorum, Galium latifolium, Galium circaezans, Gaultheria procumbens, Geranium maculatum, Goodyera pubescens, Hieracium venosum, Houstonia purpurea, Maianthemum racemosum, Maianthemum canadense, Medeola virginiana, Melampyrum lineare, Mitchellia repens, Monotropa uniflora, Poa cuspidata, Polygonatum biflorum, Polystichum acrostichoides, Pteridium aquilinum, Trientalis borealis, Viola hastata. Grades into oak-hickory or red oak-sugar maple forest. Environmental setting: Dry-mesic to mesic forests on acidic, nutrient-poor, sandy loam to sandy soil. Outwash plains or moraines, mid and lower slopes, protected ravines, and protected ridges of shale, sandstone, or other sedimentary rock. Not limited to glaciated areas. Lower elevations (below 3000 feet).

LNP Scale: Matrix **Distribution:** Widespread

TNC Ecoregions: 59:C, 61:C, 62:C, 63:C

References: Enser n.d., Maine Natural Heritage Program 1991, Metzler and Barrett 1996, Reschke 1990, Spurduto 1997, Thompson and Sorenson 2000

<u>State</u>	<u>SRank</u>	<u>State Name</u>
MA	S?	White Pine – Oak Forest+
ME	S4	Oak - pine forest community
NH	S3S4	dry red oak-white pine/heath/bracken fern forest, hemlock-beech-oak-pine forest typic variant
NY	S4	Appalachian oak - pine forest+
PA	S?	Dry white pine (hemlock) -oak forest, in part
RI	S?	Mixed oak - pine forest+
VT	S3	White pine – red oak – black oak forest

I.C.3.N.a.28 PINUS VIRGINIANA - QUERCUS (COCCINEA, PRINUS) FOREST ALLIANCE (A.408 SCS)

Pinus virginiana - Quercus (coccinea, prinus) Forest (CEGL005040 SCS) — G?

Virginia Pine - (Scarlet Oak, Rock Chestnut Oak) Forest

[Virginia Pine - Oak Forest]

Description: This community is found in the eastern United States on exposed clifftops and dry slopes. Soils are non-alkaline and associated with sandstones and conglomerates. Closed-canopy, mixed forests composed primarily of *Pinus virginiana* and *Quercus coccinea* and/or *Quercus prinus*. The tree canopy varies from closed to somewhat open. Common associates include *Pinus echinata*, *Pinus rigida*, *Quercus alba* and *Quercus velutina*. *Castanea dentata* was probably a former member. Other frequent associates include *Acer rubrum*, *Carya glabra*, *Nyssa sylvatica*, *Oxydendrum arboreum* and *Quercus rubra*. Frequent tall shrub and small tree species include *Amelanchier arborea*, *Cornus florida*, *Sassafras albidum* and *Viburnum acerifolium*. Dwarf-shrubs and vines include *Gaultheria procumbens*, *Gaylussacia baccata*, *Kalmia latifolia*, *Smilax glauca*, *Smilax rotundifolia*, *Vaccinium pallidum* and *Vaccinium stamineum*. Herbaceous species are often only scattered and include *Carex pensylvanica*, *Cypripedium acaule*, *Danthonia spicata*, *Desmodium spp.*, *Panicum dichotomum*, and others. Lichens and mosses vary in their prominence, but lichen genera include *Cladina spp.*, *Cladonia spp.*, and moss genera include *Polytrichum*, *Dicranum*, *Catharinea* and *Leucobryum*. Environmental setting: Disturbed areas or harsh dry shale substrates and shallow rocky soils. Upper slopes and ridges

LNP Scale: Small patch (if present in LNP) **Distribution:** Peripheral if present.

LNP Comments: MD & PA have in CAP but uncertain if in LNP.

TNC Ecoregions: 44:P, 59:C, 61:P

References:

<u>State</u>	<u>SRank</u>	<u>State Name</u>
AL?	SP	
GA?	SP	
KY?	SP	
MD?	SP	
PA	S?	Virginia pine-mixed hardwood forest, in part
WV?	SP	

I.C.3.N.a.32 TSUGA CANADENSIS - BETULA ALLEGHANIENSIS FOREST ALLIANCE (A.412 ECS)

Tsuga canadensis - Betula alleghaniensis - Picea rubens / Cornus canadensis Forest (CEGL006129 ECS) — G?

**Lower New England - Northern Piedmont Ecoregion (61) Classification 4/2000
(subset revised from the National Vegetation Classification 11/1999 version)**

Eastern Hemlock - Yellow Birch - Red Spruce / Canadian Bunchberry Forest
[Hemlock - Hardwood Forest]

Description: Mesic hemlock ravine community of cooler climates; occurs in Northern Appalachians (NAP) and northern part of Lower New England – Northern Piedmont (LNE-NP) ecoregion. Mixed forests with strong components of *Tsuga canadensis* and a variable set of associated northern hardwoods such as *Betula alleghaniensis* and *Betula papyrifera*, *Fagus grandifolia*, and *Acer saccharum*. *Picea rubens* is characteristic but may be a minor component. Scattered subcanopy and shrub layer consists of *Acer pensylvanicum*, *Viburnum alnifolium*. Canopy cover is typically dense resulting in low light levels near the forest floor and a correspondingly sparse herb layer. Characteristic species include *Dryopteris intermedia*, *Dryopteris campyloptera*, *Huperzia lucidula*, *Maianthemum canadense*, *Oxalis montana*, and *Trientalis borealis*, *Trillium undulatum*. Forests of moderate elevation (1000-2000 feet) on slopes, ravines, river and kame terraces. Mesic, well-drained tills. See also *Tsuga canadensis* - *Betula alleghaniensis* Lower New England / Northern Piedmont Forest CEGLO06109

LNP Scale: Large patch **Distribution:** Limited

TNC Ecoregions: 61:C, 63:C

References: Thompson and Sorenson 2000

<u>State</u>	<u>SRank</u>	<u>State Name</u>
MA	S4	Hemlock Ravines+
ME	S4	Hemlock slope forest, in part
NH	S?	hemlock-spruce-n.hardwoods or hemlock-beech-hardwoods
NY	S?	hemlock-northern hardwood, (Adirondack (NAP) variant)
VT	S4	Hemlock – northern hardwood forest+

***Tsuga canadensis* - *Betula alleghaniensis* - *Prunus serotina* / *Rhododendron maximum* Forest (CEGL006206 ECS) — G?**

Eastern Hemlock - Yellow Birch - Black Cherry / Great Rhododendron Forest
[Central Appalachian Hemlock - Northern Hardwood Forest]

Description: Hemlock forests of the Alleghenies, generally with *Prunus serotina* as a prominent component. *Rhododendron maximum*, *Sambucus pubens* differentiates this from Lower New England type. 12/98 CAP Closed-canopy, late successional, mixed forests domineered by *Tsuga canadensis* and some combination of *Acer saccharum*, *Betula alleghaniensis*, and *Fagus grandifolia*. Associates: *Acer rubrum*, *Betula lenta*, *Carya spp.*, *Pinus strobus*, *Prunus serotina*, *Quercus alba*, *Quercus rubra*, *Ulmus americana*, *Ostrya virginiana*. Variable shrub layer: *Corylus cornuta*, *Diervilla lonicera*, *Hamamelis virginiana*, *Viburnum lantanoides*, and ericads: *Kalmia latifolia*, *Rhododendron maximum*, *Vaccinium pallidum*. Herbaceous layer: *Anemone quinquefolia*, *Cornus canadensis*, *Dryopteris carthusiana*, *Maianthemum canadense*, *Medeola virginiana*, *Mitchella repens*, *Oxalis montana*, *Trientalis borealis*, *Trillium grandiflorum*, *Trillium erectum*, and *Viola spp.* Environmental setting: Acidic mesic sandy loams and sands. Glacial till or sandstone. Rocky ravines, to occasionally flats or moderately steep slopes of any aspect.

LNP Scale: Small patch **Distribution:** Peripheral

LNP Comments: Within LNP is localized in NJ (maybe near Delaware River and possibly Kittaniny Ridge but likely only as narrow band at edge of wetlands) and possibly in NY.

TNC Ecoregions: 59:C, 61:C

References:

<u>State</u>	<u>SRank</u>	<u>State Name</u>
MD?	SP	
NJ	S?	
NY	S?	
PA	S?	Hemlock/white pine-northern hardwood forest+
VAS?		
WV	S?	

***Tsuga canadensis* - *Betula alleghaniensis* Lower New England / Northern Piedmont Forest (CEGL006109 ECS) — G4?**

LNP Suggested name: *Tsuga canadensis* – *Betula (alleghaniensis, lenta)* Forest

Eastern Hemlock - Yellow Birch Lower New England / Northern Piedmont Forest
[Hemlock - Northern Hardwood Forest]

Description: Upland forest. Mixed hemlock - northern hardwood forests of Lower New England / Northern Piedmont and other northeast ecoregions. *Tsuga canadensis* typically forms at least 50 percent of the canopy but may range from 25-75% cover, and associated hardwoods usually include *Betula alleghaniensis* and/or *Betula lenta*, and *Fagus*

**Lower New England - Northern Piedmont Ecoregion (61) Classification 4/2000
(subset revised from the National Vegetation Classification 11/1999 version)**

grandifolia. Other associates include *Acer saccharum* (to north), and *Quercus* spp. and *Liriodendron tulipifera* (to south). *Picea rubens* also appears in northern examples. This forest is usually described as mesic, but on drier sites, *Fagus grandifolia* and oaks may also be present in quantity, particularly *Quercus rubra*. The shrub layer may be dense to fairly open, and often includes *Viburnum acerifolium*, *Acer pensylvanicum*. Herbs may be sparse, particularly in dense shade, but often include *Medeola virginiana*, *Oxalis montana*, *Mitchella repens*, *Maianthemum canadense*, *Trientalis borealis*, *Huperzia lucidula* (= *Lycopodium lucidulum*), and ferns include *Dryopteris intermedia*, *Dryopteris marginalis*, *Polystichum acrostichoides*, *Thelypteris noveboracensis*. Soils of this community are dry-mesic to mesic and acidic. A limestone variant of this also occurs locally. Similar types: the *Tsuga canadensis* - *Betula alleghaniensis* - *Picea rubens* / *Cornus canadensis* Forest CEG006129 of the Northern Appalachians is differentiated by the prevalence of more typically northern species such as *Picea rubens*, *Oxalis montana*, *Cornus canadensis*.

LNP Scale: Large patch (possible matrix in MA & VT?) **Distribution:** Widespread

LNP Comments: This is a very broadly defined with two variants below which overlap in geographic range and species composition. *Tsuga canadensis* is the dominant in both cases: 1) a more northerly expression with *Betula alleghaniensis*, *Fagus grandifolia*, *Acer saccharum*, *Quercus rubra* and 2) a southerly variant characterized by *Betula lenta*, *Quercus* spp., and a shrub layer with *Kalmia latifolia* and *Vaccinium pallidum*. *Liriodendron tulipifera* and *Rhododendron maximum* are occasional.

TNC Ecoregions: 58:?, 61:C, 62:C, 63:C

References: Breden 1989, Enser n.d., Fike 1999, Maine Natural Heritage Program 1991, Metzler and Barrett 1996, Reschke 1990, Smith 1983, Sperduto 1997, Thompson and Sorenson 2000

<u>State</u>	<u>SRank</u>	<u>State Name</u>
CT	S?	<i>Tsuga canadensis</i> Forests
MA	S4	Northern Hardwood - Hemlock – White Pine Forest+
MD	S?	
ME	S4	Hemlock slope community+
NH	S4	hemlock forest+
NJ		S3S4 Mesic Hemlock - Hardwood Forest
NY	S4	Hemlock - northern hardwood forest+
RI	S?	Hemlock - hardwood forest
VT	S4	Hemlock forest+
PA	S?	Hemlock – tuliptree – birch forest+ and Hemlock (white pine) – northern hardwood forest+

Possible new association: Additional data needed.

A separate **rich hemlock type** is being considered for NJ & possibly NY & CT. Canopy dominated by *Tsuga canadensis* with mixed hardwoods including *Acer saccharum*, *Quercus muehlenbergii*, *Q. rubra*, *Q. alba* and *Betula* spp. Shrubs: *Viburnum acerifolium* and occasionally *Staphylea trifolia*. Herbs: *Polystichum acrostichoides*, *Dryopteris intermedia*, *Dryopteris marginalis*, *Asarum canadense*, *Hepatica americana*. Environmental setting: on limestone and other calcareous or circumneutral substrate.

***Tsuga canadensis* - *Fagus grandifolia* Forest (CEGL006088 ECS) — G4G5**

Eastern Hemlock - American Beech Forest

[Hemlock - Beech Forest]

Description: Dry-mesic nutrient-poor community of Lower New England, Northern Piedmont codominated by *Tsuga canadensis* and *Fagus grandifolia* with smaller percents of *Quercus* spp. and/or *Pinus strobus*. Typical shrubs include *Gaylussacia baccata*, *Vaccinium pallidum* and occasionally *Hamamelis virginiana*. The herb layer is generally sparse and includes *Aralia nudicaulis*, *Mitchella repens*, *Epifagus virginiana*, *Gaultheria procumbens*, *Maianthemum canadense*, *Trientalis borealis*, *Medeola virginiana*. This is a later successional stage than *Pinus strobus* – *Quercus* (*rubra*, *velutina*) – *Fagus grandifolia* Forest CEG006293 and drier than *Tsuga canadensis* – *Betula alleghaniensis* Forest CEG006109. Could be considered a variant of CEG006328 *Pinus strobus* – *Tsuga canadensis* Lower New England – Northern Piedmont Forest.

LNP Scale: Large patch **Distribution:** Limited?

TNC Ecoregions: 61:C, 62:C

References: Maine Natural Heritage Program 1991, Reschke 1990, Sperduto 1997, Thompson and Sorenson 2000

<u>State</u>	<u>SRank</u>	<u>State Name</u>
MA	S4	Northern Hardwoods – Hemlock – White Pine Forest
NH	S5	hemlock-beech-oak-pine forest+
NY	S4	Hemlock - northern hardwood forest+

Lower New England - Northern Piedmont Ecoregion (61) Classification 4/2000
(subset revised from the National Vegetation Classification 11/1999 version)

VT S4 Hemlock – northern hardwood forest+

I.C.3.N.a.33 TSUGA CANADENSIS – LIRIODENDRON TULIPIFERA FOREST ALLIANCE

Quercus rubra – Tsuga canadensis – Liriodendron tulipifera / Hamamelis virginiana Forest [Provisional] (CEGL006566) – G?

Northern Red Oak – Eastern Hemlock – Tuliptree / Witch-hazel Forest [Provisional]

Description: Closed canopy, dry-mesic deciduous forest dominated by a variety of oaks, hickories and conifers. *Tsuga canadensis*, *Liriodendron tulipifera* and *Quercus rubra* characteristic. Associates include *Acer saccharum*, *Fagus grandifolia*, *Quercus alba*, *Quercus velutina*, *Betula lenta*, *Carya alba*, *Fraxinus americana*, *Pinus strobus*. Subcanopy and shrub layer of *Ostrya virginiana*, *Carpinus caroliniana*, *Kalmia latifolia*, *Hamamelis virginiana*, *Amelanchier laevis*, *Viburnum acerifolium*, *Viburnum dentatum*. Herbs typically sparse: *Maianthemum racemosum* (*Smilacina racemosa*), *Gaultheria procumbens*, *Maianthemum canadense*, *Podophyllum peltatum*. Environmental setting: Deep, well-drained loams to silt-loams on northern and eastern slopes mid-slopes and coves.

LNP Scale: Large patch **Distribution:**

TNC Ecoregion: 59:C, 61:C

References: Fike 1999

<u>State</u>	<u>SRank</u>	<u>State Name</u>
MD	S?	
NJ	S?	Mesic hemlock – hardwood forest+
PA	S?	Hemlock – tuliptree – birch forest+

I.C.3.N.c Seasonally flooded mixed needle-leaved evergreen - cold-deciduous forest

I.C.3.N.c.300 CHAMAECYPARIS THYOIDES - ACER RUBRUM SEASONALLY FLOODED FOREST ALLIANCE (A.3008 ECS)

Chamaecyparis thyoides - Acer rubrum / Vaccinium corymbosum / Triadenum virginicum Forest (CEGL006364 ECS) — G?

Atlantic White-cedar - Red Maple / Highbush Blueberry / Virginia Marsh St. John's-wort Forest

[Seasonally Flooded Atlantic White Cedar Forest]

Description: This association is a mixed canopy of *Chamaecyparis thyoides* and hardwoods, most notably *Acer rubrum*. Associated canopy trees may include *Betula alleghaniensis* and *Tsuga canadensis*. The community occurs along watercourses or in basins influenced by spring overland flow carrying nutrients and manifested by a generally diverse herbaceous layer characterized by such species as *Triadenum virginicum*, *Sagittaria* spp., *Iris versicolor*, *Symplocarpus foetidus*, *Spiraea* spp., *Cornus amomum*, *Thelypteris palustris* and *Bidens* spp. The shrub layer, which may be dense, is characterized by *Vaccinium corymbosum*, *Clethra alnifolia*, *Ilex verticillata*, *Nemopanthus mucronata*. This association is known from New Hampshire and Massachusetts and may occur elsewhere

LNP Scale: Small patch **Distribution:** Limited **Ecological Group:** Atlantic white cedar swamp

TNC Ecoregions: 61:C, 62:C

References: Motzkin 1990, Sperduto 1997, Sperduto and Ritter 1994

<u>State</u>	<u>SRank</u>	<u>State Name</u>
MA	S2	Alluvial White Cedar swamp
NH	S?	Seasonally Flooded Atlantic White Cedar Swamp

I.C.3.N.d Saturated mixed needle-leaved evergreen - cold-deciduous forest

I.C.3.N.d.8 CHAMAECYPARIS THYOIDES - ACER RUBRUM SATURATED FOREST ALLIANCE (A.448 ECS)

Chamaecyparis thyoides - Acer rubrum - Magnolia virginiana Forest (CEGL006078 ECS) — G?

Atlantic White-cedar - Red Maple - Sweetbay Forest

[Coastal Plain Atlantic White Cedar Swamp]

Description: Mixed Atlantic white cedar - red maple swamp of New Jersey, Delaware, and Maryland. In addition to *Chamaecyparis thyoides* and *Acer rubrum*, other canopy associates include *Nyssa sylvatica*, *Magnolia virginiana*. The shrub layer is characterized by *Vaccinium corymbosum* or *Vaccinium formosum*, *Clethra alnifolia*, *Ilex glabra*,

**Lower New England - Northern Piedmont Ecoregion (61) Classification 4/2000
(subset revised from the National Vegetation Classification 11/1999 version)**

Gaylussacia frondosa, *Rhododendron viscosum*. The herbaceous layer may be sparse to moderate cover and include species such as *Mitchella repens*, *Sarracenia purpurea*, *Triadenum virginicum*, *Pogonia ophioglossoides*. In canopy openings, *Peltandra virginica*, *Orontium aquaticum*, *Iris versicolor* may also occur. *Sphagnum* mosses form a moderately dense to dense bryophyte layer; species include *Sphagnum magellanicum*, *Sphagnum pulchrum*, *Sphagnum flavicomans*, *Sphagnum recurvum*, and *Sphagnum fallax*.

LNP Scale: Small patch to Large patch **Distribution:** Limited **Ecological Group:** Atlantic white cedar swamp
TNC Ecoregions: 61:C, 62:C

References: Breden 1989, Clancy 1996, Karlin 1988, Olsson 1979

<u>State</u>	<u>SRank</u>	<u>State Name</u>
DE	S?	<i>Chamaecyparis thyoides</i> - <i>Acer rubrum</i> swamp forest+
MD	S?	
NJ		S4? Coastal plain Atlantic white cedar swamp+

Chamaecyparis thyoides - Acer rubrum Lower New England, Northern Piedmont Forest (CEGL006207 ECS) — G3G5

Atlantic White-cedar - Red Maple Lower New England, Northern Piedmont Forest

Description: Mixed Atlantic white-cedar swamp of Lower New England, Northern Piedmont and North Atlantic Coast ecoregions. In general, the high abundance of red maple reflects recovery from logging. For this reason, most occurrences of so-called "cedar swamps" in the Northeast are truly mixed. In addition to the nominate species, *Nyssa sylvatica* may also occur in the canopy, but few other tree species contribute cover to this forest. The shrub layer is generally well-developed and usually includes *Vaccinium corymbosum*, *Clethra alnifolia*, *Rhododendron viscosum*, *Ilex glabra*, and *Ilex verticillata*. Herbs may include *Osmunda cinnamomea*, *Osmunda regalis*, *Thelypteris palustris*, *Gaultheria procumbens*. *Sphagnum* mosses are common. Similar types: need additional data to resolve if distinct from CEGL006078 above.

LNP Scale: Large patch **Distribution:** Limited **Ecological Group:** Atlantic white cedar swamp
TNC Ecoregions: 61:C, 62:C

References: Enser n.d., Maine Natural Heritage Program 1991, Metzler 1997, Metzler and Barrett 1996, Reschke 1990, Sperduto 1997, Sperduto and Ritter 1994

<u>State</u>	<u>SRank</u>	<u>State Name</u>
CT	S?	<i>Chamaecyparis thyoides</i> / <i>Vaccinium corymbosum</i> Community+
MA	S5	Red Maple Swamp+
ME	S2	Atlantic white cedar swamp community+
NH	S?	Atlantic white cedar - yellow birch / sweet pepperbush swamp+
NY	S1	Coastal plain Atlantic white cedar swamp+
NJ		S? Inland Atlantic white cedar swamp
RI	S?	Inland Atlantic white cedar swamp+

I.C.3.N.d.10 PICEA RUBENS - ACER RUBRUM SATURATED FOREST ALLIANCE (A.450 ECS)

Picea rubens - Acer rubrum / Nemopanthus mucronata Forest (CEGL006198 ECS) — G?

Red Spruce - Red Maple / Mountain-holly Forest

[Red Maple - Conifer Acidic Swamp]

Description: Spruce - red maple swamp of glaciated Northeast. Closed canopy dominated by *Acer rubrum* and *Picea rubens* with *Betula alleghaniensis*, *Betula populifolia*, *Abies balsamea*, *Tsuga canadensis*, and *Pinus strobus*. Well-developed tall-shrub layer of *Vaccinium corymbosum*, *Nemopanthus mucronata*, *Ilex verticillata* and *Alnus* spp. Herbaceous layer dominated by ferns *Osmunda cinnamomea*, *Osmunda regalis*, *Onoclea sensibilis*, *Thelypteris palustris*, and other herbs, such as *Symplocarpus foetidus*, *Carex trisperma*, *Carex intumescens*, *Aster acuminatus*, *Trientalis borealis*, *Cornus canadensis* and other species. *Sphagnum* abundant including *Sphagnum magellanicum*, *Sphagnum girghensonii* and others. Similar types: If conifers comprise over 75% cover see *Picea rubens* – *Abies balsamea* / *Gaultheria hispidula* / *Sphagnum* spp. Forest CEGL006311. Environmental setting: Basins or low flats with poor drainage. Soils are poorly drained organic muck or shallow peat. Groundcover consists of hummocks-and-hollows topography with abundant slowly decomposing deciduous/needle litter.

LNP Scale: Small to large patch **Distribution:** Limited to Widespread

TNC Ecoregions: 60: C, 61:C, 63:C

References: Thompson and Sorenson 2000

<u>State</u>	<u>SRank</u>	<u>State Name</u>
CT	S?	<i>Picea rubens</i> / <i>Nemopanthus mucronata</i> community=

**Lower New England - Northern Piedmont Ecoregion (61) Classification 4/2000
(subset revised from the National Vegetation Classification 11/1999 version)**

MA	S?	
ME	S5	red maple swamp+
NH	SU	Hardwood-conifer basin swamp
NY	S?	spruce fir swamp, in part
VT	S3	Spruce – fir – tamarack swamp (red spruce – hardwood swamp variant)

I.C.3.N.d.3 PINUS STROBUS - (ACER RUBRUM) SATURATED FOREST ALLIANCE (A.443 MCS)

Pinus strobus - (Acer rubrum) / Osmunda spp. Forest (CEGL002482 MCS) — G3G4

White Pine - (Red Maple) / Royal Fern species Forest

[White Pine - Red Maple Swamp]

Description: This white pine - red maple swamp forest type is found in the southern Great Lakes region. The overstory is dominated or co-dominated by *Pinus strobus* and may contain *Acer rubrum*, *Betula alleghaniensis*, *Tsuga canadensis*, and *Ulmus americana*. Shrubs can be sparse, but include *Alnus incana*. Understory species include *Carex spp.*, *Ilex verticillata*, and *Osmunda cinnamomea* and *Osmunda regalis*. *Sphagnum spp.* may occur as a groundcover. Environmental setting: Stands occur on sites with at least a thin layer of organic material on the surface. Glacially deposited sand usually lies beneath the organic layer. Similar types: *Tsuga canadensis* – *Acer rubrum* – *Betula alleghaniensis* / *Osmunda cinnamomea* Forest GEG006380.

LNP Scale: Small patch to large patch **Distribution:** Widespread

TNC Ecoregions: 46:C, 47:C, 48:C, 61:C, 63:C

References: Golet et al. 1993, Thompson and Sorenson 2000

<u>State</u>	<u>SRank</u>	<u>State Name</u>
CT	S?	
MA	S?	Red maple swamp+
ME	S?	
MI	S4	hardwood-conifer swamp
MN?	SP	
NH	S?	
NY	S?	
OH	S1	white pine-red maple swamp =
ON	S2	White Pine Mineral Coniferous Swamp Type =
RI	S?	Red maple swamp+
VT	S4	Red maple – black ash swamp+
WI	S2	northern wet-mesic forest, white pine subtype =

I.C.3.N.d.6 THUJA OCCIDENTALIS - ACER RUBRUM SATURATED FOREST ALLIANCE (A.446 MCS)

Thuja occidentalis - Acer rubrum / Cornus sericea Forest (CEGL006199 ECS) — G?

Northern White-cedar - Red Maple / Red-osier Dogwood Forest

[Northern White-cedar - Red Maple Enriched Peatland]

Description: Mixed hardwood conifer swamps of enriched peatland in temperate areas. Closed canopy *Thuja occidentalis* and *Acer rubrum* plus *Betula alleghaniensis*, *Betula papyrifera*, *Pinus strobus*, *Picea mariana*, *Ulmus rubra*, *Ulmus americana*. Conspicuous shrub layer of *Cornus sericea* (= *Cornus stolonifera*), *Cornus amomum*, *Viburnum dentatum*, *Alnus spp.*, *Ilex verticillata*. Variable herb layer of *Onoclea sensibilis*, *Osmunda cinnamomea*, *Osmunda regalis*, *Carex intumescens*, *Amphicarpaea bracteata*, *Chelone glabra*, *Lysimachia thyrsiflora*, *Lycopus virginicus*, *Aralia nudicaulis*, *Coptis trifolia*. Mosses are abundant, including *Thuidium delicatulum*, *Hylocomnium splendens*, *Rhytidiadelphus triquetrus* and *Calligeron spp.* Characteristic species *Toxicodendron vernix* and *Osmunda regalis*. Intermediate between Northern White Cedar Swamp and Red Maple Swamp. Environmental setting: on alluvial deposits.

LNP Scale: Small patch **Distribution:** Limited or Peripheral **Ecological group:** Northern white cedar swamp

TNC Ecoregions: 61:C, 63:C

References: Thompson and Sorenson 2000

<u>State</u>	<u>SRank</u>	<u>State Name</u>
CT	S?	<i>Thuja occidentalis</i> forests+
MA?	SP	
ME	S?	

**Lower New England - Northern Piedmont Ecoregion (61) Classification 4/2000
(subset revised from the National Vegetation Classification 11/1999 version)**

NH	S?	
NY	S?	Northern White Cedar swamp, variation /northern cedar seepage forest?
VT	S3	Red maple-Northern White cedar swamp

I.C.3.N.d.7 TSUGA CANADENSIS - ACER RUBRUM SATURATED FOREST ALLIANCE (A.447 SCS)

Tsuga canadensis - Acer rubrum - Betula alleghaniensis / Osmunda cinnamomea Forest (CEGL006380 ECS)G4?

Eastern Hemlock - Red Maple - Yellow Birch / Cinnamon Fern Forest

Description: This mixed forest type occurs along stream drainages and in other ecotonal areas between uplands and wetlands rather than permanently saturated basins. The canopy is characterized by *Tsuga canadensis*, *Acer rubrum*, *Betula alleghaniensis*, *Fraxinus americana*. *Viburnum alnifolium* and *Acer pensylvanica* are frequent associates.

The herb layer is commonly made up of *Osmunda cinnamomea*, *Osmunda claytoniana*, *Thelypteris palustris*, *Arisaema triphyllum*, *Aralia nudicaulis*, *Clintonia borealis*. Environmental setting: Saturated soils along stream drainages and wetland edges. Similar types: for basin swamps (coniferous or mixed canopy) see *Tsuga canadensis* – *Betula alleghaniensis* / *Ilex verticillata* / *Sphagnum* spp. Forest CEGL006226.

LNP Scale: small patch **Distribution:** (limited? Lacking data)

TNC Ecoregions: 61:C, 62:C, 63:C

References: Sperduto 1997, Thompson and Sorenson 2000

<u>State</u>	<u>SRank</u>	<u>State Name</u>
MA?	SP	
NH	S4?	Low hardwood - hemlock / cinnamon fern forest
VT	S2	Hemlock swamp (Hemlock – hardwood swamp variant)

Lower New England - Northern Piedmont Ecoregion (61) Classification 4/2000
(subset revised from the National Vegetation Classification 11/1999 version)

II.A.4.N.a Rounded-crowned temperate or subpolar needle-leaved evergreen woodland

II.A.4.N.a.23 PINUS PUNGENS - (PINUS RIGIDA) WOODLAND ALLIANCE (A.521 SCS)

Pinus (pungens, rigida) / Quercus ilicifolia / Gaylussacia baccata Woodland (CEGL004996 SCS) — G3G4

(Table Mountain Pine, Pitch Pine) / Bear Oak / Black Huckleberry Woodland

[Central Appalachian Table Mountain Pine - Pitch Pine - Heath Woodland]

Description: Predominantly evergreen woodlands occupying xeric, convex, often rocky south- and west-facing slopes, ridge spurs, crests, and clifftops in the central Appalachians and peripherally in the Southern Blue Ridge. Occurs at elevations from 450-1200 meters (1500-4000 feet) on various substrates, but most commonly on acidic, sedimentary and metasedimentary substrates (e.g. quartzites, sandstones, and shales). Soils are very infertile, shallow, and droughty. A thick, poorly decomposed duff layer, along with dead wood and highly volatile ericaceous shrubs, create a strongly fire-prone habitat. *Pinus pungens* and *Pinus rigida*, individually or together, dominate the canopy, which can approach forest physiognomy in some situations as a result of fire suppression. Scattered canopy and subcanopy associates may include *Quercus prinus*, *Quercus coccinea*, *Quercus rubra*, *Quercus marilandica*, *Pinus virginiana*, *Castanea dentata*, *Acer rubrum*, *Sassafras albidum*, *Nyssa sylvatica*, and *Amelanchier arborea*. *Quercus ilicifolia* dominates a moderately open to very dense tall-shrub layer, while variable combinations of *Kalmia latifolia*, *Gaylussacia baccata*, *Vaccinium pallidum*, *Vaccinium angustifolium*, *Vaccinium stamineum*, *Pieris floribunda*, *Rhododendron catawbiense*, and other ericads form a generally dense low-shrub layer. *Smilax rotundifolia* and *Smilax glauca* may be prominent climbers among the shrubs. Herbaceous species, often very sparse, are rooted in small openings among the shrubs, on rocks, and in disturbed areas where mineral soil is exposed. Typical herbs and subshrubs include *Epigaea repens*, *Gaultheria procumbens*, *Xerophyllum asphodeloides*, *Iris verna*, *Pteridium aquilinum* var. *latiusculum*, *Melampyrum lineare* var. *latifolium*, *Stenanthium gramineum* var. *micranthum*, *Uvularia puberula*, *Lycopodium tristachyum*, *Aralia hispida* (usually on outcrops), and *Carex tonsa*. Periodic fire is an important ecological process which provides opportunities for the regeneration of both canopy pines and less competitive herbaceous species, while setting back successional encroachment of xeric oaks. On many sites (e.g. clifftops, quartzite ledges), the vegetation is self-perpetuating due to extreme edaphic conditions.

LNP Scale: Small patch? **Distribution:** Peripheral or not in LNP

TNC Ecoregions: 51:C, 59:C, 61:P

References: Rawinski et al. 1996

<u>State</u>	<u>SRank</u>	<u>State Name</u>
MD	S?	
PA	S?	Pitch pine – scrub oak woodland+ and possibly Pitch pine – mixed hardwood woodland+
VAS?		
WV	S?	

II.A.4.N.a.26 PINUS RIGIDA WOODLAND ALLIANCE (A.524 ECS)

Pinus rigida - (Pinus echinata) / Quercus (marilandica, ilicifolia) / Vaccinium pallidum Woodland (CEGL006383 ECS) — G2?

Pitch Pine - (Shortleaf Pine) / (Blackjack Oak, Scrub Oak) / Hillside Blueberry Woodland

[Mid-Successional Pine - Oak Woodland]

Description: Pitch pine-dominated woodland of the New Jersey pine barrens. Pines are dominant, but the characteristic presence of tree oaks (*Quercus alba*, *Quercus coccinea*, *Quercus velutina*, *Quercus prinus*, *Quercus stellata*) forming up to 35 percent of the canopy is an indication of a fire frequency that is less than that of the classic NJ pine barrens type *Pinus rigida* / *Quercus (marilandica, ilicifolia)* / *Pyxidantha barbulata* Woodland (CEGL006051). The presence of a well-developed shrub oak layer indicates a fire frequency greater than that of oak forests. The ground layer is characterized by heaths, generally *Vaccinium pallidum* and *Gaylussacia baccata*. Herbs are sparse, and may include *Gaultheria procumbens*, *Pteridium aquilinum*.

LNP Scale: ? **Distribution:** Peripheral or not in LNP

LNP Comments: Possible in LNP. Not clear if limited to coastal plain or not; possible relationship to serpentine barrens. Also see type proposed for LNP: *Pinus rigida* – *Quercus (stellata, marilandica)* Forest.

TNC Ecoregions: 61:P, 62:C

References: Windisch 1995

<u>State</u>	<u>SRank</u>	<u>State Name</u>

**Lower New England - Northern Piedmont Ecoregion (61) Classification 4/2000
(subset revised from the National Vegetation Classification 11/1999 version)**

NJ	S?	Pine - oak forest
NY	S?	pitch pine - blackjack oak forest
PA?	SP	
MD?	SP	

Pinus rigida / Aronia melanocarpa / Deschampsia flexuosa - Schizachyrium scoparium Woodland (CEGL006116 ECS) — G?

LNP suggested name: Pinus rigida / Quercus ilicifolia – Aronia melanocarpa / Deschampsia flexuosa Woodland
Pitch Pine / Black Chokeberry / Wavy Hairgrass - Little Bluestem Woodland
[Pitch Pine Rocky Summit]

Description: Pitch pine woodlands of rock outcrops, summits, exposed slopes in the Northern Appalachian, Lower New England, High Allegheny, and Central Appalachian ecoregions. Open canopy dominated by *Pinus rigida* with a variable mixture of associates, such as *Betula populifolia*, *Quercus rubra*, *Quercus prinus*, *Prunus serotina* and *Pinus strobus*. *Quercus coccinea*, *Quercus alba*, *Acer rubrum*, *Betula lenta* may be present but sparse. *Pinus resinosa* and *Pinus virginiana* are infrequent associates. A prominent to sparse tall-shrub layer comprised of scrub oaks (*Quercus ilicifolia*, *Quercus prinoides*) and/or *Kalmia latifolia*. Low shrub layer of heaths: *Vaccinium angustifolium*, *Vaccinium pallidum*, *Vaccinium myrtilloides*, *Gaylussacia baccata*, *Comptonia peregrina*. *Kalmia angustifolia* (occasional) and *Aronia melanocarpa*. Herb layer of *Pteridium aquilinum*, *Schizachyrium scoparium*, *Deschampsia flexuosa* (characteristic), *Danthonia spicata*, *Carex pensylvanica*, *Carex lucorum*, *Maianthemum canadense*, *Melampyrum lineare*, *Fragaria virginiana*, *Cypripedium acaule*. Groundcover is bare rock, deciduous and needle litter. Species composition relates to fire frequency. Environmental setting: Rock outcrops, summits, exposed slopes of low to moderate elevations (100 to 1500 feet). Soils are derived from acidic bedrock and are typically shallow, well-drained, coarse sands or gravels. Periodic fires are probably necessary for persistence except on the most extreme sites. Similar types: grades into mixed type *Pinus rigida* – *Quercus (coccinea, velutina)* / *Schizachyrium scoparium* Woodland CEGL006166 or sparsely vegetated rocky summits.

LNP Scale: Large patch **Distribution:** Widespread

LNP Comments: *Quercus ilicifolia* frequent but not always present. Except for PA, all states in LNP recognize only one type that lumps 6116 & 6323 *Pinus rigida* / *Quercus ilicifolia* / *Aronia melanocarpa* Woodland. Unless separate type needed by PA and south, LNP suggests merge of CEGL006323 into CEGL006116 to include pitch pine ridgetop woodlands with or without *Quercus ilicifolia*. Not using CEGL006323 for LNP.

TNC Ecoregions: 59:C, 61:C, 62:C, 63:C

References: Fike 1999, Thompson and Sorenson 2000

<u>State</u>	<u>SRank</u>	<u>State Name</u>
CT	S?	
MA	S2	Ridgetop Pitch Pine / Scrub Oak Community+, Acidic Rocky Summit / Rock Outcrop Community+
ME	S?	Pitch pine woodland, in part
NH	S?	Appalachian oak - pine
NJ		S? Ridgetop pitch pine – scrub oak forest+
NY	S?	Pitch pine- oak- heath rocky summit
PA	S?	Pitch pine – scrub oak woodland+
VA?	SP	
VT	S1	Pitch pine-oak-heath rocky summit
WV?	SP	

Pinus rigida / Quercus ilicifolia / Lespedeza capitata Woodland (CEGL006025 ECS) — G2

Pitch Pine / Scrub Oak / Roundhead Bushclover Woodland
[Inland Pitch Pine / Scrub Oak Barren]

Description: This pitch pine - scrub oak barren community occurs on northeastern sand plains, generally on outwash plains, sand dunes and glacial till. Soils are typically sandy, well-drained and nutrient poor. A local history of fire is essential to the maintenance of the community. An open canopy (30-70 percent) of *Pinus rigida* over a variable tall shrub layer (25-95 percent) of *Quercus ilicifolia* or *Quercus prinoides* forms the characteristic structure of this community. In places the canopy may also contain *Populus tremuloides*, *Prunus serotina*, *Prunus pensylvanica* or *Betula populifolia*. A short shrub layer of *Vaccinium pallidum*, *Vaccinium angustifolium*, *Gaylussacia baccata*, *Comptonia peregrina* and *Pteridium aquilinum* is usually present. Characteristically, small patches of grasslands, dominated by *Schizachyrium scoparium*, occur within the woodland matrix. These grassy patches are rich in herbaceous species such as *Andropogon gerardii*, *Sorghastrum nutans*, *Lespedeza capitata*, *Polygala nuttallii*,

**Lower New England - Northern Piedmont Ecoregion (61) Classification 4/2000
(subset revised from the National Vegetation Classification 11/1999 version)**

Lechea mucronata, *Lysimachia quadrifolia*, *Helianthemum canadense* and *Lupinus perennis*. These patches create important habitat for several rare invertebrates. Various fire regimes may result in different species composition between sites.

LNP Scale: Large patch **Distribution:** Limited **Ecological group:** Pitch pine sand barrens

LNP Comments: examples Albany Pine Bush NY (1500 acres); Montague Barrens, MA

TNC Ecoregions: 61:C, 62:C

References: Grossman et al. 1994, Motzkin 1993

<u>State</u>	<u>SRank</u>	<u>State Name</u>
CT	S?	
MA	S2	Pitch Pine / Scrub Oak Community+
NY	S1	pitch pine scrub oak barrens, in part; Pitch pine-oak-heath woodland, in part
RI	S?	Pitch pine / scrub oak barrens+

Pinus rigida / Quercus ilicifolia / Oryzopsis pungens Woodland (CEGL006203 ECS) — G2

Pitch Pine / Scrub Oak / Ricegrass Woodland

[Northern Pitch Pine / Scrub Oak Barren]

Description: This northernmost pitch pine - scrub oak barren community occurs on flat glacial outwash plains. Soils are typically sandy, well-drained and nutrient poor. A local history of fire is essential to the maintenance of the community. An open canopy, 30-70 percent, of *Pinus rigida* over a dense, patchy, tall shrub layer (25-95 percent) of *Quercus ilicifolia* (often with *Betula populifolia*) forms the characteristic structure of this community. In places the canopy may also contain *Quercus rubra*, *Pinus strobus*, *Betula populifolia* and occasionally *Picea rubens* or *Abies balsamea*. A short shrub layer of *Vaccinium angustifolium*, *Comptonia peregrina*, *Pteridium aquilinum* and *Gaultheria procumbens* is usually present. Herbaceous species are scattered and generally more dense where the scrub oak is discontinuous. Characteristic herbs include *Oryzopsis pungens*, *Oryzopsis asperifolia*, *Carex lucorum*, *Schizachyrium scoparium* and *Danthonia spicata*. Occasional species include *Vaccinium myrtilloides*, *Arctostaphylos uva-ursi*, *Comandra umbellata*, *Sibbaldiopsis tridentata* and *Corylus* spp. A variant of this community containing *Pinus resinosa* in the canopy occurs on eskers and outwash plains in New Hampshire.

LNP Scale: Small patch? **Distribution:** Limited

TNC Ecoregions: 61:C, 62:C

References: Grossman et al. 1994

<u>State</u>	<u>SRank</u>	<u>State Name</u>
ME	S1	Pitch Pine – Scrub Oak Barren
NH	S?	

Pinus rigida / Vaccinium spp. - Gaylussacia baccata Woodland (CEGL005046 ECS) — G3G5

Pitch Pine / Blueberry species - Black Huckleberry Woodland

[Pitch Pine / Blueberry spp. - Huckleberry Woodland]

Description: Pitch pine - heath barrens of nutrient-poor, dry sandy soils in the Lower New England – Northern Piedmont and Northern Appalachian ecoregions, and Canada. 6/98 NAP Open canopy of *Pinus rigida* with a variable mixture of associates, including *Pinus banksiana*, *Pinus strobus* or *Populus grandidentata*. Tall-shrub layer is absent, although a few scrub oaks (*Quercus ilicifolia*, *Quercus prinoides*) may be present. Well-developed heath layer of dwarf-shrubs includes *Vaccinium angustifolium*, *Vaccinium pallidum*, *Vaccinium myrtilloides*, *Gaylussacia baccata*, and *Kalmia angustifolia*. Herb layer of *Pteridium aquilinum*, *Carex pensylvanica*, *Gaultheria procumbens*, *Aralia nudicaulis*, *Maianthemum canadense*, *Melampyrum lineare*, *Fragaria virginiana*, *Cypripedium acaule*. Soils are well-drained, sandy outwash. Ground layer of sparse needle litter, bare sand and rocky exposures. Low elevations. In some locales, grades into pitch pine – oak woodland (e.g. CEGL006166).

LNP Scale: Small patch **Distribution:** Limited

LNP Comments: Much of this type in LNP degraded or destroyed. Is historic in CT (221Ag,Af); only small non-viable fragments remain there. Present in other states in LNP too.

TNC Ecoregions: 61:C, 62:P, 63:C

References:

<u>State</u>	<u>SRank</u>	<u>State Name</u>
CT	S?	
MA	S?	
ME	S1	Pitch pine-heath barren community (in part)
NY	S1	Pitch pine-heath barrens+
ON	S?	Pitch Pine Acidic Treed Rock Barren Type =

**Lower New England - Northern Piedmont Ecoregion (61) Classification 4/2000
(subset revised from the National Vegetation Classification 11/1999 version)**

RI S? Pitch pine / scrub oak barrens+

II.A.4.N.b Conical-crowned temperate or subpolar needle-leaved evergreen woodland

II.A.4.N.b.2 JUNIPERUS VIRGINIANA WOODLAND ALLIANCE (A.545 MCS)

Juniperus virginiana - Fraxinus americana / Danthonia spicata - Poa compressa Woodland (CEGL006002 ECS) — G2G3

Eastern Red-cedar - White Ash / Northern Oatgrass / Canada Bluegrass Woodland

LNP SUGGESTS MOVING TYPE TO A SPARSELY WOODLAND ALLIANCE (see herbaceous types)

Description: This rocky ridge community is known from mountainous sites in New England, New Jersey, and southeastern New York. The vegetation occurs primarily on exposed outcrops of basaltic rock (traprock) in the Connecticut Valley of New England and the Piedmont physiographic province in NJ. In NY and PA this type occurs on hornblend granite, gneiss and occasionally on shale. Tree cover is sparse, ranging from 5 - 30 percent cover (average 20 percent) with *Juniperus virginiana* being the most constant canopy tree. Other woody species sometimes present may include *Fraxinus americana*, *Quercus rubra*, *Ostrya virginiana*, *Amelanchier* spp. and *Carya glabra*. The scattered shrub layer often includes *Rosa carolina*, *Quercus ilicifolia*, *Quercus prinus*, *Rhus hirta*, *Vaccinium pallidum*, *Viburnum rafinesquianum* and *Prunus virginiana*. The herbaceous layer usually covers 10 to 50 percent of the ground and is dominated by *Schizachyrium scoparium* and *Danthonia spicata*, with the relative abundance of either varying from site to site. Numerous other herbaceous species and graminoid forbs occur in this community type including *Carex pensylvanica*, *Hypericum gentianoides*, *Antennaria plantaginifolia*, *Corydalis sempervirens*, *Solidago nemoralis*, *Panicum* spp., *Poa compressa*, *Deschampsia flexuosa*, *Maianthemum racemosum*, *Uvularia perfoliata*, *Aquilegia canadensis*, *Asclepias verticillata*, *Krigia virginica* and *Hedyotis longifolia*. No species is restricted to this community but the assemblage listed above is very characteristic. Environmental setting: Sites supporting this community are upper slopes of basalt or diorite ridges from 365 m to 1050 m elevation, characteristically south- or west-facing and range in slope from 5-30 degrees. Most sites have minimal soil development and bedrock outcrops are common.

LNP Scale: Small patch **Distribution:** Limited

LNP Comments: Type not resolved; needs more data and review to determine if the various bedrock types support variants or distinct associations, e.g may split shale barrens type vs. traprock or ridgetop type.

TNC Ecoregions: 60:C, 61:C

References: Breden 1989, Motzkin 1993, Nichols 1914, Thompson and Sorenson 2000

<u>State</u>	<u>SRank</u>	<u>State Name</u>
CT	S?	
MA	S2/3	Circumneutral Rocky Summit / Rock Outcrop Community.
NH	S?	
NJ		S1S2 Traprock glade / savanna
NY	S?	Red cedar rocky summit+ and Rocky summit grassland+
ON	S?	Red Cedar Basic Treed Rock Barren Type =
VT	S2	Red cedar woodland+

Juniperus virginiana - Ostrya virginiana / Carex eburnea Woodland (CEGL006180 ECS) — G2G3

Eastern Red-cedar - Eastern Hop-hornbeam / Bristleleaf Sedge Woodland

[Red Cedar Rocky Summit]

Description: This circumneutral / calcareous rocky summit community occurs in New England and in the northeastern portion of the Great Lakes ecoregion. Soils are generally thin, and exposed rock is common. The open canopy is dominated by *Juniperus virginiana*. Associated canopy species include *Ostrya virginiana*, *Fraxinus americana*, *Quercus alba*, *Quercus rubra*, and *Carya ovata*. The herbaceous layer is characterized by *Carex eburnea*. Other associates include *Danthonia spicata*, *Clematis occidentalis*, *Schizachyrium scoparium* and *Houstonia longifolia*. Grades into dry oak – hickory. Similar types: Related to or possibly the same as *Juniperus virginiana* / *Bouteloua curtipendula* – *Carex eburnea* Wooded Herbaceous Vegetation CEG006047.

LNP Scale: Small patch **Distribution:** needs classif work before can assign

LNP Comments: CEG006180 (see Herbaceous types) currently defined as more northern than 6047 but ranges do overlap. Types need to be in one place in the hierarchy. Not clear distinction between 6002 above and 6180.

