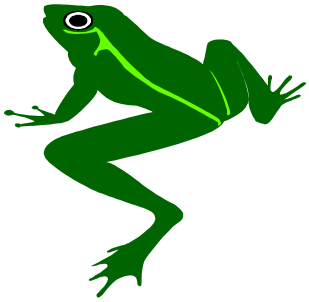
View From a Wetland

News and Technology for Riparian and Wetland Management



Interagency Riparian/Wetland Plant Development Project
Natural Resources Conservation Service
Plant Materials Center
Aberdeen, ID

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Project Staff

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Introduction

This newsletter is a continuing effort to provide useable information to the public on wetland and riparian issues. This is the third issue since the project was established in 1991.

Riparian/wetland Project

Our mission is to introduce performance-tested ecotypes on to the public seed and plant market, and document technical information for the establishment of various wetland and riparian herbaceous and woody plants. The Project has collected several different species in four ecoregions within our Service Area in the arid and semi-arid West.

Wetland and Riparian plants we are currently researching include:

Note: Several of these herbaceous and woody species have recently gone through a taxonomic change. We have chosen to continue to use the old names for the sake of continuity.

Herbaceous Plants

Nebraska Sedge *(Carex nebrascensis)*
Creeping Spikerush *(Eleocharis palustris)*
Baltic Rush *(Juncus balticus)*
Threesquare Bulrush *(Scirpus pungens)*
Alkali Bulrush *(Scirpus maritimus)*
Hardstem Bulrush *(Scirpus acutus)*
Water Smartweed *(Polygonum amphibium)*

Woody Plants

Coyote Willow *(Salix exigua)*
Geyers Willow *(Salix geyeriana)*
Booth Willow *(Salix boothii)*
Drummond Willow *(Salix drummondiana)*
Lemmon Willow *(Salix lemmonii)*
Yellow Willow *(Salix lutea)*
Pacific Willow *(Salix lucida ssp lasiandra)*
Peachleaf Willow *(Salix amygdaloides)*
Laurel Willow *(Salix pentandra)*
Narrowleaf Cottonwood *(Populus angustifolia)*
Black Cottonwood *(Populus balsamifera ssp trichocarpa)*

Release of performance tested ecotypes

The Project has released 22 ecotypes of 6 wetland plant species to the public market. The species include:

Nebraska Sedge, *Carex nebrascensis* (CANE2)
Creeping Spikerush, *Eleocharis palustris* (ELPA3)
Baltic Rush, *Juncus balticus* (JUBA)
Threesquare Bulrush, *Scirpus pungens* (SCPU3)
Alkali Bulrush, *Scirpus maritimus* (SCMA)
Hardstem Bulrush, *Scirpus acutus* (SCAC)

The release notices were written and submitted to the Idaho Foundation Seed Stocks Committee in December 1996 at their annual meeting. Approval was given for the 12 releases of plants collected in Idaho. We also submitted 1 ecotype to California for the northeast corner of the state, 5 ecotypes to Nevada, 2 ecotypes to

Oregon, and 2 ecotypes to Utah. All 22 releases were approved.

We elected to go with the "Selected" Alternative Release rather than cultivar to get the plants on the market faster.

We released 22 ecotypes based on Ecoregions within our Service Area. Our service area includes portions of 5 states (Southern Idaho, Eastern Oregon, Northeastern California, most of Nevada and most of Utah). In order to meet the demands for native plant materials, we decided to address the question of locally collected material by breaking our service area into 4 ecoregions; 1) Land Resource Region B East (LRR BE), 2) Land Resource Region B West (LRR BW), 3) Land Resource Region D North (LRR DN), and 4) Land Resource Region D South (LRR DS). These ecoregions are based on Land Resource Regions and Major Land Resource Areas of the United States, Agricultural Handbook 296. December, 1981. Extensive conversations with technical experts about the soils, climate, topography, and vegetation within various regions helped to draw the boundaries of the ecoregions. We are very comfortable with the delineations that were drawn and feel the plant communities that we have observed fit ecologically.

Selection Criteria

Accessions from our five state service area were planted in the PMC ponds in 1992 (see previous progress reports for more detailed information regarding planting plans and scientific design). Data on survival, height, rhizome length, vigor, percentage of plants flowering, shoot density, and above ground biomass were collected from each accession twice each growing season through 1994. Accessions were ranked for each criterion. These rankings were then averaged for each accession so they could be compared with the mean ranking of other accessions within the same species.

