SOCIETY of WETLAND SCIENTISTS

"an international organization dedicated to the conservation, management and scientific understanding of the world's wetland resources"

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On behalf of the Executive Board of the Society of Wetland Scientists (SWS), I write to support sound management and stewardship of cypress forests, including those harvesting practices that promote and ensure regeneration of the forest. The Society of Wetland Scientists is a 3500+ member organization that promotes scientific understanding, scientifically-based management and sustainable use of wetlands. The state of knowledge on cypress regeneration raises significant concerns over whether harvesting cypress in permanently or semi-permanently flooded areas results in a permanent loss of habitat and ecosystem services.

Bald cypress - (*Taxodium distichum*) and pond cypress (*T. ascendens*) - dominated forests are a major type of wetlands of the southeastern United States. These forests, with their buttressed trunks and characteristic knees, are a defining feature of the southeastern and gulf coastal plain regions, extending from Virginia to Texas and from the lower Mississippi River delta to southern Illinois and Indiana.

Cypress forests provide direct economic benefits associated with timber harvesting. They also provide indirect benefits including habitat for wildlife and fish, maintenance and enhancement of water quality, and storage of floodwaters that lessens flooding of developed areas downstream. Our nation lost more than 82,500 acres of freshwater wetlands annually from 1998 to 2004 (Dahl 2006). In the last century, between 1975 and 1985, more than 3.4 million acres of forested wetlands were converted to other uses, with much of the loss occurring in the southern United States (Dahl and Johnson 1991).

Increasingly, the remaining cypress forest is harvested to produce mulch for landscaping (Faulkner et al. 2007). For example, in Florida, approximately 60% of the landscaping mulch sold was made from cypress (Duryea 2001). In Georgia, the processing of cypress trees for mulch climbed from 3,030 cubic meters in 1992 to 118,931 cubic meters in 2005 (Johnson et al. 2007). Following harvesting, it is often assumed that cypress forests will regenerate from coppice or stump sprouting (Conner et al. 1986). Studies indicate that, while stumps commonly sprout in large numbers, most sprouts die within a few years (Science Working Group 2005). Even when stump sprouts persist, regeneration by coppice or stump sprouting often does not produce sufficient numbers of viable trees to regenerate the forest even under optimum conditions (Keim et al. 2006). Furthermore, natural regeneration of permanently flooded cypress forests is inhibited because flooding prevents seed germination (Demaree 1932) and seedling establishment (Conner and Day 1988, Conner and Toliver 1990). In Louisiana and elsewhere, this problem is compounded by subsidence that lowers the soil surface, increases flooding and, sometimes, salt water intrusion, further stressing the ability

1313 Dolley Madison Blvd. • Suite 402 • McLean, VA • 22101 USA
Ph: 703-790-1745 • Fax: 703-790-2672 • Email: SWS@BurkInc.com

of these forests to regenerate either naturally or artificially (Science Working Group 2005, Faulkner et al. 2007).

In their report to the Governor of Louisiana, the Science Working Group (2005) proposed three condition classes to identify the potential for natural and artificial regeneration of cypress forests following harvesting. Condition Class I, sites with potential for natural regeneration, are characterized by annual cycles of seasonal flooding with freshwater followed by a dry down period. Condition Class II, sites with potential for artificial regeneration (i.e. planting) only, are permanently flooded or are flooded deeply enough such that natural generation does not occur. Condition Class III, sites with no potential for either natural or artificial regeneration, are flooded long enough or deeply enough to prevent natural and artificial regeneration or are exposed to salinity levels that are toxic to cypress and other freshwater tree species.

Faulkner et al. (in press) used remote sensing of water levels and GIS analysis of National Wetlands Inventory (NWI) maps in the Atchafalaya Basin (LA) to map cypress-tupelo gum (*Nyssa aquatica*) forests and evaluate the extent and location of proposed regeneration classes for cypress-tupelo swamps. They found that less than 6% (6,175 ha) of cypress-tupelo forest mapped was capable of regenerating naturally (Condition Class I). In contrast, more than 23% (24,525 ha) of the forest was mapped as unable to regenerate either natural or artificially (Condition Class III) because water levels were too deep to support seed germination or seedling establishment. We call for more research to quantify hydrologic regimes and understand the management activities that will ensure regeneration of cypress forests following harvesting.

Extensive scientific research by SWS members and others has shown that (1) cypress forests provide important ecosystem services, beyond their direct economic gains associated with harvesting, provide important ecosystem services that benefit society, (2) cypress forests are disappearing from the landscape faster than they are being replaced and (3) in those areas where cypress forests do not readily regenerate following harvesting, the direct and indirect benefits they provide are lost or diminished for years to come.

We support the sustainable use of cypress forests by recognizing that the benefits they confer on society extend beyond the traditional, direct economic benefits of harvesting to include ecosystem services of wildlife and fish habitat, water quality improvement and floodwater storage. However, given what we understand about cypress regeneration, we question whether harvesting cypress in permanently or semi-permanently flooded area is sustainable given the current levels of harvesting. We support management activities, including the recommendations made by the Science Working Group (2005), which promote regeneration of cypress forests to ensure that their natural capital and ecosystem services are sustainable and will provide direct and indirect benefits to future generations of Americans. Our membership stands ready to participate in the review or development of management plans that facilitate regeneration of cypress forests and reduce harvesting impacts.

Sincerely,

Christopher B. Craft
President, Society of Wetland Scientists

1313 Dolley Madison Blvd. • Suite 402 • McLean, VA • 22101 USA
Ph: 703-790-1745 • Fax: 703-790-2672 • Email: SWS@BurkInc.com

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