TNC Ecoregions: 48:C, 61:C

References: Thompson and Sorenson 2000

**Lower New England - Northern Piedmont Ecoregion (61) Classification 4/2000
(subset revised from the National Vegetation Classification 11/1999 version)**

<u>State</u>	<u>SRank</u>	<u>State Name</u>
NY	S3	Red cedar rocky summit+
ON	S?	Red Cedar Carbonate Treed Rock Barren Type, Hackberry Carbonate Treed Rock Barren Type, Oak Carbonate Treed Rock Barren Type
RI	S?	Red cedar rocky summit
VT	S2	Red cedar woodland+

II.A.4.N.b.3 PICEA RUBENS WOODLAND ALLIANCE (A.546 ECS)

***Picea rubens* / *Vaccinium angustifolium* - *Sibbaldiopsis tridentata* Woodland (CEGL006053 ECS) — G3G5**

Red Spruce / Northern Lowbush Blueberry - Mountain-cinquefoil Woodland

[Spruce-fir Rocky Summit]

Description: Red spruce woodland of acidic bedrock outcrops or summits in the Northern Appalachian ecoregion; occurs at lower elevations relative to *Picea rubens* / *Ribes glandulosum* Woodland (CEGL006250). 6/98 NAP Rocky summits, ridges and outcrops supporting scattered red spruce over and heath-forb understory. Scattered open canopy of *Picea rubens* and *Abies balsamea*. Canopy associates include *Betula papyrifera* var. *papyrifera*, *Betula papyrifera* var. *cordifolia*, *Pinus rigida* and *Pinus strobus*. Sparse shrub layer of *Sorbus americana*, *Viburnum nudum* var. *cassinoides*, *Nemopanthus mucronata*, *Aronia melanocarpa* or *Amelanchier* spp. Low heath layer of *Vaccinium angustifolium*, *Vaccinium myrtilloides*, *Gaylussacia baccata*, *Kalmia angustifolia*. Sparse herb layer of graminoids including *Deschampsia flexuosa*, *Danthonia spicata*, *Carex pensylvanica/lucorum*, *Oryzopsis pungens*, and forbs *Sibbaldiopsis tridentata*, *Solidago simplex* var. *randii*, *Maianthemum canadense*. Abundant mosses and lichens on rock outcrops. Rocky ridges, outcrops and summits. Soils are shallow, well-drained, dry, acidic, coarse sands. Soil development is restricted to crevices or shelter areas interspersed with significant amounts of exposed bedrock. Elevations of know examples range from 1000-2700 feet. Groundcover is sparse needle litter and exposed bedrock.

LNP Scale: Small patch **Distribution:** Peripheral

Example: Mt Watatic in Ashburnham MA)

TNC Ecoregions: 61:C, 62:C, 63:C

References: Thompson and Sorenson 2000

<u>State</u>	<u>SRank</u>	<u>State Name</u>
MA	S2	High elevation spruce / fir forest / woodland (may also include variant of Acidic rocky outcrop/ rock summit).
ME	S?	Spruce woodland, =
NH	S?	Red spruce/heath /cinquefoil rocky ridge
NY	S?	spruce-fir rocky summit+
VT	S4	Boreal outcrop

II.A.4.N.b.1 THUJA OCCIDENTALIS WOODLAND ALLIANCE (A.544 ECS)

***Thuja occidentalis* / *Solidago ptarmicoides* Woodland (CEGL006093 ECS) — G?**

Northern White-cedar / Prairie Goldenrod Woodland

[Northern White-cedar Woodland]

Description: Northern white-cedar woodlands of calcareous or circumneutral bedrock and summits in the northeastern lakeplains and the Northern Appalachian regions. 6/98 NAP summits and talus slopes in lakeshore or maritime regions, dominated by northern white-cedar. Very open to semi-dense canopy of *Thuja occidentalis* and other conifers, including *Picea rubens*, *Pinus rigida* and *Pinus strobus*. Summits and talus slopes of acidic bedrock. Probably influenced by fog or salt spray. Soils are shallow coarse gravels or sands with minimal organic accumulation. Elevations from almost sea level to about 1000 feet? Groundcover is needle litter and exposed bedrock or bouldery talus.

LNP Scale: Small patch **Distribution:** Peripheral

TNC Ecoregions: 61:C, 63:C

References:

<u>State</u>	<u>SRank</u>	<u>State Name</u>
ME	S?	
NH?	SP	
NY	S?	
VT	S3	Temperate Calcareous Outcrop, Temperate Calcareous Cliff

**Lower New England - Northern Piedmont Ecoregion (61) Classification 4/2000
(subset revised from the National Vegetation Classification 11/1999 version)**

II.A.4.N.f Saturated temperate or subpolar needle-leaved evergreen woodland

II.A.4.N.f.3 CHAMAECYPARIS THYOIDES SATURATED WOODLAND ALLIANCE (A.575 SCS)

Chamaecyparis thyoides / Chamaedaphne calyculata Woodland (CEGL006321 ECS) — G3G4

Atlantic White-cedar / Leatherleaf Woodland

Description: Atlantic white-cedar bog. This is intermediate between *Chamaedaphne calyculata* Shrubland (bog) and *Chamaecyparis thyoides* Forest types. This is an open dwarf shrubland dominated by *Chamaedaphne calyculata* and *Gaylussacia dumosa* with scattered (<25% cover) but obvious stunted *Chamaecyparis thyoides*. Occurs along streams, headwaters of streams, millponds, seepage areas and as ecotone between shrub bog and cedar swamp. Similar to or possibly same as *Chamaecyparis thyoides* NAC Woodland (Seasonally Flooded) CEGL006297 on the coastal plain. May be better classified as *Chamaedaphne calyculata* shrubland characterized by scattered *Chamaecyparis thyoides*.

LNP Scale: Small patch **Distribution:** Limited

Ecological Group: Atlantic white cedar swamp

Examples: Saco Heath & Knight Pond, Maine

TNC Ecoregions: 61:C, 62:C

References: Metzler 1997

<u>State</u>	<u>SRank</u>	<u>State Name</u>
CT	S?	
MA	S2	Atlantic White Cedar Bog+
ME	S?	
NH?	SP	
RI	S?	Coastal plain Atlantic white cedar swamp+

II.A.4.N.f.13 PICEA MARIANA SATURATED WOODLAND ALLIANCE (A.585)

Picea mariana / (Vaccinium corymbosum, Gaylussacia baccata) / Sphagnum spp. Woodland (CEGL006098)G3G5

Black spruce / (Highbush blueberry, Black huckleberry) / Peatmoss species Woodland

[Black Spruce Woodland Bog]

Description: This black spruce bog represents the southern range of the alliance, ranging from New England to just south of the glaciated border. This vegetation generally occurs in kettlehole basins and other well-defined topographic depressions and is characterized by relatively deep peat accumulation, indicating acidic, nutrient-poor conditions. The tree canopy ranges widely in closure. The dominant tree is *Picea mariana* with associates including *Larix laricina* and *Abies balsamea*. The shrubs *Vaccinium corymbosum* and *Nemopanthus mucronata* form a patchy tall-shrub layer. The dwarf-shrub layer is well-developed and characterized by a number of heaths including *Chamaedaphne calyculata*, *Gaylussacia baccata*, *Kalmia angustifolia* and *Vaccinium angustifolium*. Common herbs may include *Carex triperma*, *Rhynchospora alba*, *Drosera rotundifolia*, *Sarracenia purpurea*, *Eriophorum virginicum*, *Coptis trifolia* and *Maianthemum trifolium*. The well-developed bryophyte layer is dominated by *Sphagnum magellanicum*, *Sphagnum girgensohnii*, *Bazzania trilobata*, *Aulacomnium palustre* and *Pleurozium schreberi*. This association is further characterized by the presence of one or more tree or shrub species of more southern distribution including *Betula populifolia*, *Tsuga canadensis*, *Pinus rigida*, *Alnus incana*, *Rhododendron viscosum*, *Aronia* spp., or *Lyonia ligustrina*. Northern species such as *Rhododendron canadense* or *Eriophorum vaginatum* var. *spissum* are generally lacking.

LNP Scale: Small patch **Distribution:** Limited

LNP Comments: Formerly *Picea mariana* / *Ledum groenlandica* / *Sphagnum* Woodland and *Picea mariana* / *Sphagnum* LNE/NP, NAC Woodland.

TNC Ecoregions: 61:C, 62:C, 63:C

References: Damman and French 1987, Fike 1999, Maine Natural Heritage Program 1991, Metzler and Barret 1996, Reschke 1990, Sperduto 1997, Thompson and Sorenson 2000

<u>State</u>	<u>SRank</u>	<u>State Name</u>
CT	S?	<i>Picea mariana</i> Woodland
MA	S3	Northern New England Acidic Seepage Swamp
ME	S4	Forested bog community+
NH	S2S3	conifer basin swamp (black spruce – larch type)
NJ	S1	Black spruce swamp

**Lower New England - Northern Piedmont Ecoregion (61) Classification 4/2000
(subset revised from the National Vegetation Classification 11/1999 version)**

NY	S3	black spruce – tamarack bog+
RI	S1?	Black spruce bog
VT	S2	Black spruce Woodland Bog

II.A.4.N.f.8 PINUS RIGIDA SATURATED WOODLAND ALLIANCE (A.580 ECS)

Pinus rigida / Chamaedaphne calyculata / Sphagnum spp. Woodland (CEGL006194 ECS) — G3G5

Pitch Pine / Leatherleaf / Peatmoss species Woodland

Description: Pitch pine woodland swamps of the Lower New England – Northern Piedmont and North Atlantic Coast ecoregions. Characterized by an open canopy of *Pinus rigida* with an understory of ericaceous shrubs such as *Chamaedaphne calyculata*. Sphagnum moss forms a dense mat. Canopy associates include *Acer rubrum*, *Betula populifolia* and *Nyssa sylvatica*. Other shrubs include *Vaccinium corymbosum*, *Kalmia angustifolia* and *Gaylussacia baccata*. *Eriophorum* spp., *Scirpus* spp., *Calapogon tuberosus* are typical herbs. Other herbs are *Cornus canadensis* (to north) and *Gaultheria procumbens*. This type occurs in acidic soils in poorly drained depressions or basins. May have deep accumulation of peat. Often, but not exclusively in proximity to upland sandplain pine barrens.

LNP Scale: Small patch **Distribution:** Limited

LNP Comments: Description adapted from Alliance description; needs more data & review.

TNC Ecoregions: 61:C, 62:C

References:

<u>State</u>	<u>SRank</u>	<u>State Name</u>
CT	S?	
MA	SP	
ME	S1S2	Pitch Pine Bog
NH	S?	
NJ		S3 Pitch pine lowland+
NY	S3	Pitch pine - blueberry peat swamp
RI?	SP	
VT	S1	Pitch pine Woodland Bog

II.B.2.N.a Cold-deciduous woodland

II.B.2.N.a.24 QUERCUS RUBRA - QUERCUS PRINUS WOODLAND ALLIANCE (A.624 ECS)

Quercus rubra / Polypodium virginianum Woodland (CEGL006320 ECS) — G3G5

LNP SUGGESTED NAME: *Quercus rubra* – *Betula alleghaniensis* / *Polypodium virginianum* Woodland

Red Oak / Eastern Rockcap Fern Woodland

[Red Oak Talus Slope Woodland]

Description: Open, bouldery, acidic talus slope woodlands in the Northern Appalachian and Lower New England / Northern Piedmont ecoregions. Habitat (large talus and boulders) rather than geography differentiates this association from *Quercus rubra* / *Vaccinium* spp. / *Deschampsia flexuosa* Woodland (CEGL006134). Ericads generally lacking, vines and ferns more characteristic. Common associates are species of *Corydalis*, *Woodsia*, *Dryopteris* as well as *Parthenocissus quinquefolia*, *Polypodium virginianum*, *Tsuga canadensis*, *Pinus strobus*. 6/98 NAP Very open to moderately closed canopy, heterogeneous composition of *Quercus rubra*, *Acer saccharum*, *Betula nigra*, *Betula alleghaniensis*, *Betula papyrifera*, *Betula populifolia*, *Fagus grandifolia*, *Acer rubrum*. Scattered and clumped tall shrubs/small trees include *Acer spicatum*, *Acer pensylvanicum*, *Rubus* spp., *Viburnum acerifolium* (occasional), *Ribes* spp. Prevalent component of vines are *Parthenocissus quinquefolia*, *Parthenocissus vitacea*, *Toxicodendron radicans*, *Celastrus scandens*, *Polygonum cilinode*. Scattered ferns and herbs are *Dryopteris marginalis*, *Polypodium virginianum*, *Pteridium aquilinum*, *Carex pensylvanica*, *Corydalis sempervirens* (localized), *Solidago bicolor*, *Solidago caesia*, and others. Acidic talus slopes of low-elevation valleys. Substrate is bouldery talus derived from acidic bedrock. Elevation range is roughly 500-2000 feet. Groundcover is exposed talus, moss-covered boulders and deciduous litter.

LNP Scale: Small to large patch **Distribution:** Limited

TNC Ecoregions: 61:C, 62:C, 63:C

References:

<u>State</u>	<u>SRank</u>	<u>State Name</u>
--------------	--------------	-------------------

**Lower New England - Northern Piedmont Ecoregion (61) Classification 4/2000
(subset revised from the National Vegetation Classification 11/1999 version)**

CT	S?	
MA	S4	Acidic Talus Forest / Woodland+
ME	S3	Acidic Talus+
NH	S?	Red oak-black birch/marginal woodfern talus forest/woodland
NJ?	SP	
NY	S?	Acidic talus slope woodland
VT	S3	Transition Hardwood Talus Woodland+

Quercus rubra / Vaccinium spp. / Deschampsia flexuosa Woodland (CEGL006134 ECS) — G3G5

LNP SUGGESTED NAME: Quercus rubra – Quercus prinus / Vaccinium spp. / Deschampsia flexuosa Woodland

Red Oak / Blueberry species / Wavy Hairgrass Woodland

[Central Appalachian High Elevation Red Oak Woodland]

Description: Dry, open, rocky slope or summit woodlands in the Northern Appalachian, Lower New England / Northern Piedmont and Central Appalachians ecoregions. Open, stunted to somewhat closed canopy of *Quercus rubra*. *Quercus prinus* may be codominant. Common associates are *Quercus alba*, *Betula lenta* and *Acer rubrum* with minor component of *Quercus velutina*, *Betula populifolia*, *Betula papyrifera* and *Pinus rigida*. Tall-shrub layer is often lacking but may include *Acer spicatum*, *Sambucus racemosa*, *Rhus typhina*, *Kalmia latifolia*, *Hamamelis virginiana*, *Viburnum nudum* var. *cassinoides*, *Rhododendron* spp. Ericaceous shrubs and graminoids are characteristic. Well-developed low-shrub cover of *Vaccinium angustifolium*, *Vaccinium pallidum*, *Gaylussacia baccata*, *Kalmia angustifolia*. Scattered grasses include *Deschampsia flexuosa*, *Danthonia spicata*, *Carex pensylvanica*, and herbs include *Gaultheria procumbens*, *Aralia nudicaulis*. Herbs: *Pteridium aquilinum*, *Aralia nudicaulis*, *Maianthemum canadense*, *Aster acuminatus*, *Corydalis sempervirens*, *Deschampsia flexuosa*, *Carex pensylvanica*, *Polypodium virginianum*. Environmental setting: Talus slopes, rocky slopes and summits of low, moderate or high elevations. Soils are shallow, well-drained, nutrient-poor acidic gravels and coarse sands. Exposed bedrock prominent. Grades into *Quercus prinus* Forest, *Pinus rigida* woodlands or sparsely vegetated rocky summits (*Pinus strobus*, *Quercus rubra*) / *Danthonia spicata* Sparsely Wooded Herbaceous Vegetation CEGL005101.

LNP Scale: Small patch or large patch?

Distribution: Widespread

TNC Ecoregions: 59:C, 61:?, 62:C, 63:C

References: Thompson and Sorenson 2000

<u>State</u>	<u>SRank</u>	<u>State Name</u>
CT	S?	
DE	S?	
MA	S4	Ridgetop Chestnut oak Forest / Woodland
ME	S1	chestnut oak woodland=
NH	S?	Appalachian oak – pine Forest+ and Red oak – pine / heath rocky ridge woodland+
NY	S?	pitch pine oak heath rocky summit+
PA	S?	Dry oak-heath woodland
VA?	SP	
VT	S2	Dry oak woodland
WV	S?	

II.B.2.N.a.28 TILIA AMERICANA - FRAXINUS AMERICANA - (ACER SACCHARUM) WOODLAND ALLIANCE (A.628 ECS)

Tilia americana - Fraxinus americana - (Acer saccharum) / Geranium robertianum Woodland (CEGL005058 ECS) — G3G5

American Basswood - White Ash - (Sugar Maple) / Robert's Geranium Woodland

[Basswood - Ash - Maple Woodland]

Description: Open, circumneutral talus slope woodlands in the Great Lakes, Northern Appalachian and Lower New England – Northern Piedmont ecoregions. Dominated by heterogeneous mix of hardwoods and a characteristic rich herb flora. Very open to semi-closed canopy of *Acer saccharum*, *Fraxinus americana*, *Tilia americana*, *Quercus rubra*, *Acer rubrum*, *Betula nigra*, *Betula papyrifera*, *Betula alleghaniensis*, *Juglans cinerea* and *Ostrya virginiana* (characteristic). Scattered and clumped tall shrubs / small trees include *Acer spicatum*, *Acer pensylvanicum*, *Rubus* spp., *Viburnum acerifolium*, *Cornus rugosa*, *Staphylea trifolia*, *Ribes* spp. Prevalent component of vines include *Parthenocissus quinquefolium*, *Parthenocissus vitacea*, *Toxicodendron radicans*, *Celastrus scandens*, *Polygonum cilinode*. Scattered ferns and graminoids include *Dryopteris marginalis*, *Polypodium virginianum*, *Asplenium platyneuron*, *Cystopteris bulbifera*, *Athyrium asplenioides*, *Oryzopsis racemosa*, *Carex pensylvanica*, *Carex rosea*,

**Lower New England - Northern Piedmont Ecoregion (61) Classification 4/2000
(subset revised from the National Vegetation Classification 11/1999 version)**

Carex sprengelii, *Carex platyphylla*, and diverse flora of herbs associated with alkaline soils, such as *Saxifraga virginensis*, *Geranium robertianum*, *Aralia racemosa*, *Clematis virginiana*, *Rubus odoratus*, *Arabis drummondii*, *Asarum canadense*, *Hepatica americana*. Environmental setting: talus slopes, colluvial slopes and occasionally on hilltops. Soils are derived from alkaline/calcareous bedrock. Elevation up to 2000 feet with most occurrences below 1200 feet. Groundcover is boulder talus and deciduous litter.

LNP Scale: Small patch **Distribution:** Widespread

LNP Comment: CEG005058 and CEG006204 seem the same; using only 5058 for LNP.

TNC Ecoregions: 48:C, 61:C, 62:C, 63:C

References: Thompson and Sorenson 2000

<u>State</u>	<u>SRank</u>	<u>State Name</u>
MA?	SP	
ME	S1	circumneutral talus community+
NH	S2S3	Rich red oak-sugar maple/ironwood talus forest/woodland
NY	S3	Calcareous talus slope woodland+
ON	S?	Dry - Fresh White Birch Carbonate Treed Talus Type, Fresh - Moist Sugar Maple Carbonate Treed Talus Type, Fresh - Moist Basswood - White Ash Carbonate Treed Talus Type
VT	S3	Northern hardwood talus woodland, =

II.B.2.N.c Seasonally flooded cold-deciduous woodland

II.B.2.N.c.6 ACER RUBRUM SEASONALLY FLOODED WOODLAND ALLIANCE (A.653 ECS)

Acer rubrum / Carex stricta - Onoclea sensibilis Woodland (CEGL006119 ECS) — G3G5

Red Maple / Tussock Sedge - Sensitive Fern Woodland

[Red Maple - Tussock Sedge Wooded Marsh]

Description: Acidic, open, red maple swamps in the northeast. Open canopy of *Acer rubrum* often with many standing dead and often a small conifer component. Understory dominated by graminoids or ferns such as *Carex stricta*, *Calamagrostis canadensis*, *Onoclea sensibilis*. Generally lacks significant accumulation of peat. Mineral soils in alluvial, streamside/lakeside settings or poorly drained depressions with flowing groundwater. Typically flooded in spring and with pools and small streams persisting throughout much of the growing season. Often occurs in situations related to disturbance of hydrological regime by roads, small dams, past grazing or beaver.

LNP Scale: Small to large patch **Distribution:** Widespread

TNC Ecoregions: 59:C, 61:C, 62:C, 63:C

References: Thompson and Sorenson 2000

<u>State</u>	<u>SRank</u>	<u>State Name</u>
CT	S?	
MA	S5	Alluvial Red Maple Swamp, in part
ME	S5	Red maple swamp, in part
NH	SU	Red maple streamside/lakeside swamp or Seasonally flooded red maple swamp+
NY	S?	red maple swamp+
PA	S?	
RI	S?	Red maple swamp+
VT	S4	Red maple – Black Ash Swamp+

II.B.2.N.e Saturated cold-deciduous woodland

II.B.2.N.e.1 ACER RUBRUM SATURATED WOODLAND ALLIANCE (A.657 ECS)

Acer rubrum - Larix laricina / Rhamnus alnifolia Woodland (CEGL006118 ECS) — G3G5

Red Maple - Tamarack / Alderleaf Buckthorn Woodland

[Red Maple - Larch Wooded Fen]

Description: Open hardwood calcareous seepage swamp in the Lower New England-Northern Piedmont, Central Appalachian and Northern Appalachian ecoregions occurring in nutrient-rich lowlands. The canopy is usually open, but physiognomy is variable. *Acer rubrum* is usually dominant; *Larix laricina* is a common associate. *Fraxinus nigra* may also be present. The shrub layer includes *Cornus sericea*, *Cornus amomum*, *Alnus* spp., *Clethra alnifolia* or

**Lower New England - Northern Piedmont Ecoregion (61) Classification 4/2000
(subset revised from the National Vegetation Classification 11/1999 version)**

Spiraea latifolia, *Vaccinium corymbosum*, *Pentaphylloides floribunda*, *Rhamnus alnifolia* and *Betula pumila*. Herbaceous species include *Carex stricta*, *Carex lacustris*, *Carex leptalea*, *Eleocharis elliptica*, *Glyceria canadensis*, *Calamagrostis canadensis*, *Impatiens capensis*, *Campanula aparinoides*, *Thelypteris palustris*, *Osmunda regalis*, *Solidago patula*, *Thalictrum pubescens* and *Caltha palustris* and others. This alliance is known to occur in southern New England and New York, but may occur elsewhere. Environmental setting: occurs on spring-fed, saturated soils in poorly drained depressions. Soils are muck or peat overlying silt loam. Water levels are saturated but may fluctuate.

LNP Scale: Small patch **Distribution:** Limited or widespread

LNP Comment: In LNP in NJ and NY the dominant maple is often *Acer x fremanii* (*Acer rubrum* x *saccharinum*).

TNC Ecoregions: 59:C, 61:C, 63:C

References: Metzler and Barrett 1994, Messier 1980, Reschke 1990, Thompson and Sorenson 2000

<u>State</u>	<u>SRank</u>	<u>State Name</u>
CT	S?	
MA	S2	Black ash – red maple – tamarack Calcareous Seepage Swamp+
NH	S1	Calcareous/Circumneutral hardwood seepage swamp
NJ	S?	Calcareous seepage swamp+
NY	S?	Red maple -tamarack peat swamp+
VT	S2	Calcareous tamarack red maple swamp

***Acer rubrum* / *Alnus incana* - *Ilex verticillata* / *Osmunda regalis* Woodland (CEGL006395 ECS) —G?**

Red Maple / Speckled Alder - Winterberry / Royal Fern Woodland

[Red Maple Swamp Woodland]

Description: Open canopy red maple swamp of acidic peatlands. *Acer rubrum* is the dominant tree forming an semi-open tree canopy (15-40 percent cover on average). Associates may include *Abies balsamea*, *Larix laricina* and *Picea rubens*. The shrub layer is well-developed and is dominated by *Alnus incana* or *Ilex verticillata*, in variable association with other species such as *Nemopanthus mucronata*, *Viburnum nudum* var. *cassinoides*, *Myrica gale*, *Spiraea latifolia*. The herbaceous layer is variable, generally including *Osmunda cinnamomea*, *Osmunda regalis*, *Coptis trifolia*, *Maianthemum* spp., *Thelypteris palustris*, *Onoclea sensibilis*. *Carex trisperma* is the most frequent/abundant sedge. The bryophyte layer is well-developed, characterized by *Sphagnum magellanicum*, *Sphagnum fimbriatum*, *Sphagnum centrale* and others. Environmental setting: acidic peatlands at low elevations of southern part of the NAP ecoregion and into LNE-NP ecoregion. Similar types: This is a peatland type which contrasts to the non-peatland seasonally flooded *Acer rubrum* / *Carex stricta* – *Onoclea sensibilis* Woodland CEGL006119 that occurs in alluvial settings.

