TIDAL FRESHWATER MARSH (BROADLEAF PONDLILY SUBTYPE)

Concept: The Broadleaf Pondlily Subtype covers areas dominated by *Nuphar advena* (= *Nuphar lutea ssp. advena*) or *Nymphaea odorata* in tidal waters, including along tidal rivers and in pools in marsh complexes.

Distinguishing Features: The Broadleaf Pondlily Subtype is distinguished from all other subtypes by the dominance of *Nuphar advena* or occasionally *Nymphaea odorata* in a tidal wetland. It is distinguished from Coastal Plain Semipermanent Impoundment, Small Depression Pond, and other communities with floating-leaved plants by occurring in areas flooded by wind or lunar tides. Comparable communities dominated by *Nuphar sagittifolia* are treated as the Narrowleaf Pondlily Subtype. No *Nuphar advena* community is known along upstream non-tidal rivers in North Carolina, but the occurrence of such a community is possible.

Synonyms: *Nuphar advena* Tidal Herbaceous Vegetation (CEGL004472).
Ecological Systems: Atlantic Coastal Plain Embayed Region Tidal Freshwater Marsh (CES203.259). Atlantic Coastal Plain Central Fresh and Oligohaline Tidal Marsh (CES203.376).

Sites: The Broadleaf Pondlily Subtype usually occurs in shallow water along the banks of tidal rivers or in backwater channels of them. It less frequently occurs along the shorelines of freshwater estuaries or in pools within marsh complexes.

Soils: Soils are generally not mapped, but examples are associated with organic soils such as Dorovan (Typic Haplosaprist).

Hydrology: This subtype is permanently flooded, at least shallowly, but with tidal fluctuations. Most examples are in the wind tidal parts of the state, but it may extend into lunar tidal areas. Water is usually fully fresh but apparently may be oligohaline.

Vegetation: The vegetation is dominated by dense to fairly sparse floating beds of *Nuphar advena* or occasionally *Nymphaea odorata*. Usually no other emergent plants are rooted in the community, though *Taxodium distichum, Nyssa biflora, Alnus serrulata*, or other large plants on the bank may partially shade it. Submersed aquatic plants such as *Ceratophyllum demersum, Utricularia gibba, Elodea nuttallii*, or free-floating plants such as *Spirodela polyrrhiza* may be present or abundant. Floating *Alternanthera philoxeroides* may become established.

Range and Abundance: Ranked G4G5. The abundance of this community in North Carolina is poorly known, because it was not recognized as a community before the 4th approximation and was seldom reported. It probably is frequent, at least in northeastern North Carolina. The synonymized NVC association is widespread, ranging northward to Maine, with North Carolina at the southern end of its range. It may warrant further splitting, given the extremely broad range of climate represented.
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Associations and Patterns: The Broadleaf Pondlily Subtype sometimes occurs with the Southern Wild Rice or Mixed Freshwater Subtype, occupying deeper water. It is often adjacent to Tidal Swamps. It may extend farther upstream than most other subtypes. Where it occurs in larger marsh complexes, it may be associated with any of the subtypes.

Variation: Too little is known to define variants. It may be appropriate to recognize variants for wind tidal and lunar tidal occurrences in the future. The inclusion of the single known *Nymphaea odorata* tidal marsh in this subtype is based on limited knowledge and convenience. It may warrant recognition as a distinct subtype, or at least a variant, with further study.

Dynamics: Little is known of the dynamics of this subtype in particular. Its occurrence may depend on the reduced current of backwaters and streams at base level, but it may be tied more simply to the water depth. The vegetation presumably traps sediment and may help aggrade the bottom as sea level rises. The disturbing effect of infrequent salt water penetration presumably occurs as in other subtypes.

Comments: This subtype is very poorly known. No plot data are known for it, and it is rarely described in site reports. The reported *Nymphaea odorata*-dominated marsh pools are included here, but need much more investigation. They may be more closely related to the Marsh Pool community. Like it, they may be increasing due to rising sea level and possibly represent deterioration of the marsh.

Rare species:

References: