

# INTERAGENCY RIPARIAN/WETLAND PLANT DEVELOPMENT PROJECT

## JULY, 1996 TO JANUARY, 1997 SEMI-ANNUAL PROGRESS REPORT

### **Project Staff**

J. Chris Hoag, Wetland Plant Ecologist  
Mike Sellers, Wetland Biological Technician

### **Introduction**

This progress report covers from July, 1996 through January, 1997. Chris was extremely ill from the end of January through the entire month of February. This is why the progress report and the newsletter are so late.

### **Annual Wetland Project Business Meeting on March 5, 1997**

With Chris' illness, we have decided to cancel the Wetland project Business meeting for March, 1997. If you would like specific information on the annual budget, 1996 accomplishments, 1997 work plan, Selected plant releases, and anything else please don't hesitate to call.

### **Constructed Wetland System Tour -- ATTENTION!!!!**

In 1995, as part of the Riparian/Wetland Project Annual Business Meeting and Tour, we led a tour of the various Constructed Wetland Systems. These Systems were ones that we have participated in and they were located throughout Southern Idaho. All of the projects had just been planted and were definitely in their infancy. Since then, we have had numerous questions about how all of them have fared, what the plants had done, and were the systems functioning like they were intended. Based on these requests for information, we have decided to have a tour this year of 4-5 Constructed Wetland Systems on JULY 1, 1997. All of the Systems are located between Twin Falls, Idaho and Hagerman, Idaho within about 10 miles of Interstate 84. We will probably meet at Twin Falls and either start in a conference room then drive to the first wetland or meet at one of the wetlands that is very easy to find. Further information will be sent out in a separately mailed announcement. If you do not receive an announcement by May 15, please call the Plant Materials Center for more information.

Remember, write on your calendar JULY 1, 1997 at Twin Falls, Idaho for a tour of Constructed Wetland Systems for agricultural wastewater treatment.

### **Third Annual Newsletter**

Our third issue of "View From A Wetland" is expected to go out in March, 1997. We mail copies to cooperators, NRCS offices, and those on our mailing list throughout our service area. Anyone who has comments on the articles in the newsletter, we would like to hear from you.

### **Release of Source Identified Wetland Plant Accessions**

We are proud to announce the release on the public market 22 ecotypes of 6 wetland plant species. 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 have been written and were submitted to the Foundation Seed Stocks Committee in December at their annual meeting. They were approved. Actual release will occur in the near future. Now is the time to start encouraging growers to start producing these plants.

We had originally decided to go with a Source Identified Alternative Release rather than cultivar to get the plants on the market faster. After much research on Source Identified and Selected Alternative Release options, we have decided to release the plants as Selected rather than Source Identified. We will not maintain breeders seed as we originally understood we would have to if the plants were released as Selected. All of the states preferred the Selected releases because it adds more credence to the release to have data included on their performance.

We are releasing 22 ecotypes based on Ecoregions within our Service Area. Our service area includes portions of 5 different 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 were based on *Land Resource Regions and Major Land Resource Areas of the United States*, Agricultural Handbook 296, December, 1981. Extensive conversations with Jacy Gibbs and others about the soils, climate, topography, and vegetation within various MLRAs helped to draw the boundaries of the ecoregions. We are very comfortable with the delineations that we have drawn and we feel that the plant communities that we have observed fit ecologically and separately.

### 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 on each accession two times each growing season through 1994. Each accession was then ranked for each criteria. These criteria 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 the mean of the selection criteria for each accession for each of the LRR's. Once the mean rankings were calculated, the "top finishers" for each LRR were determined for each species. 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, WMA's 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 LLR's based on land ownership, and the size and vigor of the of the stand.

By releasing plants in each of our LRR's, we can better meet the needs and desires of our customers by offering them a selection more ecotypical to their area. Also, by releasing plants from more areas we decrease the demands put on any one given population.

