



Using Native Plants in Wet Areas

Shallow Water Development and Management

Introduction

Native plants have evolved over thousands of years to adapt to the geography, hydrology, and climate of a particular region. As a result, native plants form communities that provide habitat for a variety of wildlife, including pollinators, deer, songbirds, upland game birds, and beneficial insects.

Shallow water areas or moist soil units provide wintering habitat for migratory waterfowl. They also can provide crucial habitat to shorebirds, wading birds, breeding waterfowl, secretive marsh birds, songbirds, and a wide variety of mammals, reptiles, amphibians, fish, and invertebrates.

In addition to these ecological benefits, shallow water areas can also provide enhanced recreation opportunities to landowners in the form of waterfowl hunting, wildlife viewing and photography.



Where water is found on the landscape there is usually diverse flora and fauna.

Using the Seedbank

Before the 2.5 million acres of Gulf Coast prairie was converted to agriculture and pastureland, it contained numerous natural wetlands (e.g., marais, platins, sloughs, inter-mound areas, etc.). This diverse prairie ecosystem contained over 500 species of plants, and the interspersions of wetlands within the higher elevation grasslands provided habitat for a vast array of wildlife.

Creation of shallow water areas can help restore some of the diversity to the historic Gulf Coast tall prairie. It is usually not necessary to plant vegetation in shallow water areas. In most cases, naturally occurring vegetation can be managed to create the desired stand of annual vegetation. Semi-aquatic annual plants which produce large amounts of seed such as annual smartweeds (*Polygonum* sp.), barnyard grass (*Echinochloa* sp.), sprangletops (*Leptochloa* sp.), and flatsedges (*Cyperus* sp.) are desirable plants for shallow water areas and are important foods for waterfowl.

Going Native

The vegetation outside of the shallow water is also important and should be considered when planning and managing a shallow water area. Native vegetation, particularly grasses and forbs (herbaceous non-grasses) can enhance the value of the shallow water area. Native grasses and forbs that border the shallow water area can provide security from predation and provide nesting and brooding cover for birds. Vegetation up the slope from the wetland can filter contaminants and soil particles and enhance water quality of the wetland.

Native grasses and forbs are well-suited to these adjacent areas because their structure and diversity provides excellent cover for wildlife. Unlike the native vegetation in the shallow water areas, it may be necessary to plant native grasses and forbs to establish a good stand. However, native grasses, forbs and wildlife evolved and adapted to the local growing conditions, soils and climate; once they become well established, they will thrive together with minimal attention.

Establishment and Management

Moist soil areas are important because of the great diversity of foods. In addition, seasonally flooded moist soil areas tend to harbor greater densities of invertebrates than do habitats that are permanently flooded. As previously mentioned, it is usually not necessary to plant the native vegetation desired in shallow water areas, but management to maintain it is essential. Important factors when managing moist soil areas are the timing of the annual drawdown, and the frequency of disturbance to alter plant succession.

Some shallow water areas may have flooding capabilities and water control structures that enable manipulation of water levels, while others do not. The vegetation found in shallow water areas is largely determined by water depth, frequency and duration of flooding, and frequency and intensity of disturbance. Desirable shallow water plants can generally tolerate flooding up to two-thirds of their height, however, reduced water levels during summer are necessary to allow these annual plants to germinate and grow. Mid to late season drawdowns generally favor millets (*Echinochloa* and *Leptochloa* sp.) and preferred grasses (*Panicum* sp.). Total seed production however, is generally greater when impoundments are drained early to mid season.



Establishment and Management (cont.'d)

Early drawdowns occur within the first 45 days of the growing season, mid-season drawdowns occur within the second 45 days of the growing season, and late season drawdowns occur within the remainder of the growing season. A gradual drawdown of water level over a period of several weeks in late spring is beneficial to maximize diversity of annual plants. Fast (less than 2 weeks) drawdowns are more likely to result in a stand of similar vegetation. To maximize benefits, units should be drained at varying times and rates if able. However, soil moisture must be maintained during the growing season, and shallow flooding during drought periods may be necessary to stimulate desirable vegetation. Shallow flooding should begin in fall, but not until plants are over 6 inches tall.

For maximum seed production, plant communities must be maintained in a stage of early succession. The percentage of non-food producing plant species generally tends to increase in each consecutive year the area is not disturbed, and shallow water areas will eventually be overtaken by undesirable perennial vegetation if left unmanaged.

Soil disturbance greatly affects the response of plants to different management techniques. Periodic rolling or disking, often on an annual rotation, will serve to set back plant succession, control undesirable vegetation and encourage growth of desirable annual vegetation. Typically, impoundments in Louisiana should be rolled or disked at 1 – 2 year intervals. Vegetative succession manipulations should be more frequent if problems with undesirable plants begin. Plants such as cocklebur and coffeeweed can quickly develop a closed canopy and outcompete desirable plants. If undesirable plants invade 50% or more of the managed area, control by either approved herbicides, rolling, disking, shredding, flooding, and/or prescribed burning is warranted.

It is important to note that if there are not significant problems with undesirables, manipulations every year could reduce beneficial food plant communities. Although disking is commonly used as a primary form of manipulation, rolling will do less harm to soil quality and increase invertebrate existence on site.

Unlike naturally-occurring vegetation within the shallow water areas, native grasses and forbs adjacent to (but outside) the shallow water areas may need to be planted. Species such as switchgrass, big bluestem, little bluestem, Indian grass, Illinois bundleflower, partridge pea, and black-eyed Susan can be included. Since native grasses and forbs and wildlife evolved and adapted together to local climate conditions, they will thrive together with minimal attention once they are re-established on the landscape. (See *Establishment* in this series for more information about establishing these native grasses and forbs.) Management can include burning, mowing, and/or flash grazing, and should be carefully timed to allow adequate re-growth in anticipation of high use season(s).



Special Considerations

Design and management of the shallow water may be dictated by the type of wildlife desired. If the objective is to attract geese, larger (> 20 acres) expanses of moist soil habitat (e.g. mudflats) should be considered rather than small wetland areas surrounded by sod. Although geese utilize sharp vision for security in open spaces, screens of native vegetation on the perimeter of the larger wetland provide added security.

Species like mallards, green-winged teal, wood ducks, gadwall, snowy egrets, yellow-crowned night herons, willets, and great blue herons, will be attracted to smaller wetland areas (<20 acres) of about 50% open water and 50% interspersed vegetation.



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