LNP Scale: Small patch **Distribution:** Limited

TNC Ecoregions: 61:C, 62:C, 63:C

References:

<u>State</u>	<u>SRank</u>	<u>State Name</u>
MA?	SP	
ME	S5	Red maple swamp community+
VT?	SP	

II.B.2.N.f Tidal cold-deciduous woodland

II.B.2.N.f.1 ACER RUBRUM - FRAXINUS PENNSYLVANICA TIDAL WOODLAND ALLIANCE (A.658 ECS)

***Acer rubrum* - *Fraxinus pennsylvanica* / *Polygonum* spp. Woodland (CEGL006165 ECS) — G2**

Red Maple - Green Ash / Smartweed species Woodland

[Freshwater Tidal Woodland]

Description: This freshwater tidal woodland occurs on tidal rivers in Massachusetts, New York, and New Jersey. It is found on larger rivers with gradual slopes, and is flooded by diurnal tides. The substrate is very wet. The canopy is characterized by *Acer rubrum*, *Fraxinus pennsylvanica*, with *Ulmus rubra* and *Carpinus carolina* being frequent associates. The shrub layer is characterized by *Ilex verticillata*, *Alnus serrulata*, *Clethra alnifolia*, *Rhododendron viscosum*, *Vaccinium corymbosum*, *Lindera benzoin*, *Cornus racemosa* and others. The herbaceous layer is characterized by *Peltandra virginica*, *Pontederia cordata*, *Impatiens capensis*, *Polygonum punctatum*, *Leersia oryzoides*, *Onoclea sensibilis*, *Pilea pumila*, *Polygonum hydropiper*, *Polygonum hydropiperoides*, *Asclepias incarnata* and *Arisaema triphyllum*.

LNP Scale: Small patch if present **Distribution:** Peripheral? **Ecological group:** Tidal/Forest or Woodland

**Lower New England - Northern Piedmont Ecoregion (61) Classification 4/2000
(subset revised from the National Vegetation Classification 11/1999 version)**

TNC Ecoregions: 61:C, 62:P

References: Breden 1988, Breden 1989, Reschke 1990

<u>State</u>	<u>SRank</u>	<u>State Name</u>
MA	S?	Freshwater/Brackish Tidal Swamp
NJ		S1S2 Freshwater tidal swamp
NY	S1	Freshwater tidal swamp

II.C.3.N.a Mixed needle-leaved evergreen - cold-deciduous woodland

II.C.3.N.a.19 PINUS RIGIDA - QUERCUS (COCCINEA, VELUTINA) WOODLAND ALLIANCE (A.687 ECS)

Pinus rigida - Quercus (coccinea, velutina) / Schizachyrium scoparium Woodland (CEGL006166 ECS) — G3G5

Pitch Pine - (Scarlet Oak, Black Oak) / Little Bluestem Woodland

Description: Dry oak - pine woodlands in the lower New England region and on dry eastern slopes in the High Alleghenies. The open canopy is co-dominated by *Pinus rigida* and *Quercus coccinea* and/or *Quercus velutina*. *Quercus alba* and *Pinus strobus* may be present as well. The shrub layer may include *Quercus ilicifolia*, *Quercus prinoides* and/or ericaceous shrubs such as *Gaylussacia baccata*, *Vaccinium angustifolium*, *Vaccinium pallidum*. Light-demanding species such as *Schizachyrium scoparium*, *Danthonia spicata*, *Carex pensylvanica* are common in this community. Other associates include *Arctostaphylos uva-ursi*, *Hudsonia tomentosa*, *Hudsonia ericoides* and *Lechea villosa*. Environmental setting: Occurs on well-drained, nutrient poor sandy soils, often associated with pine barrens communities. Also occurs on acidic bedrock ledges or ridges. Similar types: CEGL006375 *Quercus coccinea* – *Quercus velutina* / *Sassafras albidum* / *Vaccinium pallidum* Forest (primarily near coast & southern New England), CEGL006116 *Pinus rigida* / *Aronia melanocarpa* / *Deschampsia flexuosa* - *Schizachyrium scoparium* Woodland.

LNP Scale: Large patch/small patch

Distribution: Limited or widespread

TNC Ecoregions: 61:C, 63:?

References:

<u>State</u>	<u>SRank</u>	<u>State Name</u>
CT	S?	
MA	S?	Pitch pine – oak forest+, Ridgetop pitch pine / scrub oak community+
MD	S?	
NH	S2S3	Appalachian oak - pine rocky ridge woodland / barren
NJ		S?
NY	S3	Pitch pine – oak – heath rocky summit+
PA	S?	
RI	S?	
WV	S?	

II.C.3.N.a.14 PINUS STROBUS - BETULA POPULIFOLIA WOODLAND ALLIANCE (A.682 ECS)

Pinus strobus - Betula populifolia / Comptonia peregrina / Schizachyrium scoparium Woodland (CEGL006004 ECS) — G2

White Pine - Gray Birch / Sweetfern / Little Bluestem Woodland

[Dry Riverbluff Opening Community]

Description: This dry sandy riverbluff community occurs on the Merrimack and Soucook rivers in New Hampshire, and may occur elsewhere in New England. The steeply sloping bluffs of glacial sand deposits derived from glacial Lake Merrimack are kept open by the erosion of the base of the bluff by the river flow. The physiognomy of this community is variable, but on average is an open tree canopy characterized by one or more of the following trees: *Betula populifolia*, *Pinus strobus*, *Populus tremuloides* and *Betula papyrifera*. *Comptonia peregrina* is typically present in the sparsely distributed shrub layer, and *Quercus ilicifolia* may also occur. The herbaceous layer is dominated by *Schizachyrium scoparium*, *Polygonella articulata*, *Lechea* spp. and *Lespedeza capitata*. *Hudsonia ericoides* and *Lupinus perennis*, although not present in all occurrences, are particularly characteristic. Few intact natural examples remaining. Disturbance type previously classified as CEGL006276 (post-grazing artifacts) should be cross-walked or merged with CEGL006004.

LNP Scale: Small patch

Distribution: Restricted

TNC Ecoregions: 61:C

**Lower New England - Northern Piedmont Ecoregion (61) Classification 4/2000
(subset revised from the National Vegetation Classification 11/1999 version)**

References: Grossman et al. 1994, Rawinski 1985

<u>State</u>	<u>SRank</u>	<u>State Name</u>
MA?	S2	may be similar to Dry riverside bluff
ME	S2	Inland sand barren
NH	S?	

Lower New England - Northern Piedmont Ecoregion (61) Classification 4/2000
(subset revised from the National Vegetation Classification 11/1999 version)

III.B.2.N.a Temperate cold-deciduous shrubland

III.B.2.N.a.13 QUERCUS ILICIFOLIA SHRUBLAND ALLIANCE (A.906 ECS)

Quercus ilicifolia Shrubland [Provisional] (CEGL003883 ECS) — G?

Bear Oak Shrubland

Description: Scrub oak-dominated shrub thickets of sandy soils or rocky summits or outcrops. Occurs as frost pockets in most pine barrens. This is a placeholder for associations to be developed. Shrublands dominated by *Quercus ilicifolia*. Associated shrubs include *Quercus prinoides*, *Vaccinium angustifolium*, *Vaccinium pallidum*, *Gaylussacia baccata*, *Amelanchier spp.*, *Aralia nudicaulis*, *Aronia melanocarpa*, *Salix humilis*. Typical herbs are *Gaultheria procumbens*, *Pteridium aquilinum*, *Deschampsia flexuosa*, *Carex pensylvanica*, *Schizacharium scoparium*. Dense shrub thickets on sandy soils or rock outcrops or summits exposed to frequent fire and extensive wind desiccation and/or prolonged frosts.

LNP Scale: Small patch **Distribution:** Widespread

TNC Ecoregions: 49:P, 52:P, 59:C, 61:C, 62:C

References: Conard 1935, Dupstadt 1972

<u>State</u>	<u>SRank</u>	<u>State Name</u>
CT	S?	
MA	S?	Scrub Oak Shrubland
ME	S?	
NH	S?	
NJ	S?	
NY	S?	Pitch pine-oak-heath rocky summit (in part), pitch pine-oak-heath woodland (in part)
PA	S?	Scrub oak shrubland
RI	S?	
VA	S?	
WV	S?	

III.B.2.N.d Temporarily flooded cold-deciduous shrubland

III.B.2.N.d.10 BETULA NIGRA TEMPORARILY FLOODED SHRUBLAND ALLIANCE (A.951)

Betula nigra – Salix exigua Shrubland (CEGL003896-ECS) — G4G5

River Birch – Sandbar Willow Shrubland

Description: River birch shrub community of depositional river bars in High Allegheny Plateau, Central Appalachians and Lower New England – Northern Piedmont ecoregions. LNP 4/00 – Rivershore and river-bar community dominated by stunted trees (less than 5 meters tall) *Acer saccharinum*, *Acer rubrum*, *Platanus occidentalis*, *Betula nigra*, *Acer negundo*, *Prunus spp.* and *Ulmus americana*. *Betula nigra* is characteristic and often dominant. Associates include *Cornus amomum*, *Salix exigua*, *Salix sericea*, *Alnus serrulata*, *Physocarpus opulifolius*. Characteristic herbs include *Polygonum virginianum*, *Arisaema dracontium*. Exotics such as *Polygonum cuspidatum* are frequent problem. Dominates river gravel bars or grades into floodplain forest upslope. Environmental setting: riverbank floodplain and river gravel bars and islands subject to periodic flooding and ice-scour. On sand, gravel or cobble deposits. Early successional community. Similar types: see related *Salix nigra* Temporarily Flooded Shrubland CEGL003901 below and *Betula nigra – Platanus occidentalis / Impatiens pallida* Forest CEGL006184.

LNP Scale: Small patch **Distribution:** Widespread

LNP Comments: Includes NJ's proposed *Acer saccharinum* - *Platanus occidentalis* - (*Betula nigra*) Shrubland.

TNC Ecoregions: 49:C, 50:P, 59:C, 60:C, 61:C

References: Fike 1999

<u>State</u>	<u>SRank</u>	<u>State Name</u>
MD	S?	
NJ	S?	River bar community (temporary name)
NY	SP	
PA	S?	River birch – sycamore floodplain scrub

III.B.2.N.d.7 SALIX NIGRA TEMPORARILY FLOODED SHRUBLAND ALLIANCE (A.948 SCS)

**Lower New England - Northern Piedmont Ecoregion (61) Classification 4/2000
(subset revised from the National Vegetation Classification 11/1999 version)**

Salix nigra Temporarily Flooded Shrubland (CEGL003901 SCS) — G?

Black Willow Temporarily Flooded Shrubland

[Black Willow Riverbank Shrubland]

Description: This broadly defined type represents vegetation dominated by the nominal species for the states and ecoregions given. Additional types may be developed as more information becomes available. In northeast, occurs as narrow band along the sandy to gravelly shores of medium to large rivers. *Salix nigra* is dominant. Other shrub associates include *Alnus incana*, *Alnus serrulata*, *Alnus viridis* (infrequent), *Cornus amomum*, *Cornus stolonifera*, *Salix* spp. The herbaceous layer is typically sparse with variable composition including *Carex torta*, *Polygonum* spp. and *Bidens* spp. Grades into floodplain forest upslope (typically with *Platanus occidentalis* or *Acer saccharinum*).

LNP Scale: Small patch **Distribution:** Widespread

LNP Comments: Type should be “[Provisional]”. Need data on associates throughout range to develop finer associations. Possible type for northeast suggested as *Salix nigra* – *Alnus* spp. Temporarily Flooded Shrubland but needs review against *Alnus* spp Temporarily Flooded Alliances as well.

TNC Ecoregions: 38:C, 39:C, 40:C, 41:P, 42:C, 43:C, 44:P, 50:P, 52:C, 53:C, 55:P, 56:C, 57:C, 59:C, 61:C

References: Fike 1999, Thompson and Sorenson 2000

<u>State</u>	<u>SRank</u>	<u>State Name</u>
AL	S?	
AR	S?	
CT	S?	
FL	S?	
GA	S?	
IL?	SP	
KY	S?	
LA	S?	
MA	S5	part of broadly defined Shrub Swamp
MD	S?	
ME	S?	
MS	S?	
NC	S?	
NH	S?	may be part of Riverside alluvial shrub thicket (1997 classif)
OH?	SP	
OK	S?	
ON?	SP	No equivalent
PA	S?	Black willow scrub / shrub wetland
SC	S?	
TN	S?	
TX?	SP	
VA	S?	
VT	S4	Alluvial shrub swamp+
WV	S?	

III.B.2.N.f Semipermanently flooded cold-deciduous shrubland

III.B.2.N.f.1 CEPHALANTHUS OCCIDENTALIS SEMIPERMANENTLY FLOODED SHRUBLAND ALLIANCE (A.1011 MCS)

Cephalanthus occidentalis Semipermanently Flooded Shrubland [Provisional] (CEGL003908 ECS) G?

Buttonbush Semipermanently Flooded Shrubland

Description: Buttonbush-dominated swamps ranging throughout Lower New England, the North and Mid-Atlantic Coast, High Alleghenies, and Central Appalachians. This is a placeholder for associations to be developed. Semipermanently flooded shrub thickets and open shrublands dominated by *Cephalanthus occidentalis*. Occasional tree associates include *Acer rubrum*, *Acer saccharinum*, *Quercus palustris*. *Cephalanthus occidentalis* is often the sole dominant particularly in deeper (>0.5 m depth) zones of groundwater basins or lake borders on deep organic soils. Occasional shrub associates: *Decodon verticillatus*, *Salix* spp., *Cornus* spp., *Viburnum dentatum*, *Rosa palustris*, *Ilex verticillata*, and *Vaccinium corymbosum*. Standing water may dominate the ground layer with floating

**Lower New England - Northern Piedmont Ecoregion (61) Classification 4/2000
(subset revised from the National Vegetation Classification 11/1999 version)**

aquatics, such as *Lemna* spp and *Utricularia* spp. in deepwater habitats as well as *Nuphar lutea* and *Proserpinaca palustris*. In less flooded conditions, herbaceous associates include *Boehmeria cylindrica*, *Scutellaria lateriflora*, *Sium suave*, *Bidens discoidea*, *Bidens tripartita*, *Glyceria* spp., *Leersia oryzoides*, *Osmunda regalis*, *Polygonum* spp., *Thelypteris palustris*, *Triadenum virginicum* and a wide variety of *Carices*. *Dichelyma* (a moss) is frequent.

Environmental setting: shallow water depressions, oxbow ponds, sinkhole ponds, and backwater sloughs of stream and river floodplains throughout swampy forested areas. Inundation is usually continuous throughout the year, but these sites can become dry in mid or late summer or during periods of prolonged drought. Clays to sands, with overlying organic horizons.

LNP Scale: Small patch **Distribution:** Widespread

TNC Ecoregions: 58:C, 59:C, 61:P, 62:C

References: Fike 1999, Thompson and Sorenson 2000

<u>State</u>	<u>SRank</u>	<u>State Name</u>
CT	S?	
DE	S?	
MA	S5	Shrub Swamp+
MD	S?	
ME	S?	Mixed Graminoid – Shrub Marsh+
NH	S?	Riverside Alluvial Tall Shrub Thicket+
NY	S?	Shrub swamp, in part
PA	S?	Buttonbush wetland
RI	S?	Shrub swamp+
VA	S?	
VT	S2	Buttonbush Swamp=
WV	S?	

III.B.2.N.g Saturated cold-deciduous shrubland

III.B.2.N.g.7 ALNUS INCANA SATURATED SHRUBLAND ALLIANCE (A.1020 ECS)

Alnus (serrulata, incana) / Osmunda cinnamomea - Sphagnum spp. Shrubland (CEGL006164 ECS) G5

(Smooth Alder, Speckled Alder) / Cinnamon Fern - Peatmoss species Shrubland

[Peatland Lagg]

Description: LNP 2/00 Boggy alder thickets in Lower New England – Northern Piedmont, High Allegheny, North Atlantic Coast ecoregions. *Alnus serrulata* or *Alnus incana* are dominant. Associates include *Vaccinium corymbosum*, *Ilex verticillata*, *Cornus* spp. in the shrub layer and *Osmunda cinnamomea*, *Thelypteris palustris*, *Carex* spp. in the herbaceous layer. A mat of *Sphagnum* moss is characteristic. Occurs in acidic, saturated soils often with a well-developed layer of peat. Setting is in shallow basins (often associated with other wetland associations) or along low-energy stream systems. Similar type: contrasts with non-peatland alder thicket (*Alnus incana* or *Alnus serrulata* Temporarily Flooded Shrubland Alliance).

LNP Scale: Small patch **Distribution:** Widespread

LNP Comments: NAP suggested new type “*Alnus rugosa* {*incana*} – *Myrica gale* – *Spiraea* spp. Shrubland” but need more work to determine where to place.

TNC Ecoregions: 61:C, 62:C, 63:C

References: Fike 1999, Thompson and Sorenson 2000

<u>State</u>	<u>SRank</u>	<u>State Name</u>
CT	S?	
MA	S5	Shrub swamp, in part
ME	S5	peatland lagg
NH	S?	
NY	S?	
PA	S?	Alder – sphagnum wetland+
RI	S?	
VT	S5	Alder Swamp

III.B.2.N.g.8 BETULA PUMILA - (SALIX SPP.) SATURATED SHRUBLAND ALLIANCE (A.1021 MCS)

**Lower New England - Northern Piedmont Ecoregion (61) Classification 4/2000
(subset revised from the National Vegetation Classification 11/1999 version)**

Betula pumila - Toxicodendron vernix - Pentaphylloides floribunda Shrubland (CEGL006360 ECS) —G2G3

Swamp Birch - Poison Sumac - Shrubby-cinquefoil Shrubland

Description: This shrub fen association is characterized by a dense mixture of 1.5-2 m tall shrubs in deep muck, often in standing water 6" or more deep, in limestone regions of Lower New England / Northern Piedmont. This association is most typically found on lakeshores but may also be found at streamsides. Characteristic shrubs are *Betula pumila*, *Salix candida*, *Toxicodendron vernix*, *Rosa palustris*, *Alnus incana*, *Alnus serrulata*, *Viburnum nudiflorum*, *Viburnum dentatum*, *Viburnum nudum*, *Viburnum lentago*, *Viburnum trilobum*, as well as *Pentaphylloides floribunda* reaching 1 m in height. Herbaceous associates are few and sparsely distributed, and include *Galium trifidum*, *Carex stricta*, *Carex lacustris*, *Campanula aparinoides*, *Cicuta bulbifera*, and *Lysimachia thyriflora*. Scattered individuals of *Acer rubrum* saplings are also typical.

LNP Scale: Small patch

Distribution: Restricted?

Ecological Group: Calcareous Fen

TNC Ecoregions: 61:C

References: Motzkin 1994

<u>State</u>	<u>SRank</u>	<u>State Name</u>
CT	S?	
MA	S2	part of Calcareous Seepage Marsh
NJ	S?	
NY	S?	rich shrub fen, in part

III.B.2.N.g.3 CORNUS SERICEA - ARONIA MELANOCARPA - RHUS VERNIX SATURATED SHRUBLAND ALLIANCE (A.1016 MCS)

Cornus amomum - Salix candida / Pentaphylloides floribunda / Carex stricta Shrubland (CEGL006359 ECS) G3?

Silky Dogwood - Hoary Willow / Shrubby-cinquefoil / Tussock Sedge Shrubland

[Calcareous Fen]

Description: This calcareous fen shrubland is characterized by hummocky microtopography and dense patches of shrubs with small interspersed graminoid openings. *Cornus amomum*, *Cornus sericea*, and *Salix* spp. (*Salix candida*, *Salix petiolaris*, *Salix serissima*, and *Salix discolor*) are dominant and very characteristic of this association. Other shrubs include *Pentaphylloides floribunda*, *Alnus incana*, *Toxicodendron vernix*, and *Viburnum dentatum*. *Carex stricta* is the dominant and characteristic sedge; other herbaceous associates include *Eupatorium maculatum*, *Solidago patula*, *Solidago uliginosa*, *Spiranthes cernua*, *Trollius laxus*, *Thelypteris palustris*, *Muhlenbergia glomerata*, *Parnassia glauca*, *Drosera rotundifolia*, *Carex lacustris*, *Ludwigia palustris*, and *Deschampsia cespitosa*. *Juniperus virginiana* occurs as scattered individuals.

LNP Scale: Small patch

Distribution: Restricted

Ecological Group: Calcareous Fen

TNC Ecoregions: 61:C

References:

<u>State</u>	<u>SRank</u>	<u>State Name</u>
CT?	SP	
MA?	S2	Calcareous Seepage Marsh+ (not quite a good fit, need a shrub category)
NJ	S?	
NY	S?	Rich shrub fen, in part
PA	S?	

III.B.2.N.g.5 VACCINIUM CORYMBOSUM SATURATED SHRUBLAND ALLIANCE (A.1018 ECS)

Vaccinium corymbosum / Sphagnum spp. Shrubland (CEGL006190 ECS) — G3G5

Highbush Blueberry / Peatmoss species Shrubland

[Highbush Blueberry Bog Thicket]

Description: Highbush blueberry peat bog primarily of glaciated northeast, including Lower New England-Northern Piedmont, North Atlantic Coast, and parts of the High Alleghenies and other ecoregions. This community is found in acidic peats or mucks and dominated by tall, deciduous, ericaceous shrubs and peat mosses. The tall shrub layer is dominated by *Vaccinium corymbosum*, sometimes codominant with *Rhododendron viscosum*. Other associated shrubs include *Aronia melanocarpa*, *Gaylussacia baccata*, *Ilex verticillata*, *Nemopanthus mucronata*, *Clethra alnifolia*, *Viburnum recognitum*, *Kalmia angustifolia*, *Lyonia ligustrina*, *Alnus* spp. *Chamaedaphne calyculata* and *Rhododendron canadense* are occasional. Characteristic herbs include *Carex trisperma*, *Osmunda cinnamomea*, *Sarracenia purpurea*, and *Maianthemum trifolium* (= *Smilacina trifolia*). Other common associates include *Osmunda*

**Lower New England - Northern Piedmont Ecoregion (61) Classification 4/2000
(subset revised from the National Vegetation Classification 11/1999 version)**

regalis, *Thelypteris palustris*, *Lysimachia terrestris*, *Decodon verticillatus*, *Triadenum virginianum*. Characteristic peat mosses include *Sphagnum centrale*, *Sphagnum fimbriatum*, *Sphagnum magellanicum*, and *Sphagnum capillifolia* (= *Sphagnum nemoreum*). Stunted trees may be present at a low density and less than 25 percent cover, including *Acer rubrum*. Environmental setting: margins of kettles in glaciated regions, and in basins or at the heads of streams. Soils are usually deep peats or mucks. The water is usually nutrient poor and acidic (pH < 5). Eastern Midwest and northeastern United States and probably many of the eastern Canadian provinces.

LNP Scale: Small patch **Distribution:** Widespread

TNC Ecoregions: 48:C, 59:C, 61:C, 62:C

References: Damman and French 1987, Fike 1999, Sperduto 1997

<u>State</u>	<u>SRank</u>	<u>State Name</u>
CT	S?	Vaccinium corymbosum - Rhododendron viscosum community
MA	S3	Southern New England level bog+
ME	S5	Shrub swamp community+
NH	S?	Blueberry - Winterberry tall shrub thicket
NJ	S5	Northern New Jersey Shrub Swamp
NY	S3	Highbush blueberry bog thicket+
PA	S?	Highbush blueberry - sphagnum wetland
RI	S?	Scrub/Shrub Wetlands+
VT?	SP	

III.B.2.N.h Tidal cold-deciduous shrubland

III.B.2.N.h.2 ALNUS (INCANA, SERRULATA) TIDAL SHRUBLAND ALLIANCE (A.1024 SCS)

Alnus (incana ssp. rugosa, serrulata) - Cornus amomum Shrubland (CEGL006337 ECS) — G?

(Speckled Alder, Smooth Alder) - Silky Dogwood Shrubland

Description: Tidal freshwater, or perhaps also oligohaline, shrublands dominated by *Alnus serrulata* and/or *Alnus incana* ssp. *rugosa*. In some examples one of both of these may be characteristically dominant or nearly so. Other examples may be more semi-open with a mixed canopy of *Alnus* with other shrubs such as *Cornus amomum*, *Rosa palustris*, and *Ilex verticillata*. Other woody plants which may be present include *Sambucus canadensis*, *Salix* spp., *Amorpha fruticosa*, *Cephalanthus occidentalis*, and *Toxicodendron radicans*. More northern examples may contain *Viburnum dentatum* var. *lucidum* (= *Viburnum recognitum*) and *Spiraea latifolia*. This association is found in coastal areas with tidally influenced river systems from Maine to Virginia. Flood waters are typically slightly acid (pH less than 5) and soils are usually mineral without significant peat deposits. *Carex stricta* may also be present and there is a great deal of micro-relief (tussocks and furrows) leading to high species diversity. Some shrub associates include *Decodon verticillatus* and *Toxicodendron vernix*; some herbaceous associates are *Osmunda regalis* var. *spectabilis*, *Thelypteris palustris* var. *pubescens*, *Galium* spp., *Typha latifolia*, *Peltandra virginica*, *Mikania scandens*, *Aster novi-belgii*, *Boehmeria cylindrica*, *Impatiens capensis*, *Triadenum walteri*, *Asclepias incarnata*, *Carex emoryi*, *Carex atlantica* ssp. *atlantica* (= *Carex incompta*), *Eriophorum virginicum*, *Platanthera clavellata*, and *Xyris torta*.