The "first cut" was made by ranking each accession for each of the ecoregions. Once the mean rankings were calculated, the "top performers" for each ecoregion were determined. The "second cut" was made by looking at other geographical and ecological data such as land ownership, and the size of the original collection site. USFWS lands, Wildlife Management Areas (WMA) and other public lands were given preference over private lands due to greater ownership stability. Also, larger populations were favored over smaller ones.

The releases of *Scirpus maritimus*, Alkali Bulrush, were done a little differently. Our PMC pond data for this species was very poor due to a die off of the original plantings. For this species we made our selections for each of the ecoregions based on land ownership, and the size and vigor of the stand.

By releasing plants for each ecoregion, we can better meet the needs and desires of our customers by offering them a selection more ecotypical to their area. In addition, this will decrease the demands put on any one population.

We believe the combination of these selection criteria offers a good balance of plant performance, population stability, and ecological sensitivity to our final selection process.

Getting "Bang For Your Buck" On Your Next Wetland Project

What is the one thing that all consumers expect when they purchase a product? Value! In consumer terms, value is often referred to as "Bang for the Buck". One way to get this is by purchasing the most "function", and quality one can for the lowest price. As with any other major purchase, when designing a wetland, whether it be for improving water quality, stormwater retention, or wildlife habitat, one should demand the most value for their investment.

What is the difference between wetland functions and values? Functions are those processes or qualities that are inherent in a given wetland system, and may include: wildlife habitat, nutrient sinks or sources, biogeochemical cycles, aquifer recharge or discharge, etc. Values, while derived from functions, are those qualities or processes which society perceives as being important or valuable. For example, one function of a given wetland may be to intercept and store stormwater runoff, discharging it slowly over time into a given stream thus reducing peak flows and maintaining more stable flows during periods of low precipitation (streams are less "flashy"). Society derives value from this function since large peak flows cause the most flood damage to manmade structures.

It is important to remember that wetland functions and values can and do change over time. A wetland that functions as a nutrient sink in the summer may function as a nutrient source in the spring. A wetland that provides critical nesting habitat for an endangered species one year may not provide that same

habitat in following years because of vegetative succession or drought. Likewise, due to changing attitudes, increasing population densities, losses of wetlands and open space, etc., a quality that society perceives as being valuable today may be viewed as more or less valuable in the future. To get the most "bang for your buck," plan for specific functions and values so you know when you have achieved our objective. (From Information Series 11 by Mike Sellers, former Wetland Technician)

Beaver Depredation On Woody Plantings

One of the most asked questions that we get is how to protect new plantings from beaver damage. There is no easy answer to this question. Beaver are a natural part of most riparian areas. They are very beneficial in the job they do (see View From a Wetland, No. 2-1995, The Beaver: A Riparian Zone Engineer). However, they can cause real problems when you are trying to revegetate riparian zones.

There are several things that you can do to protect your new plants from beaver. No treatment is 100% effective, but generally if you can protect the plants for the first year, they will probably survive. The most method people use is a chicken wire fence around the plant. This works well, but will rust out over time. Welded galvanized wire will last longer and tends to hold up better. There are several commercially available beaver damage protection tubes. Some are hard sided, made out of hard plastic and some are plastic netting. The hard-sided plastic tubes can cook the plants and the netting is difficult to keep upright and expanded.

Another method is beaver repellent. There are several brand names. We don't use these products because their effectiveness is very unpredictable. Don Roseboom in Illinois does use a repellent they feel is effective.

Another method is a chemical deterrent. These are bitter substances that are pelletized and placed in the hole prior to planting the cuttings or sprayed on the cuttings. Their effectiveness is limited.

Trapping the critters is probably the most effective method. Beaver move long distances up and down riparian corridors, so there is a good chance the area will be re-established with a new population. Continuous trapping will probably be necessary, at least through the first year.

We have found that individual cuttings tend to be eaten more readily than do bundles, especially tightly tied bundles. We recommend that small diameter bundles be used instead of individual cuttings anytime beaver or muskrat populations are found in the project area.

During your inventory of the site, beaver and muskrat presence is a significant factor in deciding whether to go ahead with the project or not. Their presence does not mean that you can't work on the site. However it does mean that extra precautions do need to be taken to protect the cuttings.

