Overview: Distribution, Abundance, Environmental Setting, Ecological Processes

Prior to Euro-American settlement, Cedar Glade (Curtis 1959) may have occurred as a relatively stable “natural” community only where cliffs, extensive talus slopes, waterbodies, or wetlands created effective firebreaks on sites where fuel loads were light. Most present occurrences of this historically rare community are artifacts of prolonged periods of fire suppression on xeric bluffs and sand terraces that formerly supported prairie or oak savanna vegetation. Cedar Glades are now fairly common on dry bluffs and escarpments in southwestern Wisconsin’s Driftless Area, often where sandstone, dolomite, or quartzite bedrock is exposed as cliffs or ledges. Eastern red-cedar also invades open sandy terraces that once supported sand prairie or oak savanna vegetation along the major rivers in southwestern Wisconsin. Cedar Glade also occurs on dry hillsides with coarse-textured gravelly soils, such as those associated with southeastern Wisconsin’s Southern Kettle Moraine region, and on bluffs in the south central part of the state.

Unlike other tree species historically dominating the semi-open canopies of Wisconsin’s savanna communities, eastern red-cedar is neither adapted to nor dependent on fire for its persistence. Over a half century has passed since Curtis and his colleagues described the Cedar Glade in *The Vegetation of Wisconsin* (Curtis 1959). Because of the community’s present structure, especially the high canopy closure and, in contrast to the other savanna communities and woodlands recognized in Wisconsin, its aversion to fire, stands dominated by eastern red-cedar should probably now be classified with the southern forests and woodlands. This tree does not possess protective bark, serotinal cones, or the ability to sprout vigorously (traits possessed by fire-adapted trees such as the oaks and jack pine) following the passage of wildfire. Fire suppression and, at some locations, grazing by domestic livestock account for a majority of the extant cedar glades and cedar forests (thickets) in present day southern Wisconsin. Series of photographs taken over the past century have clearly documented the great increase in the abundance of eastern red-cedar since wildfire suppression became public policy across southern Wisconsin. This is especially noticeable in the bluffs along the Mississippi and lower Wisconsin rivers and at other sites in the Driftless Area.

Retired Wisconsin DNR naturalist Ken Lange, who spent more than a quarter of a century at Devils Lake State Park, estimated the age of an eastern red-cedar on one of the quartzite bluffs above Devils Lake in Sauk County to be in the neighborhood of 500 years (1989). Comparably ancient eastern red-cedars have been reported in northeastern Wisconsin on the Niagara Escarpment by J. Nekola and M. Grimm (The Nature Conservancy-Sturgeon Bay, personal communication).

Community Description: Composition and Structure

Eastern red-cedar (*Juniperus virginiana*), the dominant tree, has now formed dense, almost impenetrable thickets at locations that were historically much more open. Associated trees may include bur oak (*Quercus macrocarpa*), black oak (*Q. velutina*), white oak (*Q. alba*), shagbark hickory (*Carya ovata*), white birch (*Betula papyrifera*), and American basswood (*Tilia americana*), none of which have much chance of thriving under the dense shade cast by the cedars. The characteristic understory plants noted by Curtis and his associates (Curtis 1959) and documented during recent botanical inventories by Wisconsin DNR and others included grasses such as little blue-stem (*Schizachyrium scoparium*), side-oats grama (*Bouteloua curtipendula*), hairy grama (*B. hirsuta*), and poverty oat grass (*Danthonia spicata*). Common forbs noted in the cedar glades were common spiderwort (*Tradescantia ohiensis*), flowering spurge (*Euphorbia corollata*), stiff sandwort (*Arenaria stricta*),
wild columbine (*Aquilegia canadensis*), harebell (*Campanula rotundifolia*), and gray goldenrod (*Solidago nemoralis*).

With the exception of a few cliff specialists and several widespread generalists, the plant list is composed mostly of dry prairie associates, all of which will decline or even disappear as the canopy of cedars increases in density and the ground is more heavily shaded. Mills (2008) resurveyed six of the seven cedar glade sites sampled by Curtis and his associates in their vegetation studies during the 1940s and 1950s and found that after 50 years many of the prairie and savanna plants recorded by Curtis et al. had indeed either declined or disappeared as shading from the cedars became more of a controlling factor.

One of the unusual attributes of the glades is that they provide wintering habitat for the Townsend’s Solitaire (*Myadestes townsendi*), a thrush of the western U.S. that occasionally wanders east of its breeding range to Wisconsin and beyond. Here the species shows an apparent affinity for dense groves of eastern red-cedar trees.

**Conservation and Management Considerations**

Eastern red-cedar has great longevity potential, and individuals several centuries old have been documented at locations such as the Niagara Escarpment (including on some stretches north and east of the Tension Zone in northeastern Wisconsin) and on quartzite bluffs at Devils Lake State Park in Sauk County of south central Wisconsin. In such situations, eastern red-cedar trees therefore provide a record of certain environmental characteristics predating the settlement of the Upper Midwest by Euro-Americans and should be regarded as unique and invaluable references that can help us interpret past and present conditions.

The cedar thickets can in some cases offer shelter and food to wildlife species, including owls, and wintering oddities such as the Townsend’s Solitaire, a bird of the western U.S. mentioned above.

Because somewhat similar vegetation has been noted at other locations within the Driftless Area and at least as far south as Missouri, it is worth treating the red-cedar thickets/glades as an assemblage of species with specific geologic and edaphic attributes worthy of maintenance at sites that were protected from fire by topography or the distribution of water and wetlands or where a flammable substrate is lacking. Elsewhere, for example, where prairies or savannas are being invaded by eastern red-cedar, it can and should be treated as other encroaching woody vegetation is. The red-cedar thickets in these cases are artifacts of recent fire suppression policies.

**Additional Information**

For additional information on similar or related communities, see the descriptions in this chapter for Dry Prairie and Dry Cliff. There is no U.S. National Vegetation Classification type closely matching Eastern Red-Cedar Thicket (Faber-Langendoen 2001) at this time. It may make more sense to place this community with the glades or even cliffs, rather than “forests or savannas,” but for the present we will group it with the woodland and savanna communities. As discussed briefly above, there are examples of cedar glades and thickets on xeric, gravelly morainal landforms in southeastern Wisconsin.

**Also see:**

Jones and Bowles (2013)
Mills (2008)

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For a list of terms used, please visit the [Glossary](#).

For a reference list, please see the [Literature Cited](#).