

In the Spotlight:

Cypress (tupelo) Swamp

Spring 2015

By Brian Yahn, Vegetation Ecologist



The Cypress (tupelo) swamp is a rare type of wetland that only occurs in the western part of Kentucky. This community has an extended hydroperiod meaning it is usually flooded for most of the year. Due to these periods of prolonged ponding, the community is dominated by water-loving bald cypress and/or water tupelo. Bald cypress and water tupelo swamps are commonly in the southern reaches of the Coastal Plain, near the Atlantic and Gulf Coastline. In Kentucky, however, such wetlands are very rare as the Coastal Plain is limited to areas west of Land Between the Lakes; a few cypress swamps also occur farther east, along the lower Ohio River corridor to near Owensboro and then south into the lower watershed of the Green River and its tributaries, near Central City. The abundance of this community prior to Euro-American settlement was always limited in Kentucky but big, poorly-drained bottomlands of the Mississippi, lower Ohio and lower Green Rivers (and their tributaries) likely supported expansive but patchy acres across this area.

Since settlement, the attempt by humans to channelize and drain the bigger but slower-moving rivers (and their tributaries) of western Kentucky has reduced this community's footprint on the landscape. Typically, only those swamps most difficult to drain and/or tied directly to large rivers that flood and support sloughs, remain today. With so many changes in the natural landscape, Kentucky's Cypress (tupelo) swamp communities are now extremely rare. The removal and degradation of these swamps has reduced a once vibrant part of Kentucky's native flora and fauna, causing many species supported by this community to become rare. KSNPC lists Cypress (tupelo) swamp as **state endangered (=S1)**. Very few intact examples are known in the entire state, with only seven high-quality occurrences documented in the KSNPC Heritage database (2015).

Outside of Kentucky, swamps dominated by cypress and/or water tupelo extend across the southeastern U.S. but vary in species

composition, soil types, etc. Some are globally rare while others are more common. The type occurring in Kentucky is not currently considered globally rare; NatureServe, the national authority on the status of rare species and natural communities, lists its status as **apparently secure (=G4)**.

A description of the natural condition of this community is based on the remaining examples in Kentucky. Although these sites are considered high-quality they're still affected by past and current disturbances and landscape changes (ditching, draining, flooding, nearby logging, erosion, siltation, etc.). Soils are wet (hydric) with dark, fertile layers referred to as "muck" and are permanently or



Cypress (tupelo) swamp at Murphy's Pond, Hickman County ~ KSNPC Staff photo

semi-permanently flooded. The best examples, as one would expect, are dominated by bald cypress and water tupelo trees, and due to prolonged ponding the trees are often widely scattered. The vegetation strata below the canopy are also developed, including wetland understory trees, shrubs, grasses, sedges and forbs. Healthy populations of conservative native species (sensitive to unnatural soil disturbances) are scattered throughout. A common sub-canopy tree is red maple, but some areas may include pumpkin ash, water-elm and

waterlocust (a rare species in Kentucky). Buttonbush is a common wetland shrub in this swamp; swamp loosestrife, swamp rose and Virginia willow may also be abundant. Many native sedges are usually associated with Cypress (tupelo) swamps including several main genera: beaksedges, bulrushes, carex sedges, rushes and spikerushes. High-quality remnants are diverse with wetland wildflowers (i.e. forbs) and include an array of colorful blooming species. Characteristic herbs include arrowleaf tearthumb, climbing hempvine, greater marsh St. John's wort, swamp smartweed, Virginia dayflower and white turtlehead, with floating aquatics such as common duckweed (KSNPC 2015). In Kentucky, Cypress (tupelo) swamps provide essential habitat for rare plant and animal species, several of which are found nowhere else outside of this community.



At least 14 KSNPC-listed plants have been documented on, or in close association with Cypress (tupelo) swamps (KSNPC 2015). These associated rare species (not highlighted below or listed above) include American frog's-bit, blue-flower coyote-thistle, blue jasmine leather-flower, Carolina fanwort, cypressknee sedge, five-lobe cucumber, giant sedge, lakecress, red buckeye, spinulose wood fern, upright burhead (closely associated), zigzag iris and several others (KSNPC 2015). Unique reptiles and amphibians (herps) associated with these swamps include bird-voiced treefrog, eastern ribbon snake, green treefrog, green water snake, southern painted turtle, three-toed amphiuma and western mud snake. Several bird species are known to nest and associate with areas of wet bottomlands, including areas with cypress and tupelo; these include fish crow, great blue heron, great egret and Mississippi kite. Also, several rare fish species are found in deeper waters of Cypress (tupelo) swamps; these include the cypress minnow, tailight shiner, golden topminnow, and swamp darter to name a few.

