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Subject: Attention Docket ID No. OW-2002-0050

Please find attached the Virginia Department of Conservation and Recreation, Division of Natural Heritage comments for the proposed Rulemaking on the Clean Water Act Regulatory Definition of "Waters of the United States" Docket ID No. OW-2002-0050.

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Re: Docket ID No. OW-2002-0050

The mission of the Virginia Department of Conservation and Recreation's Division of Natural Heritage (DCR-DNH) is to document, protect and manage "the habitats of rare, threatened, or endangered plant and animal species, rare or state-significant communities and other natural features" (section 10.1: 209-217, *Code of Virginia*). Upon review of the proposed rulemaking for the Clean Water Act (CWA) Regulatory Definition of "Waters of the United States", DCR-DNH would like to offer the following comments:

In 2001, the Virginia Department of Environmental Quality (DEQ) implemented a state wetland program, which DCR-DNH serves as an advisory agency during the wetland permitting process commenting on potential adverse impact to natural heritage resources. Several significant communities tracked by DCR-DNH are defined as "isolated waters". Significant communities include both outstanding examples of common community types and all examples of rare community types. Please find below a description of the significant "isolated waters" communities occurring in Virginia and the fauna and flora they support.

### **Coastal Plain Depression Ponds**

Mostly seasonally flooded basin wetlands of nearly flat Coastal Plain uplands with fluctuating, seasonally perched water tables. The best-documented examples of this group in Virginia are the Grafton Ponds, located on The Peninsula in York County, but other sizeable complexes occur on Coastal Plain terraces in Dinwiddie, Surry, Isle of Wight, Gloucester, and Matthews Counties. Most of these seasonal ponds are believed to be sinkhole features that formed through dissolution of underlying carbonate-rich shell marl deposits. The marl deposits are too deep to influence soil or water chemistry of the ponds, which are strongly acidic in most examples. A few ponds in extreme southeastern Virginia appear to have originated from deep peat burn-outs. Pond vegetation varies from nearly forested to entirely herbaceous, representing a sizeable number of distinct community types. Depth and duration of seasonal inundation are apparently the most important factors influencing community composition and the degree to which woody species

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become established. Dry-season fires in adjacent uplands may spread into ponds and may be another factor limiting the invasion of woody species, although fire frequencies throughout the region have been much reduced in recent decades. Typical trees occurring in wooded ponds are red maple (*Acer rubrum*), sweetgum (*Liquidambar styraciflua*), swamp tupelo (*Nyssa biflora*), blackgum (*Nyssa sylvatica*), willow oak (*Quercus phellos*), overcup oak (*Q. lyrata*), and bald cypress (*Taxodium distichum*). Shrubs that dominate some ponds include buttonbush (*Cephalanthus occidentalis*), swamp loosestrife (*Decodon verticillatus*), persimmon (*Diospyros virginiana*), and fetterbush (*Leucothoe racemosa*). A few of the characteristic herbs are glaucous sedge (*Carex glaucescens*), cypress-swamp sedge (*C. jorii*), pocosin sedge (*C. striata* var. *brevis*), long-tubercled spikerush (*Eleocharis tuberculosa*), creeping rush (*Juncus repens*), eastern narrowleaf seedbox (*Ludwigia linearis*), globe-fruited seedbox (*Ludwigia sphaerocarpa*), tall flat panic grass (*Panicum rigidulum* var. *rigidulum*), warty panic grass (*P. verrucosum*), mermaid-weeds (*Proserpinaca palustris* and *P. pectinata*), short-bristled hornedrush (*Rhychospora corniculata* var. *corniculata*), slender plumegrass (*Saccharum baldwinii*), woolgrass (*Scirpus cyperinus*), and pale mannagrass (*Torreyochloa pallida* var. *pallida*). Coastal Plain depression ponds are relatively rare, small-patch communities that provide important habitat for the state-rare chicken turtle (*Deirochelys reticularia*) and three state-listed amphibians: Mabee's salamander (*Ambystoma mabeei*), tiger salamander (*Ambystoma tigrinum*), and barking tree frog (*Hyla gratiosa*). In addition, the globally rare plants Harper's fimbriistylis (*Fimbristylis perpusilla*) and pondspice (*Litsea aestivalis*) are confined to these habitats in Virginia.