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

### **Presentations (posters, papers, talks)**

Project personnel presented a number of talks, papers, poster sessions, and workshops during the calender year 1996. Below is a list of our presentations.

National Plant Materials Meeting, New Orleans, LA. Jan., 1996.  
*Interagency Riparian/Wetland Plant Development Project Update.*

Idaho Plant Materials Committee meeting, Boise, ID. Feb., 1996.  
*Interagency Riparian/Wetland Plant Development Project Work and Advances.*

Utah Plant Materials Committee Meeting, Salt Lake City, UT. Feb., 1996.  
*Interagency Riparian/Wetland Plant Development Project Work and Advances.*

Utah Interagency Plant Materials Committee Meeting, Salt Lake City, UT. Feb., 1996.  
*Interagency Riparian/Wetland Plant Development Project Work and Advances.*

Idaho Riparian Cooperative meeting. Boise, ID, March 7, 1996.  
*Riparian Planting Methods and Riparian Restoration Workshops.*

Shoshone-Bannock Indian Tribes Council Representatives. *Potential of Ft. Hall Wetland Plant Nursery*, Ft. Hall, ID. March 12, 1996.

Larson Farms and the Mud Lake Waterusers Association Meeting.  
*Camas Creek Riparian Revegetation Plan.* Mud Lake, ID. March 26, 1996.

Fairview Wetland Meeting. *Constructed Wetlands for Treatment of Irrigation Wastewater.* May 2, 1996. American Falls, ID.

Clear Lakes Grade Mitigation Wetland Meeting. *Sampling Procedures for Determining Functions and Values of Mitigation Wetlands.* August 30, 1996. Buhl, ID.

Sellers, Michael. 1996. *Constructed Wetland Systems to treat Urban Storm Water Runoff: Storm Water, a Community Asset.* Western Planners Conference. Idaho Falls, ID. August 7-9, 1996.

Sellers, Michael. 1996. *Designing Function and Value into Your Constructed Wetland System.* Nonpoint Source Pollution Conference. Vernal, UT. September 23-27, 1996.

Missouri River CRM meeting. *Riparian Zone Vegetation and Planting.* October 23-27, 1996. Culbertson, MT

### Training Sessions and Workshops

Riparian Ecology, Management, and Restoration Workshop. 2 day workshop with 1 day in classroom and 1 day in field installing Bioengineering structures.

April 5, 1996	Beaver, UT	20 people	17 NRCS
April 11, 1996	Coalville, UT	50 people	45 NRCS
April 15, 1996	Missoula, MT	50 people	45 NRCS
April 17, 1996	Bozeman, MT	85 people	75 NRCS
April 25, 1996	Pullman, WA	120 people	25 NRCS
May 7, 1996	Salmon, ID	15 People	5 NRCS
May 14, 1996	Miles City, MT	45 People	40 NRCS
May 16, 1996	Miles City, MT	50 People	48 NRCS

Riparian Restoration Training Session. Arimo Ranch Riparian Grazing Demo. May 22, 1996. 12 people. 2 NRCS

Division IV All Employees Meeting. Riparian Zone Concerns for the Ranch Planning Process. August 20, 1996. 35 people. 35 NRCS.

Riparian Restoration Training Session. Portneuf River Riparian Demo. July 17, 1996. 18 people. 7 NRCS, 6 IF&G, 3 USFS & BLM.

Nez Perce County EWP Bioengineering Training Session. Sept. 11-14, 1996. 9 people. 4 NRCS

Ft. Hall/ Shoshone-Bannock Indian Tribes Wetland Plant ID Training Session. Sept. 3, 1996. 7 people. 2 NRCS.

Clearwater County EWP Bioengineering Training Session. Sept. 10, 1996. 9 people. 4 NRCS

Riparian Restoration Training Session. Arimo Ranch Riparian Grazing Demo. Oct. 24, 1996. 12 people. 2 NRCS

Riparian Restoration Training Session. Portneuf River Riparian Demo. Nov. 14, 1996. 8 people. 2 NRCS.

