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**ECOLOGICAL SYSTEM: NORTH-CENTRAL INTERIOR WET FLATWOODS**

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**Summary:** This small-patch system is found throughout the northern glaciated Midwest ranging east into Lower New England. It usually occurs on poorly drained uplands or in depressions associated with glacial features such as tillplains, lakeplains or outwash plains. Soils often have an impermeable or nearly impermeable clay layer that can create a shallow, perched water table. Saturation can vary, with ponding common during wetter seasons, and drought possible during the summer and autumn months. These fluctuating moisture levels can lead to complexes of forest upland and wetland species occurring within this system. *Quercus palustris* (pin oak) typically dominates and is often associated with *Quercus bicolor* (swamp white oak) and *Acer rubrum* (red maple). *Liquidambar styraciflua* (sweetgum) and *Nyssa sylvatica* (blackgum) are also common associates. Understory herbaceous and shrub species present in examples of this system can vary. Some common species include *Carex* (sedge) spp., *Osmunda cinnamomea* (cinnamon fern), *Cephalanthus occidentalis* (common buttonbush), *Alnus* (alder) spp., and *Ilex* (holly) spp. Flooding, drought and fire can influence this system.

**High-ranked Species:** *Euphyes dukesi* (G3, dukes' skipper)

**Range:** This system is found in the northern Midwest, southern Ontario, and southern portions of the northeastern U.S. United States: CT, IA, IL, IN, MA, MI, MN, MO, NY, OH, PA, VT, WI

**Delaware Estuary Associations:**

- Northeastern Pin Oak - Swamp White Oak Forest

**CLASSIFIERS FOR NORTH-CENTRAL INTERIOR WET FLATWOODS**

**Primary Division:** 202

**Land Cover Class:** Woody Wetland

**Spatial Scale & Pattern:** Small patch

**Required Classifiers:** Natural/Semi-natural; Vegetated (>10% vasc.); Wetland

**Non-diagnostic Classifiers:** Forest and Woodland (Treed); Flat; Extensive Wet Flat; Isolated Wetland [Partially Isolated]; Saturated Soil

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**NORTHEASTERN PIN OAK - SWAMP WHITE OAK FOREST**

*Quercus palustris* - (*Quercus bicolor*) - *Acer rubrum* / *Osmunda cinnamomea* Forest

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**Range:** This vegetation occurs in southern New England south to eastern Pennsylvania and New Jersey.

**Environmental Description:** This vegetation is found on loamy sand or clayey alluvium, muck or peat in areas that are seasonally wet (winter and early spring) with a shallow, perched water table, which tends to be dry in late summer and early fall. They may receive groundwater seepage.

**Vegetation Description:** This seasonally flooded pin oak community occurs in the eastern United States. The canopy is codominated by *Quercus palustris* (pin oak) and *Acer rubrum* (red maple). Common associates include *Quercus bicolor* (swamp white oak), *Nyssa sylvatica* (blackgum), and occasionally *Tsuga canadensis* (eastern hemlock) or *Carya* (hickory) spp. The shrub layer may be sparse or dense and contains *Ilex verticillata* (common winterberry), *Vaccinium corymbosum* (highbush blueberry), and *Viburnum dentatum* (southern arrow-wood). The sparse herb layer includes *Dirca palustris* (leatherwood), *Scirpus cyperinus* (woolgrass bulrush), *Thelypteris palustris* (eastern marsh fern), *Carex frankii* (Frank's sedge), *Glyceria striata* (fowl mannagrass), *Carex crinita* (fringed sedge), *Onoclea sensibilis* (sensitive fern), and *Osmunda regalis* (royal fern).

**Characteristic Species:** *Quercus bicolor* (swamp white oak), *Quercus palustris* (pin oak)

**Dynamics/Successional Trajectory:** These are closed to partially open, deciduous, seasonally flooded forests that occur in basin areas that are seasonally wet (winter and early spring) with a shallow, perched water table, which tend to be dry in late summer and early fall. They are found on variable substrates but generally have some layer that impedes drainage and may receive groundwater seepage.

**Reference Sites:** Chapel Hill Forest, Valley Forge State Forest, Berks County, PA

**Global and State Conservation Ranks and Reasons:** GNR (1-Dec-1997). NJ: SNR, PA: SNR.

**VegBank Link for Plot Data:** [http://vegbank.org/natureserve/element\\_global.2.687748](http://vegbank.org/natureserve/element_global.2.687748)

**References:** Breden et al. 2001, Eastern Ecology Working Group n.d., Edinger et al. 2002, Fike 1999, Golet et al. 1993, Metzler and Barrett 2001, Sperduto 2000a, Sperduto 2000b, Swain and Kearsley 2000, Swain and Kearsley 2001

<b>MOST ABUNDANT SPECIES</b>		
<b>STRATUM</b>	<b>LIFEFORM</b>	<b>SPECIES</b>
Tree canopy	Broad-leaved deciduous tree	<i>Acer rubrum</i> (red maple)
Tree canopy	Broad-leaved deciduous tree	<i>Quercus palustris</i> (pin oak)
Shrub/sapling (tall & short)	Broad-leaved deciduous shrub	<i>Ilex verticillata</i> (common winterberry)
Herb (field)	Fern or fern ally	<i>Osmunda cinnamomea</i> (cinnamon fern)