#### **Non-Riverine Pine – Hardwood Forests**

Saturated mixed forests of poorly drained, outer Coastal Plain terraces. In Virginia, these communities are extensive from Surry and Isle of Wight Counties south to the City of Suffolk on the west and the North Landing River (City of Virginia Beach) on the east. Scattered examples are also known from the northern Coastal Plain. Habitats are flat, with seasonally perched water tables and frequent shallow depressions which pond water intermittently. Soils are silt, sand, and clay loams, often with a thin (< 30 cm [12 in]) organic mantle. The prevalent vegetation of these flatwoods is dominated by mixtures of loblolly pine (*Pinus taeda*), red maple (*Acer rubrum*), and sweetgum (*Liquidambar styraciflua*), frequently with scattered pond pine (*P. serotina*). Small trees and shrubs include sweetbay (*Magnolia virginiana*), blackgum (*Nyssa sylvatica*), red bay (*Persea palustris*), and coastal dog-hobble (*Leucothoe axillaris*). South of the James River, giant cane (*Arundinaria gigantea* ssp. *tecta*) typically dominates the shrub layer in patchy to very dense colonies. Herbaceous species are sparse. For the most part, forests of this composition appear to be successional stands that have replaced once-extensive "canabrakes" (*i.e.*, giant cane savannas with scattered pond pine) following the virtual elimination of fire in the region. Similar occurrences may have replaced non-riverine wet hardwood forests or Atlantic white-cedar forests following heavy cutting or catastrophic fires. A few stands, dominated by loblolly pine and hydrophytic oaks and lacking giant cane, appear to be more successional stable. Although modified communities in this group are not conservation priorities, they provide opportunities for ecological restoration of now-extirpated canebreak vegetation. In addition, several rare species, including the globally rare Virginia least trillium (*Trillium pusillum* var. *virginianum*) and large populations of the state-rare bird Swainson's warbler (*Limnothlypis swainsonii*) are associated with non-riverine pine-hardwood forests. Giant cane is believed to be the host plant for several state and globally rare insects.

## Non-Riverine Wet Hardwood Forests

Saturated to shortly seasonally flooded deciduous forests of poorly drained Coastal Plain terraces. These include broad, outer Coastal Plain interfluves, as well as the outermost, never-flooded alluvial terraces of major rivers inland. In Virginia, these communities range locally from inland portions of the Eastern Shore south through much of southeastern Virginia. Habitats are flat, with seasonally perched water tables and frequent shallow depressions which pond water intermittently. Soils are silt, sand, and clay loams, sometimes with very thin organic horizons. Mixtures of hydrophytic oaks (*Quercus* spp.) characterize forests of this group. Dominants, varying regionally, include swamp chestnut oak (*Q. michauxii*), cherrybark oak (*Q. pagoda*), willow oak (*Q. phellos*), laurel oak (*Q. laurifolia*), water oak (*Q. nigra*), and pin oak (*Q. palustris*). Cutting and other disturbances result in higher proportions of sweetgum (*Liquidambar styraciflua*), red maple (*Acer rubrum*), and other intolerant trees. Small trees and shrubs include American hornbeam (*Carpinus caroliniana* ssp. *caroliniana*), giant cane (*Arundinaria gigantea* ssp. *tecta*), American holly (*Ilex opaca* var. *opaca*), coastal dog-hobble (*Leucothoe axillaris*), and highbush blueberries (*Vaccinium* spp.). Herb layers tend to be depauperate, but usually contain netted chain fern (*Woodwardia areolata*) and a variety of sedges, e.g., *Carex abscondita*, *C. debilis* var. *debilis*, *C. intumescens*. Large, rhizomatous colonies of the sedges *Carex striata* var. *brevis*, *C. bullata*, and *C. barrattii* occasionally dominate. Communities of this group have been greatly reduced in extent or modified by extensive agricultural clearing, logging, conversion to pine silvicultures, and hydrologic alterations such as ditching and draining. Most, if not all, community types in this group are now globally uncommon to rare. Associated rare species include the globally rare Virginia least trillium (*Trillium pusillum* var. *virginianum*), the federally listed Dismal Swamp southeastern shrew (*Sorex longirostris fisheri*), and the state-listed canebrake rattlesnake (*Crotalus horridus atricaudatus*).

## Non-Riverine Swamp Forests

Seasonally flooded mixed or deciduous forests occurring on poorly drained peatlands of the Coastal Plain. These communities are most abundant on terraces of the embayed region of extreme southeastern Virginia and northeastern North Carolina, but occur occasionally further inland. Habitats are non-riverine wetland flats with deep or shallow organic soils and seasonal flooding to depths of 30 cm (12 in) by elevated water tables. Hummock-and-hollow microtopography is typical. Dominant trees are bald cypress (*Taxodium distichum*), swamp tupelo (*Nyssa biflora*), and red maple (*Acer rubrum*). Red maple now greatly dominates most stands because of extensive past logging, catastrophic fires, and ditching. Red bay (*Persea palustris*) and sweet pepperbush (*Clethra alnifolia*) are abundant in the lower woody layers. Also abundant are high-climbing vines of greenbriers (*Smilax* spp.), poison ivy (*Toxicodendron radicans*), climbing hydrangea (*Decumaria barbara*), supplejack (*Berchemia scandens*), Virginia creeper (*Parthenocissus quinquefolia*), and muscadine grape (*Vitis rotundifolia*). Netted chain fern (*Woodwardia areolata*) and Virginia chain fern (*W. virginica*) are among the few herbs that occur regularly. Non-riverine swamp forest is the characteristic vegetation in and near the Great Dismal Swamp in Virginia. Its dense, vine-rich aspect gave the Swamp much of its historical reputation as a dark, mysterious, or dreadful place. Although most stands are now much altered, The Nature Conservancy has protected an impressive old-growth occurrence with bald cypress up to 1.75 m (5 ft 9 in) in diameter at Gum Swamp (City of Chesapeake). Communities in this group are

globally uncommon to rare and provide habitat for the federally listed Dismal Swamp southeastern shrew (*Sorex longirostris fisheri*) and two rare bats.