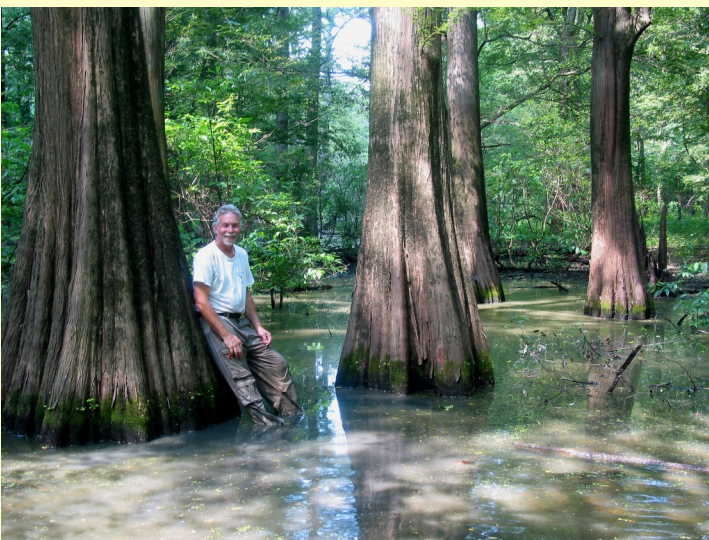
Since the time of Euro-American settlement, wetlands have been disappearing from Kentucky at an alarming rate. Estimated at 1.5 million acres at the time of settlement, today wetlands have been reduced to less than 300,000 acres in Kentucky (Abernathy et al. 2010). Draining and channelization, unnatural flooding, logging, plowing, trampling/grazing, construction of ponds and reservoirs, development of roads and buildings, suppression of fire, erosion and siltation, all these activities continue to degrade and often eradicate natural wetlands. Better understanding and protection is needed to keep these wetlands healthy and on the landscape. For more information on wetland communities in Kentucky contact commission ecologists Brian Yahn (brian.yahn@ky.gov) or Martina Hines (martina.hines@ky.gov).

Cottonmouths are venomous snakes found only in the western part of Kentucky, usually in or close to water. Cypress (tupelo) swamps provide great habitat for these heavy-bodied snakes; in fact, a good population occurs at Obion Creek State Nature Preserve within the big cypress swamp known as **Murphy's Pond** (access to the Pond is by written permission only; contact Murray State University).

More info on KET video link above:
Murphy's Pond segment starts at 10:15 and ends at 22:30.



Photo courtesy, Utah's Hogle Zoo, <http://www.hoglezoo.org>



Cypress (tupelo) swamp and Marc Evans. Photo by KSNPC staff

“Cypress trees can grow to be one of the largest trees in the eastern United States and can live for over 1,000 years. They are unique in that they are deciduous conifers, like pine trees, but lose their needles (leaves). They also have large, swollen bases and produce “knees” that rise several feet. The knees are thought to provide structural support and aid in gas exchange,” said Marc Evans, former KSNPC ecologist



“knees”

Photo by KSNPC staff

References:

- [KSNPC] Kentucky State Nature Preserves Commission. 2009. Natural communities of Kentucky. Working draft. Frankfort, KY.
- [KSNPC] Kentucky State Nature Preserves Commission. 2015. Kentucky Natural Heritage Database. Kentucky State Nature Preserves Commission, Frankfort, KY.
- NatureServe. 2014. NatureServe Explorer Worldwide Web database. <http://www.natureserve.org/explorer>. Accessed in August 2014.



Species associated with the Cypress (tupelo) swamp:

Cypress Sphinx

Isoparce cupressi

KSNPC Status: None

USFWS Status: None

General Description: Forewing gray with two broken black dashes, larger one accented with orangish brown above thickest part. Hindwing uniform dark gray.

Habitat: Cypress swamps with good populations of the caterpillar's host, bald cypress (*Taxodium distichum*).

Range: Coastal states from Maryland to Texas, but extending north into the Coastal Plain of Kentucky and southern Indiana.

Flight Season: Two broods have been reported (March–May and July–September).



KSNPC photo by Jim Vargo

Rose Turtlehead

Chelone obliqua var. *speciosa*

KSNPC Status: Special concern

USFWS Status: None

General Description: This species of turtlehead is distinguished from the common species in having purple pink flowers. There are two varieties associated with this species and var *speciosa* has upper bracts obtuse rather than narrow and/or acuminate (long-pointed). The sepals are strongly ciliolate whereas the other variety has fewer cilia on the sepals. The two varieties are geographically separated and variety *speciosa* occurs in western Kentucky.

Habitat: Floodplain and alluvial forests, swamps and sloughs.

Range: Current range includes northeastern and southeastern Missouri, southern Illinois and Indiana, and western Kentucky, plus a disjunct site(s) in Michigan. Historical occurrences in Minnesota, Iowa, and Arkansas.



Photo courtesy James Kiser

Dollar Sunfish

Lepomis marginatus

KSNPC Status: Endangered

USFWS Status: None

Range: The species is generally uncommon along the Atlantic Slope drainages as far north as North Carolina and south to all of Florida, and as far north as Kentucky and west as Texas of the Coastal Plain Region of the Gulf of Mexico.

Habitat: Usually associated with sand, silt, and organic debris in spring-fed streams and wetlands, and vegetated backwaters of rivers, swamps, and sloughs.

General Description: This slab-sided species is distinct with a mixture of olivaceous and blue along the back and side, breast and belly yellowish to orange, and a black opercular lobe (ear flap) that is outlined with a white/silver margin, which often has silver/white blotches within the black portion. These blotches are the distinguishing character which separates it from the Longear Sunfish (*Lepomis megalotis*).

Reasons: The species has a very limited in range in Kentucky and the necessary high-quality spring-fed stream and wetland habitats have declined tremendously over the past century.



Photo courtesy Dr. Matt Thomas, USFWS