Nez Perce County EWP Bioengineering Training Session. December 9-11, 1996. 8 people. 4 NRCS

### Tours

Victory Pond, Meridian, ID. Jan. 31, 1996. 5 people.

Bear River Riparian Tour, Montpelier, ID. Feb. 16, 1996. 4 people.

Scarrow Dairy Constructed Wetland System Tour, Wendell, ID. Feb. 21, 1996. 10 people.

Camas Creek Riparian Rehabilitation Tour, Roberts, ID. March 4, 1996. 6 people.

Interagency Riparian/Wetland Plant Development Project Sponsors Business Meeting and Tour, Boise, ID. March 6, 1996. 8 people.

Montana Riparian/Wetland Team Tour, Southeast Idaho. July 9-12, 1996. 9 people.

Walt Coiner Constructed Wetland System Tour, Twin Falls, ID. July 16, 1996. 5 people.

Scarrow Dairy Constructed Wetland System Tour, Wendell, ID. July 19, 1996. 10 people.

Interagency Riparian/Wetland Plant Development Project. Rick's College Class. Aug. 13, 1996. 7 people.

Arimo Ranch Riparian Grazing Demo Tour. Oct. 9, 1996. 12 people, 5 NRCS.

Arimo Ranch Riparian Grazing Demo Annual Tour. November 11, 1996. 8 people.

Lamb-Weston Constructed Wetland System Tour. December 2, 1996. 5 people.

## **Technical Papers and Publications**

### Plant Guides

Plant guide for *Polygonum amphibium*, Water Smartweed. Interagency Riparian/Wetland Plant Development Project, USDA-Natural Resources Conservation Service, Plant Materials Center, Aberdeen, ID.

Plant guide for *Typha latifolia*, Common Cattail. Interagency Riparian/Wetland Plant Development Project, USDA-Natural Resources Conservation Service, Plant Materials Center, Aberdeen, ID.

Plant guide for *Scirpus pungens*, Threesquare Bulrush. Interagency Riparian/Wetland Plant Development Project, USDA-Natural Resources Conservation Service, Plant Materials Center, Aberdeen, ID.

Plant guide for *Scirpus acutus*, Hardstem Bulrush. Interagency Riparian/Wetland Plant Development Project, USDA-Natural Resources Conservation Service, Plant Materials Center, Aberdeen, ID.

Plant guide for *Scirpus maritimus*, Alkali Bulrush. Interagency Riparian/Wetland Plant Development Project, USDA-Natural Resources Conservation Service, Plant Materials Center, Aberdeen, ID.

Plant guide for *Eleocharis palustris*, Creeping Spikerush. Interagency Riparian/Wetland Plant Development Project, USDA-Natural Resources Conservation Service, Plant Materials Center, Aberdeen, ID.

Plant guide for *Juncus balticus*, Baltic Rush. Interagency Riparian/Wetland Plant Development Project, USDA-Natural Resources Conservation Service, Plant Materials Center, Aberdeen, ID.

Plant guide for *Carex nebraskensis*, Nebraska Sedge. Interagency Riparian/Wetland Plant Development Project, USDA-Natural Resources Conservation Service, Plant Materials Center, Aberdeen, ID.

Plant guide for *Carex aquatilis*, Water Sedge. Interagency Riparian/Wetland Plant Development Project, USDA-Natural Resources Conservation Service, Plant Materials Center, Aberdeen, ID.

Plant guide for *Carex rostrata*, Beaked Sedge. Interagency Riparian/Wetland Plant Development Project, USDA-Natural Resources Conservation Service, Plant Materials Center, Aberdeen, ID.

Plant guide for *Carex nebraskensis*, Nebraska Sedge. National Plant Data Center, Baton Rouge, LA. *From* Interagency Riparian/Wetland Plant Development Project, USDA-Natural Resources Conservation Service, Plant Materials Center, Aberdeen, ID.