Waterfowl depredation on wetland plantings

When planting herbaceous vegetation on shorelines, in wetland areas, or along streams that are used by waterfowl, there is a good chance you will have to protect those new plants for at least the first growing season.

Waterfowl, in particular geese, can really decimate the newly planted plugs. One method that has been used effectively is placing a small fence around the planting site. The fence is set up like an electric fence without electricity. It doesn't have to be very fancy or very tall. The water side of the fence is in the water with the lowest wire 2-3 inches off the water. In areas where there are broods, chicken wire is better for the bottom strand. Make sure that the fence extends around the back of the planting on the land side. The total height of the fence can be variable, but generally it is about 3 feet tall. Basically, the birds don't like to be in a confined area. After the first growing season, the entire fence is removed and can be used at another site.

Riparian Ecology and restoration workshops

As part of our technology transfer program, we have developed a two-day Riparian Ecology, Restoration, and Management Workshop. The first day is devoted to the classroom where we cover basic concepts, riparian zone vegetation, planning alternatives, plant acquisition, and bioengineering techniques. The second day is spent in the field where the course participants actually classify the site and install a series of bioengineering structures on an eroding section of stream.

Each year we put on several of these workshops in different parts of our service area. In 1996, we put on courses in Montana, Washington, Idaho, Utah, and Colorado. About 800 people have attended the training. If you are interested in attending one of these workshops, contact Pat at the PMC for the next scheduled workshop. If you would like us to put on a workshop in your area and you have

about 30 people who would attend the training, contact Chris and we will see what we can do.

Bioengineering Techniques: Brush Mattressing, Fascines, Vertical Bundles, And Revetments

Bioengineering is often defined as increasing the strength and structure of soil by adding many layers of roots to bind the soil together to help protect it from erosion. It also includes the use of above ground biomass that reduces wave and streamflow energy before it impacts the streambank or shoreline. Bioengineering techniques will not work in all cases, but they do provide cost effective alternatives for the landowner to consider. Details on various techniques can be found in View from a Wetland, Number 2 (1995).

The Interagency Riparian/Wetland Plant Development Project has put together The Practical Streambank Bioengineering Guide: A user's guide for natural streambank stabilization techniques in the arid and semi-arid Great Basin and Intermountain West. This Guide is written for the professional conservationist to use when explaining to a landowner how to install various alternative bioengineering structures to reduce streambank erosion. It includes a general ecology section, self-guided technique sheets, and plant datasheets with illustrations.

The Guide is in its final review stage and we expect to have it completed after the first of the year. We are presently looking for money to help with the publication costs. Until we obtain the funding, the guide will NOT be available to the public. We will have a couple of loaner copies that we will send out after January 1. (Please do not call for copies until after the new year.)

Additional Information

Riparian/Wetland Project Information Series

No. 2 - Selection and Acquisition of Woody Plant Species and Materials for Riparian Corridors and Shorelines.

No. 3 - Use of Willow and Cottonwood Cuttings for Vegetating Shorelines and Riparian Areas.

No. 4 - How to Plant willows and Cottonwood for Riparian Rehabilitation. (Short 4-page synopsis of Tech Note 23. For use as a handout to interested people.)

No. 5 - Collection, Establishment, and Evaluation of Unrooted Woody Cuttings to Obtain Performance Tested Ecotypes of Native Willows and Cottonwoods.

No. 6 - Seed and Live Transplant Collection Procedures for 7 Wetland Plant Species.

No. 7 - Use of Greenhouse Propagated Wetland Plants Versus Live Transplants to Vegetate Constructed or Created Wetlands.

No. 8 - Constructed Wetland System For Water Quality Improvement Of Irrigation Wastewater.

No. 9 - Design Criteria for Revegetation in Riparian Zones of the Intermountain Area.

No. 10 - Seed Germination Enhancement for Carex nebrascensis (Nebraska Sedge).

No. 11 - Getting "Bang for your Buck" on your next Wetland Project.

No. 12 - Guidelines for Planting, Establishment, Maintenance of Constructed Wetland Systems.

Idaho NRCS PM Technical Notes

No. 6 - The Stinger, a tool to plant unrooted hardwood cuttings of willow and cottonwood species for riparian or shoreline erosion control or rehabilitation.

No. 23 - How to Plant Willows and Cottonwoods for Riparian Rehabilitation. (This Tech Note describes planting willows and cottonwoods in riparian revegetation in much greater detail and includes references from the scientific literature.)

For a copy, write or call:

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