LNP Scale: Small patch **Distribution:** Peripheral **Ecological Group:** Tidal

LNP Comments: primarily in NAC; in LNP in CT & possibly NY & MA

TNC Ecoregions: 57:C, 58:C, 61:C

References: Sneddon et al. 1996

<u>State</u>	<u>SRank</u>	<u>State Name</u>
CT	S?	
DE	S?	
MA	S1	Estuarine Intertidal, Fresh/Brackish Shrubland
MD	S?	
ME	S?	
NH	S?	
NJ	S?	
NY	S?	
RI	S?	
VA	S?	

IV.A.1.N.e Temporarily flooded needle-leaved and microphyllous evergreen dwarf-shrubland

**Lower New England - Northern Piedmont Ecoregion (61) Classification 4/2000
(subset revised from the National Vegetation Classification 11/1999 version)**

**IV.A.1.N.e.1 HUDSONIA TOMENTOSA TEMPORARILY FLOODED DWARF-SHRUBLAND ALLIANCE
(A.1087 ECS)**

Hudsonia tomentosa - Paronychia argyrocoma Dwarf-shrubland (CEGL006232 ECS) — G1

Beach Heather - Silverling Dwarf-shrubland

[Hudsonia Riverwash Barren]

Description: This community, a riverwash sand or gravel barren characterized by *Hudsonia tomentosa* var. *intermedia*, occurs along a limited extent of the Saco River on the border of New Hampshire and Maine. It is highly unusual in that the major process structuring this vegetation is irregular alluvial flooding as opposed to wind-driven sand deposition that structures nearly all other known vegetation dominated by *Hudsonia tomentosa*. The source of alluvial flooding, the Saco River, originates in the White Mountains and flows through thick sand and gravel, which is deposited on point bars during early spring floods. The sand deposits are often extensive, resulting in some secondary aeolian dune formation. As a result, the community is highly unusual in its species composition, supporting species of coastal sands such as *Lechea maritima*, species typical of the cooler climates of the White Mountains, such as *Solidago simplex* var. *randii* and *Paronychia argyrocoma*, and species characteristic of grasslands such as *Andropogon gerardii*, *Schizachyrium scoparium*, *Danthonia spicata*, *Solidago nemoralis*, and species of *Panicum*.

LNP Scale: Small patch

Distribution: Restricted

TNC Ecoregions: 61:C

References:

<u>State</u>	<u>SRank</u>	<u>State Name</u>
ME	S?	
NH	S?	

IV.A.1.N.g Saturated needle-leaved or microphyllous evergreen dwarf-shrubland

IV.A.1.N.g.1 CHAMAEDAPHNE CALYCVLATA SATURATED DWARF-SHRUBLAND ALLIANCE (A.1092 ECS)

Chamaedaphne calyculata - (Gaylussacia dumosa) - Decodon verticillatus / Woodwardia virginica Dwarf-shrubland (CEGL006008 ECS) — G5

Leatherleaf - (Dwarf Huckleberry)- Water-willow / Virginia Chainfern Dwarf-shrubland

[Southern New England Bog]

Description: Oligotrophic dwarf-shrub quaking or floating bog of the southern portion of the glaciated northeast. *Chamaedaphne calyculata* is the dominant shrub; other associates include *Kalmia angustifolia*, *Kalmia polifolia*, *Andromeda*, *Vaccinium macrocarpon*, *Vaccinium oxycoccos*, *Gaylussacia dumosa*, *Pogonia ophioglossoides*, *Carex trisperma*, *Rhynchospora alba*. Scattered trees may be present (less than 25% cover) including *Acer rubrum*, *Pinus rigida*, or *Picea mariana* to the north. This vegetation is oligotrophic as opposed to ombrotrophic, receiving small amounts of nutrients from groundwater, supporting such species as *Peltandra virginica*, *Decodon verticillatus*, *Dulichium arundinaceum*, particularly at the edge of the mat. The bryophyte layer is well-developed, dominated by *Sphagnum capillifolium* var. *capillifolium* and *Sphagnum fuscum*. Compare to dwarf shrub bog CEGL006225 *Kalmia angustifolia* – *Chamaedaphne calyculata* – (*Picea mariana*) / *Cladina* Dwarf-shrubland (below).

LNP Scale: Small patch **Distribution:** Limited

TNC Ecoregions: 61:C, 62:C

References: Damman and French 1987

<u>State</u>	<u>SRank</u>	<u>State Name</u>
CT	S?	
MA	S2	Kettlehole Level Bog+ (and probably part of S3, Level bog as well)
NH	S?	Dwarf shrub bog+ or Poor Fen+
NJ	S?	Glacial bog+
NY	S?	Inland poor fen, in part; Dwarf shrub bog, in part
PA	S?	
RI	S?	
ME	S?	Leatherleaf Boggy Fen+

**Lower New England - Northern Piedmont Ecoregion (61) Classification 4/2000
(subset revised from the National Vegetation Classification 11/1999 version)**

Kalmia angustifolia - Chamaedaphne calyculata - (Picea mariana) / Cladina spp. Dwarf-shrubland (CEGL006225 ECS) — G5

Northern Sheepkill - Leatherleaf - (Black Spruce) / Reindeer Lichen species Dwarf-shrubland
[Northern Dwarf-shrub Bog]

Description: Dwarf-shrub peatlands in the boreal regions of northern New England and Canada. *Kalmia angustifolia* dominates the low-shrub stratum; *Chamaedaphne calyculata* and *Rhododendron canadense* usually less abundant than *Kalmia angustifolia* but may be locally dominant. With scattered, stunted (1.5-5m) *Picea mariana*, or occasionally *Pinus rigida* or *Pinus strobus*. *Picea mariana* frequently co-dominant in low-shrub stratum as well. Other associates include *Ledum groenlandicum*, *Eriophorum vaginatum* var. *spissum*, *Drosera rotundifolia*, *Sarracenia purpurea*. The bryophyte layer is well-developed, especially on hummocks, usually dominated by *Sphagnum fuscum*, with other associated species including *Sphagnum capillifolium*, *Sphagnum magellanicum*. Lichens are common including *Cladonia crispata*, *Cladonia cristatella*, *Cladonia verticillata*, *Cladonia uncialis*. This association is the most common northern bog type, dominated by *Kalmia angustifolia* and *Chamaedaphne calyculata*. This association occurs on the well-drained portions of raised bogs and in very acidic fens and peat accumulating depressions. Oligotrophic or ombrotrophic conditions.

LNP Scale: Small patch? **Distribution:** Widespread

TNC Ecoregions: 61:C, 62:C, 63:C

Other Synonymy: This association is synonymous with Damman and French (1987) *Sphagnum fuscum* - *Kalmia* dwarf-shrub bog.

References: Damman and French 1987

<u>State</u>	<u>SRank</u>	<u>State Name</u>
CT	S?	
MA	S3	Level Bog, in part. and to a lesser extent in part Kettlehole Level Bog
ME	S4	Dwarf shrub bog community, in part
NH	S?	Dwarf shrub bog+
NY	S?	Dwarf shrub bog, in part; inland poor fen, in part
VT	S?	

IV.B.2.N.a Caespitose cold-deciduous dwarf-shrubland

IV.B.2.N.a.1 VACCINIUM (ANGUSTIFOLIUM, MYRTILLOIDES, PALLIDUM) DWARF-SHRUBLAND ALLIANCE (A.1113 ECS)

Vaccinium angustifolium - Sorbus americana Dwarf-shrubland (CEGL005094 ECS) — G?

Northern Lowbush Blueberry - American Mountain-ash Dwarf-shrubland
[Low Sweet Blueberry Granite Barrens]

Description: Northern or high-elevation acidic rock outcrops or summits characterized by abundant dwarf *Vaccinium* spp. 6/98 NAP Rocky summits, ridges and outcrops dominated by heath shrubs and exposed bedrock. Community dominated by dense to scattered low heath shrubs: *Vaccinium angustifolium*, *Vaccinium myrtilloides*, *Gaylussacia baccata*, *Kalmia angustifolia*. Sparse herb layer of graminoids: *Deschampsia flexuosa*, *Danthonia spicata*, *Carex pensylvanica*, *Carex lucorum*, *Oryzopsis pungens*, and forbs: *Sibbaldiopsis tridentata* (= *Potentilla tridentata*), *Solidago simplex* var. *randii*, *Maianthemum canadense*. Abundant mosses and lichens on rock outcrops. Scattered tall shrubs may include *Sorbus americana*, *Viburnum nudum* var. *cassinoides*, *Nemopanthus mucronata*, *Aronia melanocarpa*, or *Amelanchier* spp. Canopy absent but there may be scattered individuals of *Picea rubens*, *Abies balsamea*, *Betula papyrifera*, *Betula papyrifera* var. *cordifolia*, or various other species. Environmental setting: Rocky ridges, outcrops and summits. Soils are shallow, well-drained, dry, acidic, coarse sands. Significant amounts of exposed bedrock with minimal soil development restricted to crevices or shelter areas. Elevations of known examples range from almost sea level on the Maine coast to about 2700 feet. Groundcover is mainly exposed bedrock.

LNP Scale: Small patch **Distribution:** Widespread

TNC Ecoregions: 59:C, 60:C, 61:C, 62:C, 63:C

References: Fike 1999, Thompson and Sorenson 2000

<u>State</u>	<u>SRank</u>	<u>State Name</u>
CT	S?	
MA	S4	Acidic rocky summit / rock outcrop
ME	S4	acidic summit community (in part
NH	S?	red spruce/heath/cinquefoil rocky ridge (in part

**Lower New England - Northern Piedmont Ecoregion (61) Classification 4/2000
(subset revised from the National Vegetation Classification 11/1999 version)**

NY	S?	Boreal heath barren
ON	S?	Blueberry Acidic Shrub Rock Barren Type =
PA	S?	Low heath – mountain ash shrubland
VT	S4	Boreal outcrop+

IV.B.2.N.b Creeping or matted cold-deciduous dwarf-shrubland

IV.B.2.N.b.1 VACCINIUM ULIGINOSUM DWARF-SHRUBLAND ALLIANCE (A.1116 ECS)

Vaccinium uliginosum Dwarf-shrubland (CEGL006298 ECS) — G2G3

Bog Blueberry Dwarf-shrubland

[Alpine Heath Community]

Description: Alpine dwarf-shrublands generally characterized by *Vaccinium uliginosum*. Typically they occur above timberline on exposed, wind-swept mountain summits, ridges, and bedrock dominated tablelands. They are usually part of a mosaic of communities associated with these alpine areas and remain saturated for much of the growing season by atmospheric moisture. Other species associated with this association include *Ledum groenlandicum*, *Betula glandulosum*, *Empetrum nigrum*, *Rhododendron lapponicum*, *Salix uva-ursi*, and the herbs *Juncus trifidus*, *Carex bigelowii*, *Potentilla tridentata*, and *Minuartia groenlandica*. 6/98 NAP Alpine heathlands dominated by a mixture of dwarf shrubs. Dwarf-shrub community dominated by a variety of alpine shrubs including *Vaccinium uliginosum*, *Vaccinium boreale*, *Vaccinium vitis-idaea*, *Vaccinium angustifolium*, *Empetrum nigrum*, *Empetrum eamesii* ssp. *atropurpureum*, and *Diapensia lapponica*. Characteristic herbs include *Sibbaldiopsis tridentata* (= *Potentilla tridentata*), *Juncus trifidus*, and *Solidago multiradiata* var. *arctica* (= *Solidago cutleri*). Environmental setting: Exposed summits, slopes and ridges of alpine peaks. Soils are well-drained gravels and stones with shallow organic accumulation. Elevation range is 3600 to 4700 feet.

LNP Scale: Small patch **Distribution:** Peripheral if present.

Note: NAP suggested name change to *Vaccinium uliginosum* – *Empetrum* / Lichen dwarf-shrubland.

TNC Ecoregions: 61:C, 63:C

References: Thompson and Sorenson 2000

<u>State</u>	<u>SRank</u>	<u>State Name</u>
ME	S?	Crowberry – Bilberry Summit Bald
NH	S?	<i>Vaccinium uliginosum</i> - <i>Empetrum</i> /Lichen dwarf shrubland
NY	S?	
VT	S1	Alpine Meadow+

Lower New England - Northern Piedmont Ecoregion (61) Classification 4/2000
(subset revised from the National Vegetation Classification 11/1999 version)

HERBACEOUS VEGETATION

V.A.5.N.e Short sod temperate or subpolar grassland

V.A.5.N.e.8 DANTHONIA SPICATA HERBACEOUS ALLIANCE (A.1281 ECS)

(*Pinus strobus*, *Quercus rubra*) / *Danthonia spicata* Acid Bedrock Wooded Herbaceous Vegetation (CEGL005101 MCS) — G3Q

(Eastern White Pine, Red Oak) / Poverty Grass Acid Bedrock Wooded Herbaceous Vegetation
[White Pine - Oak Acid Bedrock Glade]

Description: This acid bedrock glade occurs in the Upper Great Lakes region near bedrock shorelines, and elsewhere on rocky openings in New England. In the Great Lakes, these glades occupy upper portions above the granitic bedrock shorelines. Shrubs and scattered trees dominate the woody canopy layers. Trees include *Betula papyrifera*, *Pinus banksiana*, *Pinus resinosa*, *Pinus strobus*, and *Quercus rubra*. The shrub layer contains *Diervilla lonicera*, *Juniperus communis*, and, less frequently, *Physocarpus opulifolius*. The dwarf-shrub *Arctostaphylos uva-ursi* is also present. The herbaceous layer contains *Agrostis hyemalis*, *Campanula rotundifolia*, *Danthonia spicata*, *Deschampsia cespitosa*, *Epilobium angustifolium*, *Poa compressa*, *Sibbaldiopsis tridentata* (= *Potentilla tridentata*), and *Vaccinium angustifolium*. Moss and lichen cover may be substantial.

LNP Scale: Small patch **Distribution:** Widespread

LNP Comment: Not discussed; not in original list or printout. This association was previously in Wooded Herbaceous alliance under VA6Nf. NVC description above was largely based on NH classification but needs to include description from midwest.

TNC Ecoregions: 47:C, 48:C, 61:C, 63:C

References: Sperduto 1997

<u>State</u>	<u>SRank</u>	<u>State Name</u>
MA	S2S3	Circumneutral Rocky Summit / rock Outcrop Community (or related to it)
ME	S?	
MI	S?	granitic glades =
NH	S?	Red oak – Pine / Heath Rocky Ridge Woodland
NY	S?	Shoreline outcrop?
WI?	SP	bedrock glade =

V.A.5.N.j Temporarily flooded temperate or subpolar grassland

V.A.5.N.j.1 ANDROPOGON GERARDII - (SORGHASTRUM NUTANS) TEMPORARILY FLOODED HERBACEOUS ALLIANCE (A.1337 ECS)

Andropogon gerardii - *Campanula rotundifolia* - *Solidago simplex* Herbaceous Vegetation (CEGL006284 ECS) G2

Big Bluestem - Bellflower - Sticky Goldenrod Herbaceous Vegetation

Description: This riverside rock outcrop community occurs on open flood scoured bedrock exposures of major rivers, typically along river-narrows. Emergent seepage is absent. Typically a gradient from dry acidic conditions higher on the bank to moist, fairly enriched conditions lower down may exist at any one site. This community is prone to flooding in the upper regions and deposition in the topographically lower areas. It is also prone to severe drought periods that may stress or kill some vegetation. Within the community the species are distributed patchily probably due to microsite conditions. The amount of variability in species composition has not been measured but the sites included show substantial variation. Other characteristic species include *Andropogon gerardii*, *Schizachyrium scoparium*, *Campanula rotundifolia*, *Solidago simplex*, *Toxicodendron radicans*, *Ionactis linariifolius*, *Senecio pauperculus* and *Prunus pumila*. Additional species occurring in southern part of range are *Astragalus robbinsii*, *Allium schoenoprasum*.

LNP Scale: Small patch **Distribution:** Limited (or nearly Restricted?)

LNP Comments: LNP states recognize general river shore community with these characteristics but variable species composition between sites. Uncertain whether outcrops and gravel/cobble shores are vegetatively distinct enough to split; the latter may match better with type below. Most states in LNP have both types.

TNC Ecoregions: 61:C

References: Grossman et al. 1994, Thompson and Sorenson 2000

<u>State</u>	<u>SRank</u>	<u>State Name</u>
--------------	--------------	-------------------

**Lower New England - Northern Piedmont Ecoregion (61) Classification 4/2000
(subset revised from the National Vegetation Classification 11/1999 version)**

CT?	S?	
MA	S3?	possibly Riverside Rock Outcrop Community
ME	S?	High Energy Riverbank Community+
NH	S?	riverside gravel/sand barren+ and river outcrop+
NY?	SP	Shoreline outcrop, in part?; Cobble shore, in part?
VT	S3	Riverside Outcrop, Rivershore Grassland

Andropogon gerardii - Panicum virgatum - Baptisia australis Herbaceous Vegetation (CEGL006283 ECS) G2G3

Big Bluestem - Switchgrass - Tall Blue Wild Indigo Herbaceous Vegetation

Description: This riverwash grassland community occurs only along high-gradient sections of major rivers, such as in gorges and along the Fall Line. It occurs within the active channel shelf at an intermediate level above the low water level and the bank-full level. Flood scouring and river ice may become a powerful and ecologically important abrasive force along the riverbanks. Soils are rapidly drained Psamments. Often, soil material is restricted to the narrow interstices of tightly packed boulders, or to small crevices in bedrock exposures. This community is characterized by a luxuriant growth of the robust grasses *Andropogon gerardii*, *Sorghastrum nutans*, *Panicum virgatum*, and *Spartina pectinata* which resembles prairie vegetation. Many of the forbs are also typical of prairies. Other characteristic species include *Baptisia australis*, *Toxicodendron radicans*, *Cerastium arvense*, *Clematis viorna*, *Coreopsis tripteris*, *Melica mutica*, *Phlox divaricata*, *Pycnanthemum virginianum*, *Silphium trifoliatum*, *Solidago erecta*, *Solidago rupestris*, *Solidago speciosa*, *Teucrium canadense*, *Tripsacum dactyloides*, *Veronicastrum virginicum*, *Vicia americana*, and *Zizia aurea*. Shrubs such as *Salix interior* may be present but sparse.

LNP Scale: Small patch **Distribution:** Peripheral or Widespread?

LNP Comments: similar types occur into New England but need better definition between this and 6284 above (possibly need to add type too) CT has similar type Andropogon - Sorghastrum - Panicum virgatum association on river levees.

TNC Ecoregions: 50:?, 59:C, 61:C

References: Grossman et al. 1994, Rawinski 1988, Fike 1999

<u>State</u>	<u>SRank</u>	<u>State Name</u>
CT?	SP	
KY	S?	
MA?	S?	High – energy riverbank?
MD	S?	
OH?	SP	
NY?	SP	
PA	S?	Big bluestem – Indian grass river grassland
TN	S?	
VA	S?	
WV	S?	

V.A.5.N.j.4 CAREX TORTA TEMPORARILY FLOODED HERBACEOUS ALLIANCE (A.1340)

Carex torta Herbaceous Vegetation (CEGL004103) – G3G4

Twisted Sedge Herbaceous Vegetation

Description: *Carex torta*-dominated alluvial wetlands and river banks on sand, gravel and rock bars of eastern United States. Characterized by light-demanding, tough-rooted herbaceous perennials tolerant of frequent inundation and flood-scouring. *Carex torta* often forms extensive, dense colonies. Associated species vary with geography but can include *Verbena hastata*, *Aster umbellatus*, *Dichanthelium clandestinum*, *Solidago rugosa* var. *aspera*, *Juncus effusus*, *Scirpus expansus*, *Scirpus cyperinus*, *Equisetum arvense*, *Onoclea sensibilis*, *Vernonia noveboracensis*, *Lycopus virginicus*, *Scutellaria lateriflora*. Scattered shrubs may be present such as *Alnus* spp., *Salix* spp.

LNP Scale: Small patch **Distribution:** Widespread

LNP Comments: Examples MA –Cold River, Westfield River, Miller River. Uncertain where to place proposed forb-dominated type (see proposed types) related to above (4103) and to 6284 Andropogon – Sorghastrum Alliance.

TNC Ecoregions: 44:C, 50:C, 51:C, 59:C, 61:C

References:

<u>State</u>	<u>SRank</u>	<u>State Name</u>
AL	SP	
GA	S?	
KY	S?	

**Lower New England - Northern Piedmont Ecoregion (61) Classification 4/2000
(subset revised from the National Vegetation Classification 11/1999 version)**

MA	S3	Riverine Pointbar and beach
NC	S1	Rocky Bar and Shore+ and Sand and Mud Bar+
NH?	SP	
NY	S?	Cobble shore?
PA?	SP	
SC	S?	
TN	S?	
VA	S?	
VT	S3, S2	River Sand or Gravel Shore+ and River Cobble Shore+

V.A.5.N.k Seasonally flooded temperate or subpolar grassland

**V.A.5.N.k.39 CALAMAGROSTIS CANADENSIS SEASONALLY FLOODED HERBACEOUS ALLIANCE
(A.1400 MCS)**

Calamagrostis canadensis - Dichanthelium meridionale Herbaceous Vegetation (CEGL006243 ECS) — G?

Canada Reedgrass - Matting Rosette Grass Herbaceous Vegetation

Description: This community generally occurs as a narrow band at the periphery of coastal plain pondshore basins, adjacent to the shrub zone or upland forest, if a shrub zone is absent. In one case, it also occupies the majority of a shallow basin in Massachusetts. The substrate is sandy with a shallow organic layer, or deeper muck.

LNP Scale: Small patch **Distribution:** Limited **Ecological Group:** Coastal Plain Pondshore

LNP Comments: Pondshore classification under revision LAS.

TNC Ecoregions: 61:C, 62:C

References:

<u>State</u>	<u>SRank</u>	<u>State Name</u>
MA	S2	Coastal Plain Pondshore Community
ME	S?	Outwash Plain Pondshore+
NH	S?	
NY?	SP	
ON	S?	
RI?	SP	

Calamagrostis canadensis - Phalaris arundinacea Herbaceous Vegetation (CEGL005174 ECS) G?

Canada Bluejoint - Reed Canary Grass Herbaceous Vegetation

[Bluejoint Eastern Marsh]

Description: This wet meadow vegetation is of widespread distribution in the Northeast and Midwest. Dense graminoid cover of *Calamagrostis canadensis* often associated with *Phalaris arundinacea*, *Carex stricta* or a variety of other *Carices*. Can form hummocky microtopography. Associates include *Agrostis alba*, *Carex stricta*, *Carex rostrata*, or *Carex lacustris*, *Poa palustris*, *Scirpus cyperinus*, *Epilobium spp.*, *Glyceria striata* or *Glyceria grandis*. May contain sparsely scattered shrubs such as *Viburnum nudum*, *Viburnum dentatum*, *Spiraea alba*, *Alnus incana*, or *Alnus serrulata*. The ground layer can be a heavy mat of grass stems and leaves, with patches of bare soil present in wetter locations. Environmental setting: mineral soil or well-decomposed peat, usually held together by a dense root mat. Stands are found in floodplains of small streams, beaver meadows, and lakeshores. The hydrology is typically seasonally flooded. Graminoid cover is typically dense, and *Calamagrostis canadensis* dominates, often in almost pure stands or with tall sedges, such as *Carex aquatilis*, *Carex lacustris*, *Carex rostrata*, and *Carex stricta*. In fen transitions, *Carex lasiocarpa* can be present. *Glyceria grandis*, *Poa palustris*, *Scirpus cyperinus*, and *Typha latifolia* are sometimes abundant. Forbs include *Campanula aparinoides*, *Epilobium leptophyllum*, *Eupatorium maculatum*, *Iris versicolor*, *Polygonum amphibium*, and *Potentilla palustris*. Environmental setting: floodplains of small streams, in poorly drained depressions, beaver meadows, and lakeshores. Soils are typically mineral soil or well-decomposed peat, with a thick root mat. Water regime varies between temporarily and seasonally flooded.

LNP Scale: Small patch **Distribution:** Widespread

TNC Ecoregions: 35:C, 45:C, 47:P, 48:C, 51:C, 59:C, 61:C, 63:C

Other Synonymy: Boreal alluvial tall meadow (NAP). Canada bluejoint-tussock sedge meadow (CAP).

References: Fike 1999, Harris et al. 1996, Thompson and Sorenson 2000

**Lower New England - Northern Piedmont Ecoregion (61) Classification 4/2000
(subset revised from the National Vegetation Classification 11/1999 version)**

<u>State</u>	<u>SRank</u>	<u>State Name</u>
CT	S?	
DE	S?	
MA	S4	Shallow emergent marsh+
MD	S?	
ME	S2	Bluejoint Meadow
MI	S4	northern wet meadow +
MN	S?	
NH	S?	Shallow emergent marsh, reed grass meadow
NJ	S?	
NY	S?	Shallow emergent marsh+
ON	S?	Bluejoint Mineral Meadow Marsh Type, Bluejoint Organic Meadow Marsh Type
PA	S?	Bluejoint – reed canary grass marsh
RI	S?	
VA?	SP	
VT	S4	Shallow emergent marsh
WV	S?	