### Progress Reports

Hoag, J. C. and Sellers, M. 1996. Interagency Riparian/Wetland Plant Development Project January-June 1996 Progress Report. June, 1996.

Hoag, J. C. and Sellers, M. 1996. Interagency Riparian/Wetland Plant Development Project June-Dec 1996 Progress Report. Dec., 1996.

Sellers, M. 1996 Ft. Hall Indian Reservation Native Wetland Seed Collections. Progress report. Produced for Ft. Hall Indian Reservation tribes and used in their report to the BOR. October 1996. 2 pp.

Sellers, M. 1996 Evaluation of wetland community at Nature Conservancy CWS. Progress report. August 1996. 8 pp.

Hoag, J. and M. Sellers. 1996. Watering schedule report. Completed for Twin Falls Canal Co. 2 pp.

Sellers, M. 1996. Evaluation of wetland plantings at Cedar Draw CWS. Progress report. 5 pp.

### Unpublished Regional & National Posters

Hoag, J. Chris. 1996. *Using Dormant Pole Cuttings To Revegetate Riparian Areas*. Interagency Riparian/Wetland Plant Development Project, USDA-Natural Resources Conservation Service, Plant Materials Center, Aberdeen, ID. Poster Paper.

Hoag, J. Chris, M. E. Sellers, and Mike Zierke. 1996. *Constructed Wetland Systems for Water Quality Improvement of Irrigation Wastewater in the Arid and Semi-Arid West*. Interagency Riparian/ Wetland Plant Development Project, USDA-Soil Conservation Service, Plant Materials Center, Aberdeen, Idaho. Poster Paper.

### Popular Articles

Hoag, J. and M. Sellers 1996. *View from a Wetland: News and Technology for Riparian and Wetland Management*. No. 2.

Volmer, Elizabeth. 1996. *Riparian project making ripples in first year*. Intermountain Farm and Ranch. November 29, 1996.

Volmer, E. 1996. *Riparian improvements shown with project*. Portneuf Soil and Water Conservation District Newsletter. October 1996.

Jackson, Tim. 1996. *Being kind to the land: Arimo project helping to revitalize waterway*. Front page of Idaho State Journal. November 4, 1996.

Taylor, Andy. 1996. *IDFG revitalize Blackfoot River WMA*. Fishing and Hunting News. July 25 - August 8, 1996.

Morse, Harry. 1996. *Bioengineering on the Blackfoot River*. Idaho State Journal. June 25 1996.

Morse, Harry. 1996. *Bioengineering on the Portneuf River*. Channel 6 Evening News, Pocatello. Date July 17, 1996

Tortalani, Amy. 1995. *NRCS, IDFG, and volunteers making a difference on Marsh Creek*. Channel 6 evening news. November 1995.

Demmick, M. 1996. *Volunteers help to restore Marsh Creek*. Idaho State Journal, June 1996.

### Published Symposium Proceedings

Hoag, J. Chris. 1996. *Successful planting experiences with willows and cottonwoods in riparian areas and shoreline situations*. In Proceedings of Aspen and Cottonwood in the Blue Mountains, Le Grande, Oregon. April 2-4, 1996.

Hoag, J. Chris. 1996. Establishment techniques for woody vegetation in riparian zones of the arid and semi-arid West. In Proceedings of the 4th North American Agroforestry Conference, Boise, Idaho, July 24-26, 1995. p. 135-137.

### Stand Alone Major Subject Publications

Zierke, M. and J. C. Hoag. 1996. *A reference guide for the collections and use of ten common wetland plants of the Great Basin and Intermountain West*. Interagency Riparian/Wetland Plant Development Project, USDA-Natural

Resources Conservation Service, Plant Materials Center, Aberdeen, ID. 13 pp.

