CS-19 West Hackberry Plantings and Sediment Enhancement Demo Project

Close Out Report

I. Introduction

The CS-19 West Hackberry Plantings and Sediment Enhancement Demo Project is a Coastal Wetlands Planning, Protection and Restoration Act (PPL-I) demonstration project constructed in April of 1994 in conjunction with the United States Department of Agriculture, Natural Resources Conservation Service under DNR Cost Share Agreement No. 25085-93-05. This agreement was for the construction, operation and maintenance, and monitoring of vegetative plantings and wave stilling devices in the Chenier Plain, the Deltaic Plain, and the Barrier Islands.

II. Summary (from DNR Monitoring Report of Jan. '01)

The West Hackberry Plantings and Sediment Enhancement project (C/S-19) is located within Cameron Parish, about 6 mi (9.7 km) west of Hackberry, Louisiana. The project objectives are to restore, protect, and enhance about 300 ac (120 ha) of inland wetlands by using *Schoenoplectus californicus* (formerly known as *Scirpus californicus*) plantings to reduce wind-driven wave erosion of marsh shorelines, and using hay-bale fence enclosures to increase sediment deposition in ponds. Ponds in the project area range approximately one to three ft (0.3-0.9 m) deep. In April 1994, 6,000 linear ft (1,829 m) of hay-bale fencing was installed in water depths of approximately 1.5 to 2.0 feet. In June 1994, approximately 4,750 trade-gallon-size plantings of *S. californicus* (California bulrush) were installed along 11,875 linear ft (3,620 m) of shoreline.

Hay bales initially installed in the fences disintegrated within three months; a second set of hay bales installed in the fences disintegrated within two weeks. It was therefore concluded that hay bales could not reduce erosion and increase sediment deposition at this site, therefore measurements were discontinued. Decomposition of the hay and wave energy, appeared to have prevented the hay from remaining in the fence enclosures. This suggests that hay bales are not a suitable material for enhancing sediment deposition in ponds.

Schoenoplectus californicus plantings were initially successful, creating 4.3 ac (1.7 ha) of emergent wetland, but due to unusually high water salinity levels during droughts in 1996 and 1999/2000 only 1.2 ac (0.5 ha) survived. Water salinity in the area rarely fell below 20 ppt for six weeks during the drought of 1996, and averaged 15 - 20 ppt for one year during the drought of 1999/2000. Prolonged exposure to these extreme conditions probably exceeded the salinity tolerance of *S. californicus*. Plantings that survived the droughts did show a gain in lateral spread but have become brown in appearance and are beginning to show signs of thinning within the plots. Vegetative plantings of *S. californicus* are not likely to persist in a brackish environment where salinity exceeds 8-10 ppt for extended periods of time. It has been shown that once *S. californicus* plantings become established, at least some individual plantings can

withstand salinity higher than once thought possible. This suggests that once the plantings become established in a new environment, some can survive through moderate periods of saline and drought conditions. Although *S. californicus* plantings cannot thrive in a brackish environment, at least some individuals can survive under adverse conditions that occur for a limited time period. Other *S. californicus* installed through the Natural Resources Conservation Service (NRCS) vegetative planting program, within the CS-19 project area are thriving. These plantings were installed after the drought of 1996, and recent ocular views of the plantings indicate that the plantings appear to be very healthy in appearance and color. Planting *S. californicus* is there fore still considered a viable restoration tool.

III. Total Expenditures

The total budget for the CS-19 West Hackberry Plantings and Sediment Enhancement Project was $213,947. As of this date, $239,391 of this amount has been spent as per the following:

E&D----------$34,745
Lands----------$2,127
Construction----------$125,461
Monitoring----------$74,672
Operation & Maintenance----------$2,388

IV. Status

On November 20, 2001, an agreement between Mr. James B. Bel, project area landowner, and The State of Louisiana, Department of Natural Resources, was signed and recorded in the E. Baton Rouge Clerk of Court office. This agreement transfers ownership and all liabilities of all project features to Mr. Bel. The CS-19 West Hackberry Vegetative Plantings and Sediment Enhancement Demo Project is therefore officially closed as of this date.