V.A.5.N.k.36 CAREX STRICTA SEASONALLY FLOODED HERBACEOUS ALLIANCE (A.1397 MCS)

Carex stricta Seasonally Flooded Herbaceous Vegetation [Provisional] (CEGL004121 ECS) — G?

Tussock Sedge Seasonally Flooded Herbaceous Vegetation

[Sedge Marshes (Placeholder)]

Description: This is a placeholder for community association(s) to be developed in this alliance. 12/98 CAP Saturated and usually seasonally flooded communities dominated by the sedge *Carex stricta*, often occurring with other tussock-forming sedges and *Calamagrostis canadensis*. Other associates: *Asclepias incarnata*, *Angelica atropurpurea*, *Eupatorium maculatum*, *Eupatorium perfoliatum*, *Thalictrum dasycarpum*, *Typha latifolia*, *Triadenum virginianum*, *Carex trichocarpa*, and low forbs such as *Lycopus americanus*, *Galium obtusum*, and *Thelypteris palustris*. Environmental setting: along slow streams and near inlets and outlets of lakes or ponds and may be inundated with water during floods. The ground may be flooded in the spring or after heavy rains, but it typically lies just above the permanent water table. Soils are either a raw sedge peat or a muck comprised of decomposed peat (Curtis 1959). These wetlands generally contain little or no Sphagnum and can be the result of beaver-caused flooding of once more sphagnous wetlands.

LNP Scale: Small patch **Distribution:** Widespread

TNC Ecoregions: 37:C, 44:C, 51:C, 52:C, 59:C, 61:?, 62:?, 63:C

References: Curtis 1959, Thompson and Sorenson 2000

<u>State</u>	<u>SRank</u>	<u>State Name</u>
CT	S?	
DE	S?	
MA	S4	Shallow emergent marsh+, Wet meadow+
MD	S?	
ME	S?	Tussock Sedge Meadow
NC	S?	
NH	S?	Shallow Emergent Marsh (tussock sedge meadow)
NJ	S?	Graminoid marsh+
NY	S?	Sedge meadow
PA	S?	Tussock sedge marsh
RI	S?	
VA	S?	
VT	S4	Sedge Meadow
WV	S?	

V.A.5.N.k.37 DULICHIMUM ARUNDINACEUM SEASONALLY FLOODED HERBACEOUS ALLIANCE (A.1398 ECS)

**Lower New England - Northern Piedmont Ecoregion (61) Classification 4/2000
(subset revised from the National Vegetation Classification 11/1999 version)**

Lysimachia terrestris - Dulichium arundinaceum Herbaceous Vegetation (CEGL006035 ECS) G2G3

Swamp-candles - Threeway Sedge Herbaceous Vegetation

Description: This coastal plain pondshore community occurs in central New England. Basins supporting this community may have a permanent central water body without emergent vegetation, or may be shallower basins that support emergent vegetation across the entire surface. Substrate is muck, sand, or mucky sand with an organic layer of variable depth. Species composition is variable, but usually includes the following species: *Rhexia virginica*, *Lysimachia terrestris*, *Muhlenbergia uniflora*, *Gratiola aurea*, *Euthamia tenuifolia*, *Lycopus uniflorus*, *Viola lanceolata*, *Juncus pelocarpus*, and *Dulichium arundinaceum*.

LNP Scale: Small patch **Distribution:** Limited or peripheral **Ecological Group:** Coastal Plain Pondshore
TNC Ecoregions: 61:C, 62:C

References: Thompson and Sorenson 2000

<u>State</u>	<u>SRank</u>	<u>State Name</u>
CT	S?	
MA	S2	Coastal Plain Pondshore+
ME	S?	Outwash Plain Pondshore+
NH	S?	
VT	S1	Outwash Plain Pondshore+

V.A.5.N.k.23 RHYNCHOSPORA SPP. - PANICUM (RIGIDULUM, VERRUCOSUM) - RHEXIA VIRGINICA SEASONALLY FLOODED HERBACEOUS ALLIANCE (A.1384 ECS)

Rhexia virginica - Crotalaria sagittalis Herbaceous Vegetation (CEGL006300 ECS) — G2

Virginia Meadow-beauty - Arrowhead Rattlebox Herbaceous Vegetation

[Coastal Plain Cobble - Gravel Pondshore]

Description: This northeastern coastal plain pondshore community occurs on substrates of gravel and cobble with little or no organic material accumulation. Characteristic species include *Rhexia virginica*, *Euthamia tenuifolia*, *Rhynchospora capitellata*, *Cyperus dentatus*, *Drosera intermedia*, *Scirpus smithii*, *Crotalaria sagittalis*, *Polygonum careyi*, and *Hypericum mutilum*.

LNP Scale: Small patch **Distribution:** Peripheral **Ecological Group:** Coastal Plain Pondshore
TNC Ecoregions: 61:C, 62:C

References: Sneddon 1994

<u>State</u>	<u>SRank</u>	<u>State Name</u>
MA	S2	Coastal Plain Pondshore+
NY	S?	
RI	S?	

V.A.5.N.k.25 SCIRPUS CYPERINUS SEASONALLY FLOODED HERBACEOUS ALLIANCE (A.1386 SCS)

Scirpus cyperinus Seasonally Flooded Herbaceous Vegetation [Provisional] (CEGL006349 ECS) G?

Woolgrass Bulrush Seasonally Flooded Herbaceous Vegetation

Description: Seasonally flooded marshes dominated or characterized by *Scirpus cyperinus*. Composition is variable. Associates include *Glyceria* spp., *Thelypteris palustris*, as well as other species of *Scirpus* including *Scirpus microcarpus* (= *Scirpus rubrotinctus*) and *Scirpus atrovirens*.

LNP Scale: Small patch **Distribution:** Widespread

LNP Comments: Need data to further develop and refine this broadly defined type.

TNC Ecoregions: 57:?, 58:C, 60:?, 61:C, 62:C

Other Synonymy: Shallow emergent marsh (Cowardin et al. 1979).

References: Cowardin et al. 1979

<u>State</u>	<u>SRank</u>	<u>State Name</u>
CT	S?	
DE	S?	
MA	S4	Deep emergent marsh
MD?	SP	
ME	S?	
NH	S?	
NJ	S?	

**Lower New England - Northern Piedmont Ecoregion (61) Classification 4/2000
(subset revised from the National Vegetation Classification 11/1999 version)**

NY	S?	Shallow emergent marsh, in part
PA	S?	
RI	S?	
VA	S?	
VT	S?	
WV	S?	

V.A.5.N.I Semipermanently flooded temperate or subpolar grassland

V.A.5.N.I.2 ELEOCHARIS SPP. - ERIOCAULON AQUATICUM SEMIPERMANENTLY FLOODED HERBACEOUS ALLIANCE (A.1429 ECS)

Eleocharis (obtusata, flavescens) - Eriocaulon aquaticum Herbaceous Vegetation (CEGL006261 ECS) — G3G5

(Blunt Spikerush, Yellow Spikerush) - Seven-angle Pipewort Herbaceous Vegetation

Description: Short graminoid vegetation of semipermanently flooded zones of coastal plain pondshores. Usually standing water present, but water table may drop below surface late in growing season, although sediments generally remain saturated. Species include *Eleocharis obtusata*, *Eleocharis flavescens*, *Eriocaulon aquaticum* and others.

LNP Scale: Small patch **Distribution:** Peripheral **Ecological Group:** Coastal Plain Pondshore

LNP Comments: Coastal Plain Pondshore types being reworked (LAS 1999).

TNC Ecoregions: 61:C, 62:C

References: Thompson and Sorenson 2000

<u>State</u>	<u>SRank</u>	<u>State Name</u>
MA	S2	Coastal Plain Pondshore+
ME	S?	Outwash Plain Pondshore+
NH	S?	
NS?	SP	
NY	S?	Coastal plain pond+
RI?	SP	
VT	S1	Outwash Plain Pondshore

V.A.5.N.I.3 JUNCUS MILITARIS SEMIPERMANENTLY FLOODED HERBACEOUS ALLIANCE (A.1430)

Juncus militaris Herbaceous Vegetation (CEGL006345 ECS) – G?

Bayonet Rush Herbaceous Vegetation

Description: Semipermanently flooded zone of coastal plain pondshores characterized by or dominated by *Juncus militaris*. Environmental setting: Sandy to muck shores of acidic ponds in glacial till or outwash. Water levels fluctuate seasonally and annually. Associates include *Cladium mariscoides*, *Juncus canadensis*, *Nuphar variegatum*, *Eleocharis* spp. and others.

LNP Scale: Small patch **Distribution:** Limited **Ecological group:** Coastal plain pondshore

TNC Ecoreg: 61:C, 62:C, 63:C

<u>State</u>	<u>SRank</u>	<u>State Name</u>
MA	S2	Coastal Plain Pondshore+
NY	S?	Coastal plain pond+
RI	S?	Coastal Plain Pondshore+

V.A.5.N.I.16 SCIRPUS ACUTUS - (SCIRPUS TABERNAEMONTANI) SEMIPERMANENTLY FLOODED HERBACEOUS ALLIANCE (A.1443 MCS)

Scirpus (tabernaemontani, acutus) Eastern Herbaceous Vegetation (CEGL006275 ECS) — G?

(Softstem Bulrush, Hardstem Bulrush) Eastern Herbaceous Vegetation

[Bulrush Deepwater Marsh]

Description: LNP 2/00 This tall marsh vegetation is dominated by moderately dense to very dense stands of *Scirpus tabernaemontani* and/or *Scirpus acutus*. Associates include *Typha latifolia*, *Typha angustifolia*, *Lemna* spp., *Utricularia* spp. Similar types: for freshwater marshes dominated by *Typha* see 6153 below.

LNP Scale: Small patch **Distribution:** Widespread

TNC Ecoregions: 58:?, 59:C, 61:C, 63:C

**Lower New England - Northern Piedmont Ecoregion (61) Classification 4/2000
(subset revised from the National Vegetation Classification 11/1999 version)**

References: Fike 1999, Thompson and Sorenson 2000

<u>State</u>	<u>SRank</u>	<u>State Name</u>
CT	S?	
DE	S?	
MA	S4	Deep emergent Marsh+
MD	S?	
ME	S?	Rush Bed
NH	S?	
NJ	S?	
NY	S?	
PA	S?	Bulrush marsh
RI	S?	
VA	S?	
VT	S4	Deep bulrush marsh (Deep river marsh)
WV	S?	

V.A.5.N.I.9 TYPHA (ANGUSTIFOLIA, LATIFOLIA) - (SCIRPUS SPP.) SEMIPERMANENTLY FLOODED HERBACEOUS ALLIANCE (A.1436 MCS)

Typha (angustifolia, latifolia) - (Scirpus spp.) Eastern Herbaceous Vegetation (CEGL006153 ECS) G5

(Narrowleaf Cattail, Common Cattail) - (Bulrush species) Eastern Herbaceous Vegetation
[Cattail Marsh]

Description: 12/98 CAP Graminoid marshes dominated by *Typha angustifolia* and/or *Typha latifolia*, either alone or in combination with other tall emergent marsh species. Associated species vary widely; sedges such as *Carex aquatilis*, *Carex lurida*, *Carex rostrata*, *Carex lanuginosa*, bulrushes such as *Scirpus americanus* and *Scirpus acutus*. Broad-leaved herbs such as *Thelypteris palustris*, *Asclepias incarnata*, *Impatiens capensis*, *Sagittaria latifolia*, *Scutellaria lateriflora*, *Sparganium eurocarpum*, and *Verbena hastata*. Floating aquatics such as *Lemna minor* may predominate in deeper zones. Environmental setting: lake margins and in shallow basins, and river backwaters. Lacustrine cattail marshes typically have a muck-bottom zone bordering the shoreline, where cattails are rooted in the bottom substrate, and a floating mat zone, where the roots grow suspended in a buoyant peaty mat. *Typha angustifolia* can grow in deeper water compared to *Typha latifolia*, although both species reach maximum growth at a water depth of 50 cm (Grace and Wetzel 1981). *Typha* often occurs in pure stands and can colonize areas recently exposed by either natural or human causes.

LNP Scale: Small to large patch **Distribution:** Widespread

TNC Ecoregions: 48:C, 52:C, 58:?, 59:C, 61:C, 62:C, 63:C

References: Grace and Wetzel 1981, Fike 1999, Sperduto 1997, Thompson and Sorenson 2000

<u>State</u>	<u>SRank</u>	<u>State Name</u>
CT	S?	
DE	S?	
MA	S4	Deep Emergent Marsh+
MD	S?	
ME	S?	Cattail Marsh
NC	S?	
NH	S?	Deep Emergent Marsh
NJ	S?	
NY	S?	Deep emergent marsh
PA	S?	Cat-tail marsh
RI	S?	
VA	S?	
VT	S4	Cattail Marsh
WV	S?	

V.A.5.N.m.10 DESCHAMPSIA CESPITOSA SATURATED HERBACEOUS ALLIANCE (A.1456 WCS)

Deschampsia cespitosa - Symplocarpus foetidus Herbaceous Vegetation (CEGL006101 ECS) — G1

Tufted Hairgrass - Skunk Cabbage Herbaceous Vegetation

**Lower New England - Northern Piedmont Ecoregion (61) Classification 4/2000
(subset revised from the National Vegetation Classification 11/1999 version)**

[Inland Acidic Seep Community]

Description: This forb-dominated acidic seepage wetland community is confined to a single location on the Kittattiny Mountains of northern New Jersey where seepage water is diverted to the surface by a clay fragipan. The pH ranges from 4.5-4.7. The vegetation is dominated by *Deschampsia cespitosa*, *Carex bromoides*, *Carex atlantica* var. *incomperta*, and *Claytonia virginica* var. *hammondiae*. Other less frequent associates include *Symplocarpus foetidus*, *Osmunda cinnamomea*, *Maianthemum canadense*, *Viola cucullata*, *Kalmia angustifolia*, *Coptis trifolia*, and *Solidago puberula*. A bryophyte layer dominated by *Sphagnum* species included the following species: *Sphagnum bartlettianum*, *Sphagnum henryense*, *Sphagnum palustre*, and *Sphagnum recurvum*. *Cerastium biebersteinii*, an exotic of European origin, also occurs in this vegetation. 12/98 CAP Does not include those communities of more calcareous influence of which *Deschampsia cespitosa* is a prominent member. See the *Sporobolus heterolepis* - *Eleocharis compressa* Herbaceous Alliance for description of alvar communities, and the *Pentaphylloides floribunda* - *Carex* (flava, interior, sterilis, lasiocarpa) Sparse Shrubland for description of calcareous fen communities. More information is needed to clarify the classification.

LNP Scale: Small patch **Distribution:** Restricted

LNP Comments: NJ 0.5 to 1 acre. 221Bd only. Currently know only in LNP & just barely edges into CAP.

References: Breden 1989, Snyder 1992

<u>State</u>	<u>SRank</u>	<u>State Name</u>
NJ	S?	
NY?	SP	
PA?	SP	

V.A.5.N.n Tidal temperate or subpolar grassland

V.A.5.N.n.6 PANICUM VIRGATUM TIDAL HERBACEOUS ALLIANCE (A.1476 ECS)

Panicum virgatum Tidal Herbaceous Vegetation [Provisional] (CEGL006150 ECS) — G?

Switchgrass Tidal Herbaceous Vegetation

Description: This provisional association includes marsh communities dominated by *Panicum virgatum*. In general it occurs as a distinct narrow belt between tidal marsh communities and upland habitats. Soil level is higher than that of salt marsh. Substratum is usually shallow peat overlying glacial till. Associated species may include *Spartina pectinata*, *Agrostis stolonifera*, *Cladium mariscoides*, *Rhus spp.*, *Scirpus pungens*, *Solidago sempervirens*, *Baccharis halimifolia*, and *Tripsacum dactyloides*. This vegetation commonly occurs in intimate association with the III.B.2.N.h.1 *Baccharis halimifolia* - *Iva frutescens* Tidal Shrubland Alliance (A.1023) in salt marshes, and its status as a distinct association will require further study. This association occurs in maritime areas from Massachusetts south to Virginia.

LNP Scale: Small patch (if present in LNP) **Distribution:** Peripheral or not in LNP.

LNP Comments: Primarily in North Atlantic Coast ecoregion. Possibly in LNP in Lower Hudson area of NY

TNC Ecoregions: 58:?, 61:P, 62:C

References:

<u>State</u>	<u>SRank</u>	<u>State Name</u>
CT	S?	
DE	S?	
MA	S?	
MD	S?	
NJ	S?	
NY	S?	
RI	S?	

V.A.5.N.n.14 ZIZANIA AQUATICA TIDAL HERBACEOUS ALLIANCE (A.1484 ECS)

Zizania aquatica Tidal Herbaceous Vegetation (CEGL004202 ECS) — G4?

Wild Rice Tidal Herbaceous Vegetation

Description: These freshwater tidal marshes are dominated by tall graminoids. *Zizania aquatica* is usually dominant or codominant with other graminoids such as *Typha angustifolia*, *Scirpus fluviatilis* and *Sparganium eurycarpum*. These marshes typically occur along tidal river systems (in shallow bays, shoals or at the mouth) within the reach of the tide, but beyond the influence of saline waters. Soils are highly variable and are composed of varying amounts of silts, silty mucks, fine peat, to very coarse sands. Other characteristic species include *Sagittaria latifolia*, *Leersia*

**Lower New England - Northern Piedmont Ecoregion (61) Classification 4/2000
(subset revised from the National Vegetation Classification 11/1999 version)**

oryzoides, *Amaranthus cannabinus*, *Impatiens capensis*, *Bidens bidentoides*, *Acorus americanus* and *Echinochloa walteri*. Additional associates may include *Bidens laevis*, *Cuscuta gronovii*, *Hibiscus palustris*, *Nuphar lutea*, *Peltandra virginica*, *Polygonum arifolium*, *Polygonum punctatum*, *Polygonum sagittatum*, *Typha latifolia*.

LNP Scale: **Distribution:** Widespread **Ecological Group:** Tidal

TNC Ecoregions: 53:?, 56:?, 57:C, 58:C, 61:C, 62:C

References: Barrett 1994, Ferren 1977, Good and Good 1975, McCormick and Ashbaugh 1972, McCormick et al. 1970, Metzler and Rosza 1982, Odum et al. 1984, Schafale and Weakley 1990, Wharton 1978

<u>State</u>	<u>SRank</u>	<u>State Name</u>
AL	S?	
CT	S?	Freshwater Tidal Marsh, Freshwater Tidal Flat
DE	S?	
FL?	SP	
GA?	SP	
LA	S?	
MA	S?	Freshwater Tidal Marsh+
MD	S?	
ME	S?	Freshwater Tidal Marsh+
MS	S?	
NC	S?	Tidal Freshwater Marsh, in part (NC 1990)
NJ	S?	
NY	S?	Freshwater tidal marsh, in part
RI	S?	
SC?	SP	
VA	S?	

V.A.6.N.q Bedrock temperate or subpolar grassland with a sparse tree layer

V.A.6.N.q.101 (JUNIPERUS VIRGINIANA) / SCHIZACHYRIUM SCOPARIUM - (BOUTELOUA CURTIPENDULA) WOODED HERBACEOUS ALLIANCE (A.1919 SCS)

Juniperus virginiana / Bouteloua curtipendula - Carex eburnea Wooded Herbaceous Vegetation (CEGL006047 ECS) — G1G2

Eastern Red-cedar / Sideoats Grama - Bristleleaf Sedge Wooded Herbaceous Vegetation
[Limestone Woodland]

Description: This small patch calcareous rocky summit community occurs in southern New England and portions of the northern Piedmont and Central Appalachians ecoregion. Dry, south-facing slopes of calcareous bedrock support small grassland openings characterized by *Schizachyrium scoparium* and *Bouteloua curtipendula*. *Juniperus virginiana* is usually present as a stunted, sparse canopy. Other possible woody associates may include *Fraxinus americana*, *Ostrya virginiana*, *Cercis canadensis*, or *Quercus muehlenbergii*. Shrubs are sparse but when present may include *Celtis occidentalis* or *Cornus alternifolia*. The herbaceous composition is quite variable among occurrences but often includes such species as *Carex eburnea*, *Anemone cylindrica*, *Solidago bicolor*, *Panicum virgatum*, *Carex pennsylvanica*, *Lespedeza spp.*, *Asclepias viridiflora*, *Asclepias verticillata*, *Muhlenbergia sobolifera*, *Sorghastrum nutans*, *Onosmodium spp.*, *Senecio aureus*, *Senecio obovatus*, and others. This community occurs in association with forests characterized by *Quercus muehlenbergii*. Environmental setting: calcareous rocky summits and limestone outcrops.

LNP Scale: Small patch **Distribution:** Limited

LNP Comments: PA – may also crosswalk to Red-cedar – redbud shrubland, in part

TNC Ecoregions: 61:C

References: Grossman et al. 1994

<u>State</u>	<u>SRank</u>	<u>State Name</u>
CT	S?	Schizachyrium scoparium - Bouteloua curtipendula temperate grasslands
MA	S2	Calcareous rocky summit / rock outcrop
MD?	SP	
NJ	S1	Limestone glade
NY	S3	Red cedar rocky summit+
PA	S?	Side-oats grama calcareous grassland

Lower New England - Northern Piedmont Ecoregion (61) Classification 4/2000
(subset revised from the National Vegetation Classification 11/1999 version)

VA? SP

**V.A.6.N.q.103 (PINUS RIGIDA) / SCHIZACHYRIUM SCOPARIUM WOODED HERBACEOUS ALLIANCE
(A.1921 ECS)**

**Pinus rigida / Schizachyrium scoparium - Scleria pauciflora Wooded Herbaceous Vegetation (CEGL006159 ECS)
— G2**

Pitch Pine / Little Bluestem - Papillose Nutrush Wooded Herbaceous Vegetation
[Serpentine Barren]

Description: This serpentine grassland community is essentially restricted to a 97-km chain of large serpentine outcrops in Maryland and Pennsylvania. This community occurs on thin Alfisols or Mollisols developed over serpentinite or similar ultra-mafic rock. Soils generally have a low calcium to magnesium ratio, and they are stony and shallow with a low moisture-holding capacity. Some form of disturbance is necessary to prevent extensive soil development, generally burning or grazing. This community occurs as herbaceous grassland openings with scattered trees. Typically it occurs as part of a woodland/grassland complex with the specific canopy composition shifting between *Pinus rigida*, *Pinus virginiana*, and *Juniperus virginiana*. *Quercus marilandica* and *Quercus stellata* may also be present. The actual species composition of the canopy probably reflects site history and available seed sources. The herbaceous layer is generally dominated by *Schizachyrium scoparium* but is characteristically rich in other herbaceous species such as *Sorghastrum nutans*, *Dichanthelium depauperatum*, *Dichanthelium linearifolium*, *Dichanthelium oligosanthes*, *Dichanthelium sphaerocarpon*, *Dichanthelium villosissimum*, *Panicum philadelphicum*, *Cerastium arvense ssp. velutinum*, *Sporobolus heterolepis*, *Viola sagittata*, *Sisyrinchium mucronatum*, *Saxifraga virginensis*, *Fimbristylis annua*, *Juncus secundus*, *Oenothera fruticosa*, *Arabis lyrata*, *Aristida purpurascens*, *Asclepias verticillata*, *Asclepias viridiflora*, *Polygonum tenue*, *Scleria pauciflora*, *Senecio anonymus*, *Talinum teretifolium*, *Aster depauperatus*, *Lobelia spicata*, *Polygala verticillata*, and *Andropogon gerardii*. In eastern North America, outcrops of serpentine occur in a broken chain from Quebec to Alabama. Most outcrops, however, are small and do not develop this community. Distinct but closely related communities occur in western North Carolina, Virginia and Georgia. In addition, there are five small, degraded occurrences (17 ha) in New York (on Staten Island which is in North Atlantic Coast ecoregion) and several other degraded remnants were documented in Delaware, but any remaining vegetation is deemed too degraded to be considered a community, and so are regarded as extirpated (W. McAvoy, Delaware Natural Heritage Program, pers. comm.).