Hoag, J. C. and M. Zierke. 1996. *Wetland and Riparian Plant Descriptions for the Ft Hall Indian Reservation*. Interagency Riparian/Wetland Plant Development Project, USDA-Natural Resources Conservation Service, Plant Materials Center, Aberdeen, ID. 15 pp.

### **Riparian Zone Ecology, Restoration, and Management Workshops**

Riparian workshops will be held in two states this year. The following is a breakdown of the sessions and dates.

#### Utah

Ephraim, UT, March, 1997. CANCELLED  
Coalville, UT, March, 1997. CANCELLED

Rescheduled for November 4-5, 1997 in Ephraim, UT.  
Rescheduled for November 6-7, 1997 in Coalville, UT.

#### Idaho

Lewiston, ID, March 18-19, 1997. Nez Perce Tribes. CANCELLED  
Coeur d'Alene, ID, Date to be determined.

The Riparian Zone Ecology workshops are planned for the above dates. These workshops are open to NRCS employees, other federal agencies, SCD's, state agencies, private organizations, and anyone interested in Riparian areas and Bioengineering. Call us for more information.

We are considering putting together a 1 or 2 day course on Wetland Ecology, Management, and Restoration. We could also conduct a field day and plant a wetland. We need some input as to whether a course like this is needed or not. Please call and let us know how many in your agency would like to participate in another riparian workshop and / or a wetland workshop.

### **Nature Conservancy Constructed Wetland System, Hagerman, ID**

The Nature Conservancy Constructed Wetland System was built in early 1995 and planted in the spring and summer of 1995. The system covers approximately 15 acres. The design is a modification of the Maine system that better fits our needs in an arid and semi-arid climate that uses mostly irrigation water for crop production. The primary filter was split in half and one side planted with Garrison Creeping Foxtail (*Alopecurus arundinaceus*) and the other half with Baltic Rush (*Juncus balticus*, JUBA), Nebraska Sedge (*Carex nebrascensis*, CANE2), and Creeping Spikerush (*Eleocharis palustris*, ELPA3). The three wetland plant species have filled in their half of the primary filter beautifully. The Garrison far exceeded our wildest expectations in terms of growth, erosion control and nitrogen uptake. However, it is very aggressive and is invading into some parts of the other half of the primary filter, specifically in the Baltic Rush section that was planted on a very wide spacing. It has spread very little into the Nebraska Sedge and Creeping Spikerush sections probably because of the close spacing and fast spreading of those sections.

Last year, we were having trouble with the shallow wetland. We could not get bulrush or cattails established in it because it was too deep and did not drain properly into the deep water pond. The



Nature Conservancy Stewards spent several weeks this spring planting transplants of bulrush and cattails into the shallow wetland. Mike and Chris O'Brian, and volunteers planted the shallow wetland from shore to shore with about 95% hardstem bulrush and 5% cattails. They have adjusted the watering schedule to enhance the rate of spread of the new plants.

Mike Sellers and Gary Bentrup evaluated the vegetative community during August. They ran transects through the primary filter and the shallow water wetland. The transects formed a grid system on the primary filter. Seven transect lines were laid out perpendicular to the flow, and five evenly spaced samples were taken along each of these lines. The transect lines were set up so that there was a line at the top, middle, and bottom of each of the original "planting zones"; Baltic Rush was planted in the top 1/3, Nebraska Sedge was planted in the middle 1/3, and Creeping Spikerush and Beaked Spikerush were planted in the bottom 1/3. To sample each point, a 0.96 ft<sup>2</sup> hoop was layed at each predetermined point and all of the vegetation was identified within the hoop and assigned a value of 0 to 4 (0= none or 0%, 4= abundant or > 75%). These data were then tallied. To sample the shallow water wetland, six random 100 m line transects were set up one meter from and perpendicular to the dike which separates the primary filter and the shallow water wetland.

