Ridge Phase Two

Statement of Work

An agreement between Barataria-Terrebonne National Estuary Program (BTNEP) and Golden Meadow Plant Materials Center, Natural Resources Conservation Service.

20 June, 2008

Introduction:

During the first phase of establishing vegetation on the dredge fill soil, we learned that we need to first have some means to protect plants or seed. Once some vegetation is established, wild seed will receive the protection that it needs to germinate and grow. From this experience we will propose several replicated trials to establish an herbaceous cover with expectation that we will be able to "jump start" the natural succession process. The habitat on these newly constructed sites is severe. The temperature at ground level can be lethal to plants, the wind exposure will "sand blast" growing points, the soil has no structure, and there is little soil porosity to hold fresh water.

There are at least five distinct sites on the man made cheniere: the north apron and slope, the ridge crest and the south facing slope and apron. These are distinct habitats and will be analyzed separately. We expect different species to perform differently on each of these sites. We can eliminate some species from each planting in some of the habitats, but need to know which species survive and thrive on each site. This will then be carried on for future restoration projects.

Study Plan

As needed, the intertidal zone can be planted with Smooth Cord Grass and Black Mangrove. Experience has shown that we can not plant these species on more exposed sites, but that they will protect the new shoreline from erosion and serve as a buffer. On the other habitats, some experimentation is warranted.

We have divided the herbaceous revegetation project into three separate studies. This will allow for discrete analysis of the problems that we have identified stemming from our experience on the original ridge project

***Study One**:*
We propose to plant transects of Seaoats (*Uniola paniculata* L.), Marshhay Cordgrass [Spartina patens (Ait.) Muh.], Bitter Panicum (*Panicum amarum* Ell.), Seashore Paspalum (*Paspalum vaginatum* Swartz), Gulf Bluestem [*Schizachyrium maritimum* (Chapman) Nash] and others as yet to be determined across the profile of the cheniere in

randomized and replicated manner. Statistical design and analysis will be done with the assistance of faculty at Nicholls State University.

This study will include plants that are protected by matting (e.g. straw or coconut matting) and unprotected plant plugs. Other materials such as bagasse can be used as suggested by the project sponsors. The protected versus unprotected plants should serve to aid future planting recommendations.

Study Two:
Previous experience has shown that extant vegetation will act to trap seed and allow native seed to germinate and grow.]

We will plant Big Sacaton (*Sporobolus wrightii* Munro ex Scribn.) as a hedge. Sacaton is native to the Gulf of Mexico coast though not to Louisiana. It has been used in beach stabilization in Texas. Sacaton is a bunch grass and survives in alkaline high pH soils. Plantings will run as a hedge North to South and East to West to determine: 1) if it survives and thrives in our environment and 2) if it will aid in establishment of native plant seed carried to the site. Previous experience has shown that any plant that becomes established encourages further invasion by other plants. If Sacaton can be established, it will act to entrain both fresh soil and aid seed germination and other plant growth.

Study three
During the first phase of the cheniere project, we observed that mulch left on the cheniere from storms entrained seed and protected young plants. Revegetation of the site radiated out from the nucleus formed by the mulch. We will anchor straw matting in a replicated experiment to mimic the mulch effect. Our feeling is that this will hold seed deposited on the site, act to protect seed from the harsh environment, and hold fresh water to allow germination and growth.

We propose to replicate these areas of matting with adjacent unprotected soil. The object being to develop recommendations for future cheniere and dredge and fill restoration projects on a commercial scale.