LNP Scale: Large patch? **LNP Distrib:** Restricted

TNC Ecoregions: 61:C

References: Grossman et al. 1994, Pennell 1929, Fike 1999

<u>State</u>	<u>SRank</u>	<u>State Name</u>
MD	S?	
NY	S1	Serpentine barrens
PA	S?	Serpentine grassland

**V.A.7.N.o Saturated temperate or subpolar grassland with a sparse broad-leaved evergreen
shrub layer**

**V.A.7.N.o.3 CHAMAEDAPHNE CALYCVLATA / CAREX LASIOPARPA SATURATED SHRUB
HERBACEOUS ALLIANCE (A.1557 ECS)**

**Chamaedaphne calyculata / Carex lasiocarpa - Utricularia spp. Shrub Herbaceous Vegetation (CEGL006302 ECS)
— G4G5**

Leatherleaf / Woolly-fruit Sedge - Bladderwort species Shrub Herbaceous Vegetation
[Medium Fen]

Description: 1997: Sedge-dominated vegetation associated with areas of localized water movement in generally acidic peatlands, poor fen. 1998 (DFL): This community is a moderately minerotrophic peatland in which the substrate is a mixed peat composed of graminoids, mosses, and woody species. Medium fens are fed by waters that are moderately mineralized, with pH value generally ranging from 4.5-6.5. It is not clear whether this type is a shrub fen or a graminoid fen type. Characteristic shrubs include *Myrica gale*, *Spiraea tomentosa*, and *Vaccinium macrocarpon*. Herbaceous graminoids include *Carex lasiocarpa*, which often dominates, and *Cladium mariscoides*, *Carex stricta*, *Thelypteris palustris*, and *Typha latifolia*. Dominant mosses include *Sphagnum subsecundum*, *Sphagnum teres*, or *Calliergonella cuspidata*. 12/98 CAP Sedge-dominated peatland communities of slightly enriched minerotrophic

**Lower New England - Northern Piedmont Ecoregion (61) Classification 4/2000
(subset revised from the National Vegetation Classification 11/1999 version)**

groundwater settings. *Carex lasiocarpa*, *Cladium mariscoides*, *Menyanthes trifoliata*, and *Muhlenbergia glomerata* are typical with a sparse cover of boggy acid-tolerant shrubs such as *Chamaedaphne calyculata*, *Andromeda glaucophylla*, *Ledum groenlandicum*. Environmental setting: These "poor fens" tend to occur in flat basins with deep peat, often as part of a larger bog complex. They may intergrade floristically with communities in the *Chamaedaphne calyculata* Dwarf-shrubland Alliance (bogs) as well as with the "intermediate fens" in the *Pentaphylloides floribunda* - *Carex* spp. Alliance.

LNP Scale: Small patch **Distribution:** Widespread

TNC Ecoregions: 48:C, 59:C, 61:C

References: Fike 1999, Thompson and Sorenson 2000

<u>State</u>	<u>SRank</u>	<u>State Name</u>
CT	S?	Chamaedaphne – <i>Carex utriculata</i> community
MA	S3	Acidic graminoid fen
ME	S?	Mixed tall sedge fen
NH	S?	Acidic graminoid fen (sedge fen)+
NY	S?	Medium fen
PA	S?	Leatherleaf – sedge wetland +
VT	S2	Poor Fen
WV	S?	

V.A.7.N.p Saturated temperate or subpolar grassland with a sparse cold-deciduous shrub layer

V.A.7.N.p.4 CAREX (FLAVA, HYSTERICINA, INTERIOR, STERILIS) SATURATED SHRUB HERBACEOUS ALLIANCE (A.1561 ECS)

***Cornus racemosa* / *Carex (sterilis, hystericina, flava)* Shrub Herbaceous Vegetation (CEGL006123 ECS) — G2G3**

Gray Dogwood / (Sterile Sedge, Porcupine Sedge, Yellow Sedge) Shrub Herbaceous Vegetation

Description: This community is found on calcareous discharge areas in the northeastern U.S. lake plains region, both Great Lakes and Lake Champlain. Stands may have a gentle slope, with shallow peat deposits over calcareous glacial deposits. Characteristic herbs include *Carex aquatilis*, *Carex flava*, *Carex hystericina*, *Carex interior*, *Carex leptalea*, *Carex lacustris*, *Carex sterilis*, *Eriophorum viridicarinatum*, and *Muhlenbergia glomerata*. Shrubs and vines, though not abundant (typically less than 50 percent cover), include *Amelanchier arborea*, *Aronia melanocarpa*, *Clematis virginiana*, *Cornus foemina*, *Cornus sericea*, *Rhamnus alnifolia*, *Ribes hirtellum*, *Rubus pubescens*, and *Vaccinium corymbosum*. Similar types: need additional information to distinguish from CEGL006326 *Pentaphylloides floribunda* / *Carex (sterilis, hystericina, flava)* Shrub Herbaceous Vegetation (below).

LNP Scale: Small patch **Distribution:** Limited **Ecological group:** Calcareous fen

TNC Ecoregions: 48:P, 61P

References: Thompson and Sorenson 2000

<u>State</u>	<u>SRank</u>	<u>State Name</u>
MA?	SP	
NY	S?	Rich graminoid/shrub fen
VT	S2	Rich Fen

***Juniperus virginiana* / *Pentaphylloides floribunda* / *Carex flava* - *Carex tetanica* Shrub Herbaceous Vegetation (CEGL006357 ECS) — G1G2**

Eastern Red-cedar / Shrubby-cinquefoil / Yellow Sedge - Rigid Sedge Shrub Herbaceous Vegetation

[Pasture Fen]

Description: This association is a saturated wetland of turfy mineral soil occurring over calcareous bedrock, a fen supporting a number of calciphytic species. It occurs in northwestern New Jersey, northeastern Pennsylvania and in New York. *Juniperus virginiana* occurs as scattered individuals over an herbaceous understory characterized by *Carex flava*, *Carex tetanica*, *Juncus brachycephalus*, *Juncus dudleyi*, *Juncus nodosus*, *Equisetum fluviatile*, *Bromus kalmii*, *Castilleja coccinea*, *Sisyrinchium graminifolia*, *Solidago uliginosa*, *Eupatorium maculata*, *Cypripedium parviflora*, *Thelypteris palustris*, *Lobelia kalmii*, *Liatris spicata*, *Spiranthes lucida*, *Trollius laxus*, *Rudbeckia fulgida*, *Pedicularia candida*, *Pedicularis lanceolata*, which is intermixed with the dwarf shrubs *Betula pumila* and *Pentaphylloides floribunda*. This vegetation has been generally affected by grazing in the past, which in some cases continues to the present, and as such this vegetation is known locally as a "pasture fen."

**Lower New England - Northern Piedmont Ecoregion (61) Classification 4/2000
(subset revised from the National Vegetation Classification 11/1999 version)**

LNP Scale: Small patch **Distribution:** Restricted (small part of 2 ecoregions) **Ecological group:** Calcareous fen
TNC Ecoregions: 60:C, 61:C

References:

<u>State</u>	<u>SRank</u>	<u>State Name</u>
NJ	S?	
NY	S?	rich shrub fen
PA	S?	Poison sumac – red-cedar – bayberry fen+

Myrica pensylvanica - Pentaphylloides floribunda / Carex sterilis - Carex flava Shrub Herbaceous Vegetation (CEGL006103 ECS) — G2

Northern Bayberry - Shrubby-cinquefoil / Sterile Sedge - Yellow Sedge Shrub Herbaceous Vegetation
[Northern Piedmont Rich Fen]

Description: This calcareous "fen" association is characterized by herbaceous vegetation maintained by groundwater springs. Peat accumulation is minimal, with mineral soil or marl often evident at the surface, particularly where ground-water emerges. Although the shrubs are generally of sparse cover (less than 25 percent), they are characteristic of this vegetation, *Pentaphylloides floribunda* occurring in all associations of this alliance, and *Myrica pensylvanica* differentiating this association from others of the alliance. *Toxicodendron vernix*, *Acer rubrum*, and *Juniperus virginiana* are frequent associates. The herbaceous flora is rich and diverse, and includes the sedges *Carex sterilis*, *Carex flava*, *Carex cryptolepis*, *Rhynchospora capillacea*, *Rhynchospora alba*, as well as *Parnassia glauca*, *Drosera rotundifolia*, *Sarracenia purpurea*, *Lobelia kalmii*, *Panicum flexile*, *Juncus brachycephalus*, *Juncus nodosus*, and *Spiranthes cernua*. This association is restricted to New Jersey, Pennsylvania, and perhaps Ohio.

LNP Scale: Small patch **LNP Distrib:** Limited/Restricted **Ecological group:** Calcareous fen
LNP Comments: PA – may occur in LNP (is in Central Appalachians close to LNP boundary). NJ- examples at Woodruff Fen & Straighters Pond
TNC Ecoregions: 59:C, 61:C

References:

<u>State</u>	<u>SRank</u>	<u>State Name</u>
NJ	S?	Marl fen
OH?	SP	
PA	S?	

Pentaphylloides floribunda / Carex (sterilis, hystericina, flava) Shrub Herbaceous Vegetation (CEGL006326 ECS) — G2

Shrubby-cinquefoil / (Sterile Sedge, Porcupine Sedge, Yellow Sedge) Shrub Herbaceous Vegetation

Description: Spring-fed herbaceous vegetation occurring on shallow peat and irrigated by base rich surface discharge or groundwater. Occurrences are generally small, local and restricted to a rather particular set of conditions. The community is variable over its range and habitat, comprised of well-developed herbaceous layer dominated by short cespitose sedges (*Carex hystericina*, *Carex leptalea*, *Carex interior*, *Carex flava*, *Carex sterilis*); grasses *Muhlenbergia glomerata*, *Glyceria striata* and *Bromus kalmii* are common; marsh fern (*Thelypteris palustris*), is characteristic. Other characteristic herbs include *Senecio aureus*, *Parnassia glauca*, *Spiranthes romanzoffiana*, *Symplocarpus foetidus*, *Drosera rotundifolia*, *Iris versicolor*, *Lobelia kalmii*, *Lycopus uniflorus* and *Thalictrum pubescens*. The bryophyte layer is well developed and comprised of bulky "brown" mosses (*Campyllum stellatum*, *Drepanocladus revolvens*, *Calliergonella cuspidata*, *Aulacomnium palustre*, *Climacium spp.*, *Tomentypnum nitens*, *Philonotis fontana*, *Bryum pseudotriquetrum*). Shrubs are variable in cover and generally include *Pentaphylloides floribunda*, *Rhamnus alnifolia*, and *Salix* spp. Similar types: need additional information to distinguish from CEGL006123 *Cornus racemosa* / *Carex (sterilis, hystericina, flava)* Shrub Herbaceous Vegetation.

LNP Scale: Small patch **Distribution:** Restricted? **Ecological group:** Calcareous fen
TNC Ecoregions: 61:C

References:

<u>State</u>	<u>SRank</u>	<u>State Name</u>
CT	S?	
MA	S2	Calcareous Sloping Fen
ME	S?	Circumneutral Graminoid Fen+
NH	S?	
NY	S?	Rich sloping fen
VT	S?	

**Lower New England - Northern Piedmont Ecoregion (61) Classification 4/2000
(subset revised from the National Vegetation Classification 11/1999 version)**

Pentaphylloides floribunda / Rhynchospora capillacea - Scleria verticillata Shrub Herbaceous Vegetation (CEGL006356 ECS) — G1

Shrubby-cinquefoil / Limestone Beaksedge - Savanna Nutrush Shrub Herbaceous Vegetation

Description: This vegetation occurs on the seepage areas of marl shores on calcareous lakes in New Jersey and perhaps elsewhere. The lakeshore is characterized by a thick deposit of marl which is seasonally very dry to xeric.

Areas where groundwater emerges supports *Pentaphylloides floribunda*, *Rhynchospora capillacea*, *Scleria verticillata*, *Panicum flexile*, *Equisetum variegatum*, *Utricularia minor*, *Cladium mariscoides*. Additional shrubs of sparse distribution include *Rhamnus alnifolia*, *Salix* spp., and possibly *Betula pumila*.

LNP Scale: Small patch **Distribution:** Limited

LNP Comments: example is White Lake, NJ; may be outside of LNP in NY.

TNC Ecoregions: 61:C

References:

<u>State</u>	<u>SRank</u>	<u>State Name</u>
NJ	S1	Lakeshore marl fen
NY?	S?	Marl fen

V.A.7.N.p.6 MYRICA GALE / CAREX LASIOCARPA SATURATED SHRUB HERBACEOUS ALLIANCE (A.1563 ECS)

Myrica gale - Pentaphylloides floribunda / Carex lasiocarpa - Cladium mariscoides Shrub Herbaceous Vegetation (CEGL006068 ECS) — G2G3

Sweet Gale - Shrubby-cinquefoil / Woolly-fruit Sedge - Sawgrass Shrub Herbaceous Vegetation

Description: This association is a calcareous fen overlying deep peat accumulations of lakes and other depressions of the Great Lakes to northeast United States. It is characterized by rhizomatic sedges that form a mat, with variable shrub cover. Typical sedges include *Carex lasiocarpa*, *Carex prairea*, *Carex leptalea*, *Carex stricta* (= *Carex stricta* var. *strictior*), *Carex buxbaumii*, *Carex flava*, *Carex cryptolepis*, *Carex lacustris*, *Carex livida*, *Carex aquatilis*, *Carex flava*, *Carex hystericina*, *Cladium mariscoides*. Shrubs are generally confined to hummocks, but cover varies among

occurrences and can exceed 25 percent. Characteristic species include *Eriophorum alpina*, *Eleocharis elliptica*, *Vaccinium macrocarpon*, *Vaccinium oxycoccus*, *Myrica gale*, *Myrica pennsylvanica*, *Pentaphylloides floribunda*, *Betula pumila*, *Salix candida*, *Rhamnus alnifolia*, *Alnus* spp., *Cornus sericea*. *Larix laricina* may occur as scattered individuals atop hummocks. Hollows and channels often support *Utricularia intermedia*, *Utricularia gibba*, *Menyanthes trifoliata*, *Lobelia kalmii*. Other herbs include *Aster borealis* and *Sarracenia purpurea*. Other herbaceous associates include *Carex rostrata*, *Carex trisperma*, *Eleocharis rostellata*, *Muhlenbergia glomerata*, *Rhynchospora alba*, *Scirpus acutus*, *Typha latifolia*, *Aster umbellatus*, *Drosera rotundifolia*, *Iris versicolor*, *Osmunda regalis*, *Parnassia glauca*, *Pogonia ophioglossoides*, and *Thelypteris palustris*. Characteristic mosses include *Campyllum stellatum*, *Drepanocladus revolvens*, *Calliergonella cuspidata*, *Scorpidium scorpioides*, and *Tomentypnum nitens*.

Sphagnum spp. may be absent or are minor components. Species include the more minerotrophic *Sphagnum contortum*, *Sphagnum warnstorffii* and *Sphagnum teres*. Environmental setting: alkaline lakes, bog systems or small saturated topographic depressions with calcareous springs or seeps. Deep peat accumulations usually over 1 meter which may or may not be underlain by marl. The groundwater is rich in minerals and pH is circumneutral to alkaline.

LNP Scale: Small patch **Distribution:** Widespread **Ecological group:** Calcareous fen

TNC Ecoregions: 48:C, 59:C, 61:C

References: Thompson and Sorenson 2000

<u>State</u>	<u>SRank</u>	<u>State Name</u>
CT	S?	
MA	S1	Calcareous Basin Fen
ME	S?	
NH	S?	
NJ	S?	
NY	S?	Rich graminoid fen, in part; rich shrub fen, in part
PA	S?	
VT	S2	Intermediate Fen+

Myrica gale / Carex lasiocarpa - Lobelia kalmii - Eriophorum alpinum Shrub Herbaceous Vegetation (CEGL006160 ECS) — G3G4

Sweet Gale / Woolly-fruit Sedge - Ontario Lobelia - Alpine Cottongrass Shrub Herbaceous Vegetation

Description: 6/98 NAP Peatland fen with some enrichment dominated by rhizomatous sedges such as *Carex*

**Lower New England - Northern Piedmont Ecoregion (61) Classification 4/2000
(subset revised from the National Vegetation Classification 11/1999 version)**

lasiocarpa and sparse shrubs such as *Myrica gale*. Associates include *Lobelia kalmii*, *Eriophorum alpinum* and others.

LNP Scale: Small patch **Distribution:** ?

LNP Comments: may be a variant of CEG006068 above but need further review & development of type.

TNC Ecoregions: 61:C, 63:C

References: Thompson and Sorenson 2000

<u>State</u>	<u>SRank</u>	<u>State Name</u>
ME	S?	Circumneutral Graminoid Fen+
NH	S?	
NY	S?	Medium fen
VT	S2	Intermediate Fen+

V.B.2.N.c Intermittently flooded temperate perennial forb vegetation

V.B.2.N.c.300 PHLOX SUBULATA - SOLIDAGO SIMPLEX INTERMITTENTLY FLOODED HERBACEOUS ALLIANCE (A.1612 ECS)

Phlox subulata - Solidago simplex var. racemosa - Senecio pauperculus Herbaceous Vegetation (CEGL004284 ECS) — G2?

Moss Phlox - Sticky Goldenrod - Balsam Ragwort Herbaceous Vegetation

[Basalt Outcrop Scour Prairie]

Description: This riverside outcrop vegetation of the Potomac River in Virginia and Maryland occurs on metamorphic rock ledges that are catastrophically flood-scoured. The vegetation is generally herbaceous but may range from sparsely vegetated to herbaceous with sparse shrubs. The habitat is variable, with small pools interspersed among shaded microhabitats and exposed xeric microhabitats. *Phlox subulata* and *Solidago simplex* var. *racemosa* are characteristic but rarely dominant. Other typical species include *Solidago rupestris*, *Andropogon gerardii*, and *Leucothoe racemosa*. In more shaded locations, *Asplenium platyneuron* and *Aquilegia canadensis* occur, while *Danthonia spicata* is more commonly found in exposed, xeric openings. Environmental setting: rocky, flood-scoured ledges along rivers which cut through metamorphic rocks (e.g. basalt dikes). Subject to periodic flood scouring. Species tend to inhabit small microsites, such as rock crevices, where there has been some soil formation. This type is only reported from Great Falls in Virginia and Maryland. Possible in West Virginia.

LNP Scale: Small patch **Distribution:** Restricted

TNC Ecoregions: 49:?, 52:P, 59:?, 61:C

References: Rawinski 1992

<u>State</u>	<u>SRank</u>	<u>State Name</u>
MD	S?	
VA	S?	Oligotrophic Herbaceous Vegetation, in part (VA 1992)
WV?	SP	

V.B.2.N.d Temporarily flooded temperate perennial forb vegetation

V.B.2.N.d.2 JUSTICIA AMERICANA TEMPORARILY FLOODED HERBACEOUS ALLIANCE (A.1657)

Justicia americana Herbaceous Vegetation (CEGL004286 SCS) — G4G5

Common Water-willow Herbaceous Vegetation

Description: This association occurs on the shoals or bars of rocky streams and riverbeds. It is found primarily in the Piedmont, Interior Low Plateau, Ozarks, Ouachita Mountains, and adjacent provinces and provides habitat in some portions of its range for globally rare dragonflies and herbs. Other herbaceous species that may be present include *Leersia* sp., *Lemna minor*, *Orontium aquaticum*, *Podostemum ceratophyllum*, *Xyris difformis* var. *difformis*, *Gratiola brevifolia*, *Scirpus* spp., *Diodia teres*, *Polygonum amphibium* and *Saururus cernuus*. A sparse canopy layer overhanging the river can include *Carpinus caroliniana* ssp. *caroliniana*, *Fagus grandifolia*, and *Fraxinus pennsylvanica* among other species may be present.

LNP Scale: Small patch **Distribution:** Widespread

TNC Ecoregions: 38:C, 39:C, 43:C, 44:C, 45:C, 48:C, 49:C, 50:C, 51:C, 52:C, 59:C, 61:C

References: Allard 1990, Fike 1999, Hoagland 1997, Nelson 1986, Schafale and Weakley 1990

<u>State</u>	<u>SRank</u>	<u>State Name</u>
--------------	--------------	-------------------

**Lower New England - Northern Piedmont Ecoregion (61) Classification 4/2000
(subset revised from the National Vegetation Classification 11/1999 version)**

AL	S?	
AR	S?	
DE	S?	
GA	S?	
KY	S?	
MD?	SP	
NC	S?	Rocky Bar and Shore, in part (NC 1990)
NJ	S?	
OH	S4	Water-willow Riverine Community=
OK	S?	Justicia americana herbaceous association (OK 1997)
PA	S?	Water-willow (Justicia americana) – smartweed riverbed=
SC?	SP	Shoal and Stream Bar, in part (SC 1986)
TN	S?	
VA?	SP	
WV	S?	

V.B.2.N.e Semipermanently flooded temperate perennial forb vegetation

V.B.2.N.e.1 PONTEDERIA CORDATA - PELTANDRA VIRGINICA SEMIPERMANENTLY FLOODED HERBACEOUS ALLIANCE (A.1669 ECS)

Peltandra virginica - Saururus cernuus - Carex crinita / Climacium americanum Herbaceous Vegetation (CEGL007696 SCS) — G2?

Green Arrow-arum - Lizard's-tail - Fringed Sedge / Tree Moss Herbaceous Vegetation
[Floodplain Pool]

Description: This vegetation occupies depressions of Piedmont and mountain floodplains. Vegetative cover is generally low and may be confined to edges or shallower portions that dry out during the growing season. The vascular plant species vary widely among examples. Emergent vegetation may include *Peltandra virginica*, *Dulichium arundinaceum*, and *Polygonum spp.* *Carex crinita* or some other wetland *Carex* species are almost always present, and *Climacium americanum* is often abundant on the landward side. Larger examples may have pad-leaved aquatic species such as *Brasenia schreberi* or *Nymphaea odorata*. Piedmont examples may also have *Saururus cernuus* and *Boehmeria cylindrica*. Some examples have wetland shrubs on edges or in shallow portions, including *Cornus amomum* and *Cephalanthus occidentalis*. These depressions are usually abandoned channel segments or swales behind natural levees in which water is ponded for all or much of the year. Water may be supplied primarily by stream flooding or by rainfall.

LNP Scale: Small patch **Distribution:** Peripheral if present

TNC Ecoregions: 51:C, 52:C, 57:?, 61:P

Comments: These floodplain pools are transitional between wetland vegetated communities and aquatic communities. They are more distinctive for their aquatic fauna (and probably microflora) than for their higher plant communities. Two distinct kinds can be recognized based on the aquatic animal communities: Pools that are flooded by overbank stream flow at least as often as they dry out support fish as the dominant animal component. Those that are flooded more rarely and dry out between floods lack fish most of the time and support significant amphibian communities. These differences are not known to be reflected in vegetation, but are important ecologically.

References: Schafale and Weakley 1990

<u>State</u>	<u>SRank</u>	<u>State Name</u>
DE?	SP	
MD?	SP	
NC	S?	Floodplain Pool, in part (NC 1990)
NJ?	SP	
TN?	SP	

Pontederia cordata - Peltandra virginica Semipermanently Flooded Herbaceous Vegetation [Provisional] (CEGL004291 ECS) — G?

Pickrelweed - Green Arrow-arum Semipermanently Flooded Herbaceous Vegetation
[Pickrelweed Marsh]

Description: This is a placeholder for community association(s) to be developed in this alliance. 12/98 CAP Very wet

**Lower New England - Northern Piedmont Ecoregion (61) Classification 4/2000
(subset revised from the National Vegetation Classification 11/1999 version)**

or partially submerged forb vegetation of rivershores and lakeshores, and sometimes of artificial ponds, lakes, and impoundments. *Pontederia cordata* and *Peltandra virginica* are typical. Associates include *Nuphar lutea*, *Glyceria striata*, *Scirpus tabernaemontani* (= *Scirpus validus*), *Scirpus americanus*, and *Sagittaria latifolia*.

LNP Scale: Small patch **Distribution:** Widespread

TNC Ecoregions: 42:C, 43:C, 44:C, 48:?, 49:?, 51:C, 52:C, 57:P, 58:P, 59:C, 60:P, 61:C, 62:P, 63:C

References:

<u>State</u>	<u>SRank</u>	<u>State Name</u>
AR	S?	
CT		S?
KY	S?	
MA	S?	
ME	S?	Pickerelweed – Macrophyte Aquatic Bed+
NH	S?	Yellow Pond Lily – Pickerelweed – Pondweed Aquatic beds(1997), in part
NY	S?	Deep emergent marsh, in part
ON	S?	Pickerel-weed Mixed Shallow Aquatic Type =
PA	S?	
RI	S?	
SC	S?	
VA	S?	
VT	S4	Deep Broadleaf Marsh
WV	S?	

V.B.2.N.f Saturated temperate perennial forb vegetation

V.B.2.N.f.4 CHRYSOSPENIUM AMERICANUM SATURATED HERBACEOUS ALLIANCE (A.1685 ECS)

Chrysosplenium americanum Herbaceous Vegetation [Provisional] (CEGL006193 ECS) — G3G5

Golden-saxifrage Herbaceous Vegetation

[Golden-saxifrage Seep]

Description: This is a placeholder for community association(s) to be developed in this alliance. 12/98 CAP Small herbaceous seepage areas with scattered cover of forbs, including *Chrysosplenium americanum*, *Cardamine bulbosa*, *Circaea alpina*, *Viola* spp, *Chelone glabra*, *Glyceria melicaria*, *Glyceria striata*, *Cinna arundinacea*, *Impatiens capensis*, *Poa paludigena*, *Carex scabrata*, *Mimulus ringens*, and the mosses *Mnium punctatum*, *Rhizomnium appalachianum*. Typically the community is over-shaded by trees such as *Fraxinus nigra* rooted in adjacent drier soils. Similar types: For other seeps see *Symplocarpus foetidus* – *Caltha palustris* Saturated Herbaceous Alliance (association CEGL002385).