Baltic Rush was most concentrated just below the level lip spreader with a rating of 2.8 (scale 0 to 4). Its abundance rating was 2 in the center of the Baltic Rush planting site, and 1.2 at the lower end of its planting site. Nebraska Sedge was most concentrated at the lower portion of its planting area (3.4) and least concentrated at the upper end (0.2). *Creeping Spikerush* had its highest abundance value (3.6) in the middle portion of its planting zone. Garrison has completely filled in its one half of the primary filter and has spread into the half occupied by Nebraska Sedge, Baltic Rush, and *Creeping Spikerush*. Garrison was seen throughout the Baltic Rush, Nebraska Sedge, *Creeping Spikerush* portion, however, it was not measured in the Western portion of the Nebraska Sedge or *Creeping Spikerush* portions. Garrison's highest concentration (in the Western one half of the primary filter) was in the lower portion of the Baltic Rush section. It was also common in the Eastern end of the central portion of the *Creeping Spikerush* planting zone. Other species which were measured in the western one half of the primary filter include: *Rumex*, Mustard, *Polygonum*, Plantain, Canada Thistle, Umbel (unidentified), Grass (unidentified), *Deschampsia*, *Carex sp.*, *Juncus torreyi*, *Scirpus pungens*, Clover, and *Hordeum jubatum*.

The Hardstem Bulrush and Common Bulrush that Mike and Chris O'Brian planted in the spring of 1996 is establishing well. Based on the line transect data, Hardstem Bulrush provided less than 2% cover. However, these plants were spreading rapidly and should fill in very well during the summer of 1997 - providing the proper hydrology is maintained. Garrison was measured in transect 2 in the shallow water wetland.

We will continue to monitor the Nature Conservancy CWS during the summer of 1997 and to document the establishment of the vegetation.

### **Cedar Draw Water Quality Research and Demonstration Site**

The Cedar Draw Water Quality Research and Demonstration Project is located on the south shore of the Snake River near Twin Falls, ID. This project is designed to treat some of the water in Cedar Draw, and to test CWS design as well as individual species ability to uptake nutrients. The site consists of 6 abandoned fish raceways, each of which are divided into 2 bays. Each bay is 16 feet wide and 125 feet long. We planted a single species in each of 10 bays. Two bays were not planted. Water flows from each of the bays into a tail race which then feeds two separate

CWS's. CWS I (the north wetland) consists of a primary filter, shallow water wetland, and a deep water pond. CWS II (the south wetland) consists of a primary filter, and a shallow water wetland only. Both CWS's then flow into the Snake River. We evaluated the vegetation during the summer of 1996 (see July 1996 progress report). The bays, CWS I, and CWS II are establishing well. The bays were weedy this past summer, but, hopefully, will not be as much of a problem in the future as the wetland vegetation continues to fill in. The headgate in the bay where we planted Baltic Rush, blew out this past summer and there was a significant amount of erosion. The plants seem to be okay and are continuing to grow. We are planning on evaluating the vegetation again during the summer of 1997.

#### **USBR H-Drain Project, Paul, ID**

The H-Drain Constructed Wetland System is in cooperation with the Snake River Area - East, USBR, Burley, Idaho. We are continuing to collect information on establishment procedures, competition, community dynamics, water quality, and survival.

#### **Scarrow Dairy Animal Waste CWS**

A dairy owner in Gooding is very interested in installing a CWS and has already installed two large lagoons and a solid waste bunker. Jim Scarrow is convinced that this technology can work and can benefit the Dairy business. We have agreed to help Jim plant the various components as soon as they are built to test our wetland plant materials under animal wastewater conditions. This project is still progressing and Jim is looking for grant money to help defray the construction costs. Planting will probably take place in May, 1997.

#### **College of Southern Idaho Constructed Wetland System**

We have been cooperating with the College of Southern Idaho on a Constructed Wetland System to treat water from their geothermal heating plant combined with water that flows in Perrine Coulee through the city of Twin Falls. We have been working with two Agricultural Science Professors, Ross Spackman and Jim Wilson, to design and plant the System located on land owned by the College just North of the campus. The System was engineered by NRCS engineers from the Twin Falls NRCS Field Office and built by the Twin Falls Canal Co. and a private contractor hired by the College.

