

## White Pine Driftless Bluff Forest

**Site Characteristics:** This community is a relict, thought to have existed in the Driftless Area since at least the Wisconsin glaciation. This dry-mesic to mesic pine bluff forest occurs on steep sandstone or, rarely, limestone bluffs in the Driftless Area of the upper Midwestern United States. Stands occur in small patches 0.1-2 ha in size on soils derived of glacial till or outwash plains. The soils are shallow, poorly developed, often acidic and excessively drained. Soils are typically loamy sands, sandy loams, loams, or clay loams with low organic material. Runoff and leaching are severe due to the slope and the porous nature of the bedrock. This community occurs on sloping or level sandstone or, rarely, on quartzite bluffs. The sandstone is either St. Peter or Franconia. McIntosh (1950) studied 22 stands of this type and found them on all aspects except SE. This community is most commonly found on water worn cliffs with an undercutting stream at the cliff base. Considerable light can penetrate to the forest floor even though the trees are close together.

**Vegetation Characteristics:** This community has a closed to open canopy of conifer or mixed conifer-hardwood trees, with *White Pine* as the dominant species. The composition of the understory is variable but typically contains herbs and shrubs with some prairie species. The shrub layer is absent to well-developed, while the herbaceous layer is moderately to poorly developed (Sims et al. 1989). Understory vegetation is sparse where the canopy is closed due to the limited amount of light and duff buildup on the forest floor. Variability in species composition in the shrub and herbaceous layers is high due to the small, isolated nature of stands of this forest.

**Range:**

**Conservation Status:** G2 – Imperiled

**Management Considerations:** This community is apparently stable throughout most of its range. In some areas hardwoods more typical of the surrounding forest dominate the understory and may eventually replace the pines in the overstory, although site conditions favor the maintenance of the community in most circumstances. Given the right conditions, lack of fire and no grazing, the pines may disperse into adjacent hardwood forest in some instances. There is little chance of exchange of species between sites, and the makeup of adjacent communities can have a significant impact on understory composition. When a population of a species becomes extirpated in one site it is unlikely to reinvade due to the distance to another site (McIntosh 1950). This variability is due to at least two factors, both of which have to do with the small and isolated nature of examples of this community. Because this community rarely exceeds 2 ha, some species from adjacent communities may easily invade, with the identity of these species varying depending on the composition of the nearby communities.

### Iowa NRCS Plant Community Description

This community description is a compilation of the Community Association and its over-riding Community Alliance descriptions as provided by NatureServe ([www.natureserve.org/explorer](http://www.natureserve.org/explorer)). Where necessary, community descriptions were adapted as recommended by Iowa plant community experts.

9/30/2009

**FOREST, WHITE PINE DRIFTLESS BLUFF**

SCIENTIFIC NAME	COMMON NAME	STRATA	FUNCTIONAL GROUP	IA CofC	SEEDS/LB	STATE STATUS
Abies balsamea	Balsam fir	Canopy, Associates	TREE	9	59,840	SC
Acer rubrum	Red maple	Canopy, Associates	TREE	*	22,720	
Acer spicatum	Mountain maple	Shrub Species	TREE	10	22,720	SC
Amorpha canescens	Lead plant	Herbaceous Species	SUB-SHRUB, LEGUME	8	256,000	
Aralia nudicaulis	Wild sarsaparilla	Herbaceous Species	SUB-SHRUB	8	99,000	
Arisaema triphyllum	Jack-in-the-pulpit	Herbaceous Species	P-FORB	4	8,000	
Betula papyrifera	Paper birch, canoe birch	Canopy, Associates	TREE	6	1,380,800	
Chimaphila umbellata	Prince's pine	Shrub Species	SUB-SHRUB	10		T
Coreopsis palmata	Tickseed, prairie coreopsis	Herbaceous Species	P-FORB	7	160,000	
Cornus canadensis	Bunchberry, dwarf cornel	Shrub Species	SHRUB	10	69,430	T
Corylus cornuta	Beaked hazel	Shrub Species	SHRUB	10	549	
Diervilla lonicera	Bush honeysuckle	Shrub Species	SHRUB	10	1,600,000	
Dodecatheon meadia	Shooting star	Herbaceous Species	P-FORB	7	960,000	
Eurybia macrophylla	Big-leaved aster	Herbaceous Species	P-FORB	10	432,000	E
Juniperus virginiana	Red cedar	Sub-Canopy	TREE	1	43,600	
Linnaea borealis americana	Twinflower	Shrub Species	SUB-SHRUB	10	453,592	T
Maianthemum canadense	Canada mayflower	Herbaceous Species	P-FORB	8	49,411	
Mitchella repens	Partridge berry	Shrub Species	SUB-SHRUB	10	111,011	T
Ostrya virginiana	Ironwood, hop hornbeam	Canopy, Associates	TREE	5	30,000	
Pinus strobus	Eastern white pine	Canopy, Dominant	TREE	10	27,040	
Populus tremuloides	Quaking aspen	Canopy, Associates	TREE	2	3,600,000	
Prunus pensylvanica	Pin cherry	Shrub Species	SHRUB	5	14,200	
Prunus virginiana	Choke cherry	Shrub Species	SHRUB	2	4,971	
Quercus alba	White oak	Canopy, Associates	TREE	6	128	
Quercus velutina	Black oak	Canopy, Associates	TREE	4	245	
Sanguinaria canadensis	Bloodroot	Herbaceous Species	P-FORB	7	112,000	
THUJA OCCIDENTALIS	Arbor vitae, eastern white cedar	Canopy, Associates	TREE	*	345,600	
Tilia americana	Basswood, American linden	Sub-Canopy	TREE	5	4,765	
Vaccinium angustifolium	Low sweet blueberry	Shrub Species	SUB-SHRUB	10	1,972,000	T
Vaccinium myrtilloides	Velvet-leaf blueberry	Shrub Species	SUB-SHRUB	10		T
Vaccinium spp.	Blueberry	Yes	SUB-SHRUB			

**Iowa NRCS Plant Community Species Lists**

*Based on NatureServe Explorer Plant Community Alliances and Associations*

2/4/2008