### **Pond Pine Woodlands and Pocosins**

Coniferous, pyrophytic woodlands of saturated, oligotrophic, Coastal Plain peatlands. Although no doubt more widespread in the pre-settlement Virginia landscape, only a few remnants of these communities are currently found in the extreme southeastern part of the state. The largest extant occurrences are in the Great Dismal Swamp National Wildlife Refuge (Cities of Suffolk and Chesapeake) and on remote peat flats beyond the range of wind-tidal flooding along the North Landing River (City of Virginia Beach). Pond Pine Woodlands and Pocosins have high biomass and consist largely of inflammable woody plants that are specially adapted to frequent, intense burning. All present-day examples in Virginia suffer to some extent from a reduction in fire frequencies or complete suppression of fires. Stand physiognomy and composition reflect responses to gradients of fire frequency and peat depth. Stands known as “high pocosins” are associated with deeper organic soils and more frequent fires; these have only scattered, stunted pond pines (*Pinus serotina*) emergent from nearly impenetrable evergreen shrub thickets dominated by shining fetterbush (*Lyonia lucida*), inkberry (*Ilex glabra*), Carolina sheep-laurel (*Kalmia carolina*), and laurel-leaf greenbrier (*Smilax laurifolia*). Stands associated with superficial peat and/or longer periods without fire often develop nearly closed canopies of larger pond pines, understories of red maple (*Acer rubrum*), sweetbay (*Magnolia virginiana*), and red bay (*Persea palustris*), and less dense shrub layers that contain more deciduous species. Few herbaceous species except Virginia chain fern (*Woodwardia virginica*) thrive in pond pine woodlands. Communities in this group are globally rare, rapidly declining, and scarcely viable due to fragmentation and the absence of sustaining fire frequencies.

### **Peatland Atlantic White-Cedar Forests**

Coniferous forests of saturated, oligotrophic, Coastal Plain peatlands. These communities are endemic to terraces of the embayed region of extreme southeastern Virginia and northeastern North Carolina. Habitats are non-riverine wetland flats with deep organic soils (e.g., Great Dismal Swamp, Cities of Suffolk and Chesapeake) and remote peat flats beyond the range of wind-tidal flooding along the North Landing River (City of Virginia Beach). Atlantic white-cedar forests usually occupy relatively wet peatlands subject to infrequent catastrophic fires. Dense, even-aged stands become established when such fires remove most vegetation and debris, exposing suitable mineral-soil seedbeds. Throughout their maturation, these stands accumulate extensive dead wood and inflammable duff, making them increasingly susceptible to another stand-killing fire. Atlantic white-cedar (*Chamaecyparis thyoides*) dominates the canopy, sometimes with red maple (*Acer rubrum*), swamp tupelo (*Nyssa biflora*), or pines (*Pinus serotina* and *P. taeda*) as minor associates. Red bay (*Persea palustris*), sweetbay (*Magnolia virginiana*), sweet pepperbush (*Clethra alnifolia*), sweet gallberry (*Ilex coriacea*), inkberry (*Ilex glabra*), shining fetterbush (*Lyonia lucida*), and poison ivy (*Toxicodendron radicans*) are common small trees and shrubs. Cinnamon fern (*Osmunda cinnamomea*) and Virginia chain fern (*Woodwardia virginica*) are common herbs, while *Sphagnum* spp. and other mosses abundantly cover the ground. Peatland Atlantic white-cedar forests are globally rare and now reduced to small remnants of their former distribution by extensive logging and fire reduction. Atlantic white-cedar

is the larval host of the rare butterfly Hessel's hairstreak (*Mitoura hesseli*), which has been recorded in the Great Dismal Swamp (Fleming, 2001).

Due to the number of significant communities identified as "isolated waters" and the associated rare plants and animals they support, DCR-DNH recommends the CWA jurisdiction determination include such factors as habitat for endangered species as defined in the "Migratory Bird Rule" (c.) and the designation of "isolated waters" as a significant community type.

Thank you for the opportunity to comment on this proposed rulemaking.

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## Literature Cited

Fleming, G.P., P.P. Coulling, D.P. Walton, K.M. McCoy, and M.R. Parrish. 2001. The natural communities of Virginia: classification of ecological community groups. First approximation. Natural Heritage Technical Report 01-1. Virginia Department of Conservation and Recreation, Division of Natural Heritage, Richmond, VA. Unpublished report. January 2001. 76 pp