We recommended a number of plants and a possible planting plan. Jim and Ross had students from their classes collect and plant the plugs in the different components. The System is definitely starting to look like a functioning System. The plants that have already been planted are growing and spreading. Additional plants will be planted this Spring and Summer.

#### **Arimo Ranch (Marsh Creek)**

The Arimo Ranch Research and Demonstration Site located on Marsh Creek south of Pocatello is proceeding on schedule. This demo site is designed to test a planned grazing system versus total exclusion, and planting (accelerated revegetation) versus no planting (natural revegetation). Starting in 1995, we have been planting woody riparian species using various bioengineering techniques, and developing new bioengineering methods in grazed and ungrazed (excluded) sections.

This past summer Mike Sellers and Gary Bentrup measured the stream cross sections in areas where we have placed brush revetments (see attachments). These cross sections will then be

compared to future cross sections to monitor and document any changes that take place in these areas.

Mike led a Portneuf Soil and Water Conservation District tour of the Arimo Ranch in September. He received excellent feedback from all of the participants. Several news articles resulted from the tour, giving the project some excellent exposure. Also, Chris was interviewed by the Pocatello newspaper and made the front page.

We will continue to test bioengineering techniques and documenting changes in the riparian zone on the Arimo Ranch this coming year. We are also perfecting planting methods for woody vegetation planted in the Buffer Strip area. The landowner has agreed to buy the plants if we would supervise the planting.

### **Camas Creek Stream Stabilization Project, Hamer, ID**

Howard Johnson, DC Rigby, and Jerry Deutscher, USFWS Camas NWR asked for help with a stream stabilization project on an artificially intermittent (irrigation diversions) stream north of Idaho Falls near Hamer. Camas Creek runs from the Spencer, ID area down through Camas NWR to Mud Lake, ID and has been straightened in the past. Larson Farms agreed to do some work to decrease the severe bank erosion in the straightened sections. This bank erosion results in heavy deposits of silts and sand on the Camas NWR which in turn causes problems with getting water to the Mud Lake Irrigation District.

We have completed designs for various hard structures and soft (vegetation) structures and presented them to the entire group of concerned users. The meeting also had representatives from the various agencies responsible for the permitting process.

Work is currently being done on the riprap while the sloping and vegetative components will be started soon.

This project is an excellent example of producers, agencies, and waterusers working together. It also shows that hard and soft structures can be used together and can improve each other's functions.

### **Greenhouse Plantings**

We have approximately 9,000 plants started from last year. These plants will be planted in the Scarrow Dairy Constructed Wetland System. They will be moved to other facilities on the PMC farm and stored there until they are planted this summer. Additional plants will be planted to provide for maximum coverage of the wetland area at the Dairy.

### **Wetland Seed Collections**

Chris and Mike made their annual collection run throughout the five state service area again this past fall. Good collections were made for all species in all areas except for Nebraska Sedge. Apparently the past few years have not been favorable to Nebraska Sedge seed production. We believe that frost late in the spring while the plants are flowering may be the culprit. This season we used a mechanical seed harvester instead of hand clippers. Brent Cornforth has cleaned all of our seeds for us this year. So far, everything has been cleaned except Baltic Rush.

These collections seem small in terms of the amount collected, but wetland plant seeds are very small (Baltic Rush has 30 million seeds per pound) and it doesn't take a lot to produce thousands

of plants in the greenhouse. We do not use these collections for direct seeding except in our experiments.

