

Grant Title: Upper Niobrara Riparian Restoration Project

Grant Number: (SC-001)

Project Manager: Jim Van Winkle

Period of Grant (begin and end dates): April 15, 2011 – February 28, 2013

Summary/Abstract of Project:

Purpose and Objectives: This project is an expansion of a partnership that was established in 2009 in Sheridan County. At the time, an expansive area adjacent to Box Butte Creek and the Upper Niobrara River had shifted from a native plant community to a dense thicket of Russian olives. Historically, the riparian area supported a diverse mix of vegetation, including towering Cottonwoods, low lying shrubs, and a variety of willow species. Due to dewatering, land use practices, invasive trees, and a variety of other issues the native riparian vegetation has diminished to the point where the habitat is no longer suitable for imperiled fish and other wildlife species. Based on the lack of existing native vegetation and the historic grazing regime, it appeared that without intervention, recovery could take decades, or much longer. The purpose of this project was to restore the historic riparian habitat within portions of the Upper Niobrara River Biologically Unique Landscape for the benefit of Tier 1 & 2 species.

Methods: The entire project area for both the previous phase of the project and the most current phase are located on privately owned lands. As a result, the partnership, comprised of Nebraska Game and Parks Commission (NGPC), Sandhills Task Force STF), US Fish & Wildlife Service (FWS), and the Rocky Mountain Bird Observatory (RMBO), worked closely with the three landowners who owned the focus areas of the project. The planting sites were primarily heavily disturbed sites where Russian olive trees were removed in the 2009 project. In the winter of 2010/11 approximately 3,000 Sandbar willow “whips” were collected upstream of the planting site near Box Butte Reservoir. The willows were transported to a nursery (Wild Plums) in Clarkson, Nebraska which specializes in propagating woody species designed to live in the Great Plains region. The willows “whips” were cut into 5-6 inch cuttings and planted into Styrofoam containers and placed in greenhouses until early June. During this time, the project partners were busy trying to find the labor necessary to hand plant several thousand willows. Five thousand native shrubs, including American Plum, Buffalo Berry, and Chokecherry, were purchased from the Upper White Natural Resource District and hand planted by independent contractors. Landowners, agency and NGO partners developed a series of riparian grazing units that will allow grazing to be deferred until the willows and other native shrubs are established. Early in June of 2011, nearly 3,000 rooted willows were transported back to Sheridan County to be planted by 40 volunteers from the nearby Pine Ridge Job Corp. The Job Corp students were supplied with a variety of handtools and planted the entire quantity in one day. Due the limited quantity of dormant willows available for the nursery in the 2011, additional willows were collected from a different location in the winter of 2012. Again, the willows were transported to Wild Plums and a improved propagating process along with different containers resulted in better results. Nearly 8,000 willows were available in early June of 2012, again the willows were transported back to Sheridan County. With more experience, the Job Corp students were able to plant all the willows along two miles of stream in only one day.

Results: As a result of this project approximately 11,000 Sandbar willows were planted along the banks of Box Butte Creek over the period of two years. The willows were approximately 16-20 inches long and were planted at regular intervals into wet sand adjacent to the stream. Five thousand native shrubs, consisting of chokecherries, American Plums, and buffalo berries were planted on first and second terraces. In addition, three permanent riparian units ranging from 15 to 25 acres were constructed for the project.

Discussion: At the time that the application was submitted for this grant it was unknown at what level the landowners would support this project. Traditionally, this portion of Box Butte Creek and the Niobrara River has been viewed as a reliable source of water for cattle. As a result, it was a fairly dramatic step for the landowners to make a long term commitment to restoring the native vegetation. Each of the three landowners proposed locations for riparian units that had unique habitat valuable for fish and wildlife. The units were ideal for the type of project that we proposed in the grant application. Having each landowner involved from the ground up in the design of this project was crucial considering the management considerations provided by the landowner and the length of the project.

The reestablishment of vegetation (i.e. willows and shrubs) in a riparian area can be completed in a number of different ways. Due to the minimal numbers of willows available onsite, we decided to raise cuttings in a nursery that was willing to work closely with our partnership in developing an efficient way to raise willows that have a high survival rate. In 2011, the dormant willow “whips” exhibited some type of fungal problem which became apparent in the greenhouse. Before the nursery managers could slow the spread of the fungus, many willows were lost or weakened. As a result, we believe the survival rate for this batch of willows was much lower than predicted. In 2012, the nursery took preventative steps by treating the dormant willow “whips” with an anti-fungal chemical. Based on the overall health and root mass of the 2012 batch of willows it appeared the new rearing process worked. Over the next few years, the survival rates of the willows and shrubs will become apparent and the information will be valuable for future projects.

Finding the labor needed to plant the willows was an unexpected challenge but eventually became a highlight. Initially, we intended to enlist the help of local students belonging to groups such as the FFA and 4-H. This proved to be difficult for a variety of reasons and thankfully the Pine Ridge Job Corp stepped up to help. The Job Corp students were a delight to work with and needed very little guidance.