LNP Scale: Small patch **Distribution:** Widespread

LNP Comments: most often this is considered a microsite features in calcareous/ circumneutral seepage swamps (red maple, black ash swamps) rather than as a separate herbaceous community.

TNC Ecoregions: 51:C, 59:C, 61:C

References:

<u>State</u>	<u>SRank</u>	<u>State Name</u>
GA?	SP	
MA	S4	Forested Seep Community+
MD	S?	
NC	S?	
NH?	SP	
NY?	SP	
PA	S?	
TN	S?	
VA	S?	
WV	S?	

V.B.2.N.f.16 TOFIELDIA GLUTINOSA - PARNASSIA GLAUCA SATURATED HERBACEOUS ALLIANCE (A.1697 ECS)

**Lower New England - Northern Piedmont Ecoregion (61) Classification 4/2000
(subset revised from the National Vegetation Classification 11/1999 version)**

Tofieldia glutinosa - Carex garberi Herbaceous Vegetation (CEGL006142 ECS) — G3?

Sticky Bog-asphodel - Elk Sedge Herbaceous Vegetation

[Boreal Riverside Seep]

Description: 12/98 CAP Herbaceous seepage communities that develop on the shores of larger rivers, where flood scouring maintains semi-open conditions and circumneutral groundwater discharge supports a fen-like aspect.

Shore substrate may be sandy, gravelly, or bedrock. Characteristic species include *Tofieldia glutinosa*, *Spiranthes spp.*, *Parnassia glauca*, *Carex garberi*, and *Carex hassei*. These communities are locally referred to as "calcareous riverside seeps."

Formerly *Tofieldia glutinosa* – *Parnassia glauca*; NAP changed name. Name change needs review across range.

LNP Scale: Small patch

Distribution: Widespread

Ecological group: Calcareous fens

TNC Ecoregions: 48:C, 59:C, 61:C, 63:C

References: Thompson and Sorenson 2000

<u>State</u>	<u>SRank</u>	<u>State Name</u>
ME	S?	Circumneutral Riverside Seep
NH	S?	
NY	S?	
PA	S?	
VT	S1	Calcareous Riverside Seep
WV	S?	

V.B.2.N.f.13 SYMPLOCARPUS FOETIDUS – CALTHA PALUSTRIS SATURATED HERBACEOUS ALLIANCE (A.1694)

Symplocarpus foetidus – Caltha palustris Herbaceous Vegetation [Provisional] CEGL006567

Skunk cabbage – Yellow Marsh-marigold Herbaceous Vegetation

[Forested Seep]

Description: This broadly defined herbaceous community is found from Great Plains to eastern U.S. and Canada where circumneutral or slightly calcareous groundwater seeps to the surface. Dominant forbs are *Caltha palustris* and *Symplocarpus foetidus*. Typical associates include *Carex stricta*, *Glyceria striata*, *Impatiens capensis*, *Onoclea sensibilis*, *Thelypteris palustris* and *Viola* spp. *Angelica atropurpurea* may be locally abundant. *Sphagnum* and other mosses are often present. Scattered shrub and tree species of surrounding forest types may be present, but where cover of these becomes significant, the site is classified as a woodland or forest alliance. Typical woody components include *Acer rubrum*, *Fraxinus pennsylvanica*, *Fraxinus nigra*. These seeps typically occur as small openings in forests but may persist in agricultural settings and on floodplains. Environmental setting: This association occurs on lower slopes of glacial moraines, ravines, floodplains and terraces with seepage areas. Peat may accumulate or the site may have little organic material. Similar types: See seasonally flooded or saturated forest types for similar areas with significant canopy cover.

LNP Scale: Small patch **Distribution:** Widespread (state list below is incomplete)

LNP Comments: Likely to be separate associations for a calcareous type versus a circumneutral/acidic type.

TNC Ecoregions: 59:C, 61:C and others

References: White and Madany 1978

<u>State</u>	<u>SRank</u>	<u>State Name</u>
CT	S?	
MA	S?	
ME	S?	
MD	S?	
NH	S?	
NY	S?	
PA	S?	
RI	S?	
VT	S?	

V.B.2.N.g Tidal temperate perennial forb vegetation

V.B.2.N.g.6 AMARANTHUS CANNABINUS TIDAL HERBACEOUS ALLIANCE (A.1706 ECS)

**Lower New England - Northern Piedmont Ecoregion (61) Classification 4/2000
(subset revised from the National Vegetation Classification 11/1999 version)**

Amaranthus cannabinus Tidal Herbaceous Vegetation (CEGL006080 ECS) — G3G5

Water-hemp Tidal Herbaceous Vegetation

Description: This vegetation occupies a mid-tidal position on sandy intertidal rivershores of meso-oligohaline waters. It is dominated by *Amaranthus cannabinus*, which can be mixed with *Zizania aquatica*, *Scirpus pungens*, *Bidens* spp., *Typha* spp. (in low percents), *Acorus calamus* and numerous small rosette plants. Similar types: can be similar to CEGL004202 *Zizania aquatica* Tidal Herbaceous Vegetation.

LNP Scale: Small patch **Distribution:** Widespread **Ecological group:** Tidal

TNC Ecoregions: 58:C, 61:C, 62:C

References:

<u>State</u>	<u>SRank</u>	<u>State Name</u>
CT	S?	
DE	S?	
MA	S1	Freshwater Tidal Marsh+
MD	S?	
ME	S?	Freshwater Tidal Marsh+
NH	S?	
NJ	S?	
NY	S?	Freshwater tidal marsh+
RI	S?	
VA?	SP	

V.B.2.N.g.1 ERIOCAULON PARKERI TIDAL HERBACEOUS ALLIANCE (A.1701 ECS)

Eriocaulon parkeri - Polygonum punctatum Herbaceous Vegetation (CEGL006352 ECS) — G2

Estuary Pipewort - Dotted Smartweed Herbaceous Vegetation

[Estuary Pipewort Brackish Intertidal Flat]

Description: This freshwater tidal community occurs in estuaries of the northeastern U.S., generally confined to low marsh where it is subjected to high levels of flood disturbance. As a result, the substrate is generally sandy or gravelly with a low proportion of organic material. The vegetation is low, generally less than 35 cm in height, with variable cover of scattered to fairly dense *Eriocaulon parkeri*. Associates include *Polygonum punctatum*, *Isoetes riparia*, *Lindernia dubia*, *Bidens eatonii*, and *Ludwigia palustris*.

LNP Scale: Small patch **Distribution:** Widespread **Ecological group:** Tidal

TNC Ecoregions: 57:C, 58:C, 61:C, 62:C

References: Barrett 1994

<u>State</u>	<u>SRank</u>	<u>State Name</u>
CT	S?	Eriocaulon parkeri - Polygonum punctatum Community
DE	S1	Eriocaulon parkeri Herbaceous Community
MA	S1	Freshwater tidal marsh+
MD	S?	
ME	S2	Freshwater tidal marsh community, mudflat zone+
NC	S?	
NJ	S3?	Freshwater tidal marsh complex, lower intertidal mudflat+
NY	S1S2	Brackish intertidal mudflats+
SC?	SP	
VA	S?	

V.B.2.N.g.8 NUPHAR LUTEA TIDAL HERBACEOUS ALLIANCE (A.1708 ECS)

Nuphar lutea ssp. advena Tidal Herbaceous Vegetation (CEGL004472 ECS) — G?

Broadleaf Pondlily Tidal Herbaceous Vegetation

Description: Tidal mudflats dominated by *Nuphar lutea* ssp. *advena*. This alliance includes vegetation of freshwater tidal rivers where the water depth is approximately 2-3 meters or less. *Nuphar lutea* ssp. *advena* and *Nymphaea odorata* are dominant; these species quickly spread from their rhizomes and shade out other vegetation. Other species may include *Potamogeton epihydrus*, *Peltandra virginica*, *Nymphoides cordata*, and *Zizania aquatica*. In Delaware, this alliance occurs in nearly pure stands below mean low water on mudflats that are exposed at low tide and on the submerged point bars of stream meanders.

**Lower New England - Northern Piedmont Ecoregion (61) Classification 4/2000
(subset revised from the National Vegetation Classification 11/1999 version)**

LNP Scale: Small patch **Distribution:** Widespread or peripheral **Ecological group:** Tidal
TNC Ecoregions: 57:C, 58:C, 61:C, 62:C
References:

<u>State</u>	<u>SRank</u>	<u>State Name</u>
CT	S?	
DC	S?	
DE	S?	
MA	S?	Fresh/Brackish Flats
MD	S?	
ME	S?	Freshwater Tidal Marsh+
NC	S?	
NH	S?	
NJ	S?	
NY	S?	
PA	S?	
RI	S?	
VA	S?	

V.B.2.N.g.3 PELTANDRA VIRGINICA - PONTERERIA CORDATA TIDAL HERBACEOUS ALLIANCE (A.1703 SCS)

Mixed Forbs High Marsh Tidal Herbaceous Vegetation [Provisional] (CEGL006325 ECS) — G?

Mixed Forbs High Marsh Tidal Herbaceous Vegetation
[Freshwater Tidal Marsh]

Description: This is a placeholder for community association(s) to be developed in this alliance. Freshwater tidal marsh dominated by variable mixtures of *Peltandra virginica* and *Pontederia cordata*. Other species can include *Bidens spp.*, *Zizania aquatica*, *Sagittaria spp.*, *Acorus americanus* and *Polygonum spp.* Occurs primarily in low portions of the intertidal zone on mucky substrates.

LNP Scale: Small patch **Distribution:** Widespread or peripheral **Ecological group:** Tidal/Freshwater tidal
TNC Ecoregions: 58:?, 61:C, 62:C
References:

<u>State</u>	<u>SRank</u>	<u>State Name</u>
CT	S?	
DE	S?	
MA	S1	Freshwater Tidal marsh+
MD	S?	
ME	S?	Freshwater Tidal Marsh+
NH	S?	
NJ	S?	
NY	S?	
PA?	SP	
RI	S?	
VA	S?	

V.C.2.N.a Permanently flooded temperate or subpolar hydromorphic rooted vegetation

V.C.2.N.a.102 NYMPHAEA ODORATA - NUPHAR SPP. PERMANENTLY FLOODED TEMPERATE HERBACEOUS ALLIANCE (A.1984 SCS)

Nuphar lutea ssp. advena - Nymphaea odorata Herbaceous Vegetation (CEGL002386 MCS) — G4G5

Yellow Pondlily - White Waterlily Herbaceous Vegetation
[Water Lily Aquatic Wetland]

Description: This rooted aquatic community occupies shallow water depressions, oxbow ponds, backwater sloughs of river floodplains, ponds, and small lakes throughout the central and eastern United States. It is dominated by rooted, floating-leaved aquatic species, with both submergent and emergent aquatics also present. *Nuphar lutea* ssp. *advena* and *Nymphaea odorata* are dominants. Other species present may include *Brasenia schreberi*, various

Lower New England - Northern Piedmont Ecoregion (61) Classification 4/2000
(subset revised from the National Vegetation Classification 11/1999 version)

Potamogeton spp., *Polygonum amphibium*, and *Polygonum coccineum*. Especially in the southern part of the range, submerged aquatic species which may be present may include *Cabomba caroliniana*, *Ceratophyllum demersum*, and *Heteranthera dubia*. 6/98 NAP Open water marsh or still lakeshores and slow-moving streams, dominated by floating-leaved plant and emergents.

LNP Scale: **Distribution:** Widespread (but very broadly defined at this point)

TNC Ecoregions: 31:P, 36:C, 37:C, 39:C, 40:P, 41:C, 42:C, 43:C, 44:C, 45:C, 46:C, 47:C, 48:C, 49:C, 50:C, 51:?, 52:C, 53:C, 55:?, 56:C, 57:C, 58:C, 59:C, 60:?, 61:C, 62:C, 63:C

References: Ambrose 1990, Florida Natural Areas Inventory 1990, Foti et al. 1994, Hoagland 1997, Schafale and Weakley 1990

<u>State</u>	<u>SRank</u>	<u>State Name</u>
AL	S?	
AR	S?	
CT	S?	
DE	S?	
GA	S?	Open water/aquatic bed veg., natural impoundment pond (GA 1990)
IA	SU	waterlily bed =
IL	S2,S2	pond (N) I, marsh (N) I [water lily]
IN	S2	lake, water lily subtype =
KY	S?	
LA	S?	
MA	S?	
MD	S?	
ME	S?	
MI	S5	emergent marsh (S)?
MN	S?	
MO	S2	freshwater marsh+
MS	S?	
NC	S?	Small Depression Pond+
NH	S?	
NJ	S?	
NY	S?	Bog lake+, Deep emergent marsh+
OH	S4,S4	floating-leaved marsh; floating-leaved riverine community
OK	S?	Nuphar lutea herbaceous association; Nymphaea odorata herbaceous association
ON	S?	
PA	S?	
RI	S?	
SC	S?	
TN	S?	
TX	S?	
VA	S?	
VT	S?	
WI	SU	submerged aquatic, water lily subtype =
WV	S?	

***Nymphaea odorata* - *Eleocharis robbinsii* Herbaceous Vegetation (CEGL006086 ECS) — G2**

White Waterlily - Robbins Spikerush Herbaceous Vegetation

Description: This hydromorphic coastal plain pond community ranges from southern New England to Maryland. It occurs in standing water in all but exceptionally dry years. The substrate is most often deep muck, but in oligotrophic ponds an organic layer may be absent or much reduced and the vegetation occurs on sand or mucky sand.

Characteristic species include *Nymphaea odorata*, *Nymphoides cordata*, and *Eleocharis robbinsii*, with frequent associates including *Scleria reticularis*, *Gratiola aurea*, *Proserpinaca pectinata*, *Utricularia juncea*, *Brasenia schreberi*, *Pontederia cordata*, *Ludwigia* spp., *Utricularia* spp., and *Eriocaulon aquaticum*.

LNP Scale: Small patch **Distribution:** Limited or peripheral **Ecological group:** Coastal plain pondshore

TNC Ecoregions: 58:?, 61:C, 62:C

References: Sneddon 1994

<u>State</u>	<u>SRank</u>	<u>State Name</u>
DE	S2?	<i>Nymphaea odorata</i> - <i>Eleocharis robbinsii</i> Herbaceous Community

**Lower New England - Northern Piedmont Ecoregion (61) Classification 4/2000
(subset revised from the National Vegetation Classification 11/1999 version)**

MA	S2	Coastal Plain Pond Shore+
MD	S?	
NH	S?	
NJ	S?	
NY	S?	
RI	S?	

V.C.2.N.a.12 PODOSTEMUM CERATOPHYLLUM PERMANENTLY FLOODED HERBACEOUS ALLIANCE (A.1752 SCS)

Podostemum ceratophyllum Herbaceous Vegetation (CEGL004331 SCS) — G5

Riverweed Herbaceous Vegetation

Description: The vegetation grows attached to boulders, outcrops and stream rubble (and to dams) in moderate- to fast-flowing water. This almost always is a monospecific community with no other vascular plants present. Some Rhodophyta (red algae) may be present. Occasional associates include *Potamogeton nodosus*, *Ranunculus tricophyllus*. Environmental setting: rocky streambeds and riverbeds in mature drainage systems where the streams have cut down to rock and the floodplain is relatively narrow in moderately fast- to fast-flowing water. Also on dams in fast water. Tends to be associated with higher pH streams which cut through diabase, limestone or calcareous shales.

LNP Scale: small patch (linear) **Distribution:** Widespread **Ecological group:** Aquatic

TNC Ecoregions: 38:C, 39:C, 43:C, 51:C, 52:C, 53:C, 59:C, 61:C

References: Hoagland 1997, Nelson 1986, Schafale and Weakley 1990

<u>State</u>	<u>SRank</u>	<u>State Name</u>
AL	S?	
AR	S?	
CT	S?	
DE	S?	
GA	S?	
KY	S?	
MA	S?	
MD	S?	
ME	S?	
NC	S?	Rocky Bar and Shore+
NH	S?	River rapids+
NJ	S?	
NY	S?	
OK	S?	Podostemum ceratophyllum herbaceous association
PA	S?	
RI	S?	
SC	S?	Shoal and Stream Bar+
TN	S?	
VA	S?	
VT	S?	

V.C.2.N.a.17 VALLISNERIA AMERICANA PERMANENTLY FLOODED TEMPERATE HERBACEOUS ALLIANCE (A.1757 ECS)

Vallisneria americana - Potamogeton perfoliatus Herbaceous Vegetation (CEGL006196 ECS) — G5

American Eelgrass - Clasping-leaf Pondweed Herbaceous Vegetation

LNP Suggests using Tapegrass rather than Eelgrass for common name

Description: Aquatic vegetation in sheltered bays of lakes and streams, not highly disturbed by wave action or in streams or rivers with moderate flow. Dominated by submergent plants such as *Vallisneria americana* and *Potamogeton perfoliatus* or with emergent plants with only minor floating-leaved components. The extent and distribution of this alliance is poorly understood. *Heteranthera dubia* (= *Zosterella dubia*) may be locally abundant.

LNP Scale: Small patch **Distribution:** Widespread **Ecological group:** Aquatic

LNP Examples: CT - major rivers across state; MA – Taunton River; RI – Wood River, Pawcatuck River

**Lower New England - Northern Piedmont Ecoregion (61) Classification 4/2000
(subset revised from the National Vegetation Classification 11/1999 version)**

TNC Ecoregions: 59:C, 61:C, 63:C

Other Synonymy: Tape-grass shallow shore (CAP).

References:

<u>State</u>	<u>SRank</u>	<u>State Name</u>
CT	S?	
DE	S?	
MA	S?	
MD	S?	
ME	S?	Water-lily – Macrophyte Aquatic Bed+
NH	S?	
NJ	S?	
NY	S?	Freshwater subtidal aquatic bed
PA	S?	
RI	S?	
VT	S?	
WV	S?	

VI.A.1.N.c Saturated bryophyte vegetation

VI.A.1.N.c.300 SPHAGNUM CUSPIDATUM - CLADOPODIELLA FLUITANS SATURATED NONVASCULAR ALLIANCE (A.3006 ECS)

Sphagnum cuspidatum - Cladopodiella fluitans Nonvascular Vegetation (CEGL006394 ECS) — G?

Toothed Peatmoss - Cladopodiella Nonvascular Vegetation

[Peatland Moss Lawn/Mud Bottom]

Description: Bryophyte vegetation of bog hollows. Known as "mud-bottom," this vegetation is dominated by *Sphagnum cuspidatum*, *Cladopodiella fluitans*, *Sphagnum rubellum* var. *tenellum*. Associated characteristic vascular species include *Rhynchospora alba*, *Utricularia cornuta*, *Drosera rotundifolia*, *Drosera intermedia*, *Vaccinium macrocarpon*, *Vaccinium oxycoccus*. 6/98 NAP *Sphagnum cuspidatum* and/or *Sphagnum rubellum* (= *Sphagnum capillifolium* var. *tenellum*) dominant; *Cladopodiella fluitans* present; *Rhynchospora alba*, *Eriophorum virginicum*, *Vaccinium oxycoccus* total, *Chamaedaphne calyculata* (< 10 percent), *Utricularia cornuta* often present but at low cover (< 25 percent vascular plant total). Water tracks, pool margins; bogs (often in center of bog in deep water) and highly acidic fens. Likely to occur in other states/provinces as component of bogs.

LNP Scale: small patch **Distribution:** Limited or Widespread

TNC Ecoregions: 61:C, 62:C, 63:C

References: Damman and French 1987

<u>State</u>	<u>SRank</u>	<u>State Name</u>
ME	S4	Bog Moss Lawn
NH	S?	
VT?	SP	

VII.A.2.N.a Pavement with sparse vascular vegetation

VII.A.2.N.a.1 CERASTIUM ARVENSE SPARSE VEGETATION ALLIANCE (A.1840 ECS)

Adiantum aleuticum - Asplenium spp. - Cerastium arvense Sparse Vegetation (CEGL006104 ECS) — G1G2

Serpentine Maidenhair - Spleenwort species - Field Chickweed Sparse Vegetation

[Serpentine Outcrop Community]

Description: This serpentine outcrop community occurs in central and northern New England. Sparse vegetation occurs on shallow soils on gently to steeply sloping, small bedrock outcrops of ultra-mafic rock such as serpentinite or dunite. The few plants that occur are located in small cracks and crevices on the rock surface. Characteristic species include *Asplenium trichomanes*, *Campanula rotundifolia*, *Cerastium arvense*, *Deschampsia flexuosa*, *Poa compressa*, *Minuartia stricta*, and *Moehringia macrophylla*. Eastern populations of the maidenhair fern *Adiantum aleuticum*, and all known populations of *Adiantum viridimontanum* are restricted to this community.

LNP Scale: Small patch **Distribution:** Restricted to Limited

TNC Ecoregions: 61:C, 63:C

**Lower New England - Northern Piedmont Ecoregion (61) Classification 4/2000
(subset revised from the National Vegetation Classification 11/1999 version)**

References: Thompson and Sorenson 2000

<u>State</u>	<u>SRank</u>	<u>State Name</u>
MA	S1	serpentine outcrop community
ME	S1	serpentine outcrop community
VT	S1	serpentine outcrop community

VII.C.1.N.b Dunes with sparse woody vegetation

VII.C.1.N.b.1 INLAND DUNE SPARSELY VEGETATED ALLIANCE (A.1857 ECS)

Betula populifolia / Schizachyrium scoparium - Ionactis linariifolius Sparse Vegetation (CEGL006276 ECS) — G2Q

Gray Birch / Little Bluestem - Stiff Aster Sparse Vegetation

[Inland Sand Barren]

Description: This inland sand barren community occurs in Kennebec County, Maine. One occurrence has been reported from Canterbury, New Hampshire. It occurs in inland areas where the soil is essentially pure shifting sand. Sands may form low shifting dunes or occur as a flat plain. In Maine, most occurrences appear to be the result of land-use patterns which resulted in xeric sand barren associations nearly devoid of trees. For example, at least one Maine occurrence is thought to have formed as a result of overgrazing. The single New Hampshire example occurs on a 1.5 m to 1.8 m high point bar along the Merrimack River. The openness of this occurrence is presumably maintained by windblown shifting sand and intermittent flooding but the role of anthropogenic disturbance needs investigation. This community is primarily 90 percent sand with scattered vegetation. The characteristic species *Schizachyrium scoparium*, *Betula populifolia*, *Ionactis linariifolius*, *Juncus greenei*, *Oenothera biennis*, *Pinus strobus* and *Quercus rubra* are shared between the New Hampshire site and most of the Maine sites. The Maine occurrences also contain *Populus tremuloides*, *Abies balsamea*, *Juniperus communis* and *Carex umbellata* with high frequency. The New Hampshire occurrence contains *Aristida basiramea*, *Digitaria cognata*, *Cyperus dentatus*, *Solidago bicolor*, *Dichanthelium clandestinum*, *Trichostema dichotomum* and *Bulbostylis capillaris*, none of which are reported in the other occurrences. Similar types: CEGL006004 Woodland was used to define anthropogenic type; Maine prefers to tie occurrences to natural situation above with reference to post agricultural type as a variant of above (6276) rather than a separate association.

LNP Scale: Small patch **Distribution:** Restricted

TNC Ecoregions: 61:C, 63:C

References: Grossman et al. 1994, Rawinski 1987

<u>State</u>	<u>SRank</u>	<u>State Name</u>
ME	S?	Inland Sand Barren
NH	S?	

Pinus rigida - Hudsonia tomentosa - Pityopsis falcata Sparse Vegetation (CEGL006391 ECS) — G?

Pitch Pine - Woolly Beach-heather - Goldenaster Sparse Vegetation

[Inland Dune]

Description: This community is currently known only from Rhode Island, where large areas of bare sand occur on inland dunes. Vegetation is sparse, characterized by very stunted *Pinus rigida* (10 cm tall), *Hudsonia tomentosa*, *Pityopsis falcata*, and lichens. The cause of sand exposure is not known with confidence, as the two currently known occurrences are in different environmental settings. One is adjacent to a river and may be the result of past flooding events. The other occurrence is on an island in Narragansett Bay.

LNP Scale: Small patch **Distribution:** Restricted

LNP Comments: Type is under review; need to determine relationship between this & NH & ME Hudsonia barrens.

May have been historic in Attleboro and Seekonk MA (inland dunes there now destroyed)

TNC Ecoregions: 61:C, 62:C

References:

<u>State</u>	<u>SRank</u>	<u>State Name</u>
RI	S?	Inland dune / sand barren