### **1996 Herbaceous Wetland Seed Collections**

<b>Species</b>	<b>Location</b>	<b>Amount</b>
CANE2	Malheur NWR, OR	92 g
CANE2	Modoc NWR, CA	49 g
CANE2	Camas NWR, ID	18 g
CANE2	Ruby Lake NWR, NV	20 g
CANE2	Total	179 g
ELPA3	Bruneau River, ID	44 g
ELPA3	Camas NWR, ID	141 g
ELPA3	Malheur NWR, OR	42 g
ELPA3	Modoc NWR, CA	41 g
ELPA3	Mud Lake WMA, ID	145 g
ELPA3	Ruby Lake NWR, NV	12 g
ELPA3	Wayne Kirch WMA, NV	28 g
ELPA3	Total	453 g
JUBA	Malheur NWR, OR	not cleaned
JUBA	Market lake, ID	not cleaned
JUBA	Modoc NWR, CA	not cleaned
JUBA	Railroad Valley WMA, NV	not cleaned
JUBA	Stillwater NWR, NV	not cleaned
<b>Species</b>	<b>Location</b>	<b>Amount</b>
JUBA	Wayne Kirch WMA, NV	not cleaned
JUBA	Total	not cleaned
SCAC	Bear River MBR, UT	38.3 g
SCAC	Camas NWR, ID	326.9 g
SCAC	Ft, Boise WMA, ID	387.2 g
SCAC	Hagerman, ID	502.6 g
SCAC	Market Lake, ID	47.3 g
SCAC	Modoc NWR, OR	239.3 g
SCAC	Ogden Bay WMA, UT	77.9 g
SCAC	Ruby Lake NWR, NV	21.9 g
SCAC	Stillwater NWR, NV	16.2 g
SCAC	Wayne Kirch WMA, NV	27 g
SCAC	Total	1685 g
SCMA	Bear River MBR, UT	568.3 g
SCMA	Ogden Bay WMA, UT	94.3 g
SCMA	Stillwater NWR, NV	837.5 g
SCMA	Wayne Kirch WMA, NV	297.8 g
SCMA	Total	1798 g
SCPU3	Camas NWR, ID	109 g
SCPU3	Fernley, NV	5.6 g
SCPU3	Ft. Boise WMA, ID	238 g
SCPU3	Malheur NWR, OR	42 g
SCPU3	Modoc NWR, CA	144 g
SCPU3	Roswell WMA, ID	62 g

SCPU3	Wayne Kirch WMA, NV	27 g
SCPU3	Total	628 g

### Ft. Hall Wetland Plant Nursery

We have contracted with the BOR to provide assistance to the Shoshone-Bannock Indian Tribes at Ft. Hall, ID in developing a wetland plant nursery. We are training tribal members in how to collect wetland plant seeds, clean the seeds, and produce wetland plant plugs.

Mike worked at the tribal headquarters organizing the project, examining market potential, locating suitable collect sites, and training tribal employees on species ID and collection procedures.

This fall they collected 138 bags of seed of 11 different wetland plant species. These bags will be cleaned this winter and be ready for planting this spring. We are currently waiting for one more piece of seed cleaning equipment to be delivered. Plans are moving ahead with the construction of a greenhouse near the high school.

Summary of  
1996 Sho-Ban Native Wetland Seed Collections

Scientific Name	Common Name	Symbol	Date	Location	No. bags
<i>Scirpus acutus</i>	Hardstem Bulrush	SCAC	9/3	1	1
<i>Scirpus acutus</i>	Hardstem Bulrush	SCAC	9/4	1	1
<i>Scirpus acutus</i>	Hardstem Bulrush	SCAC	9/16	1	6
<i>Scirpus acutus</i>	Hardstem Bulrush	SCAC	9/17		4
Scientific Name	Common Name	Symbol	Date	Location	No. bags
<i>Scirpus acutus</i>	Hardstem Bulrush	SCAC	9/18	1	2
<i>Scirpus acutus</i>	Hardstem Bulrush	SCAC	9/19	1	5
<i>Scirpus acutus</i>	Hardstem Bulrush	SCAC	9/20	1	5
<i>Scirpus acutus</i>	Hardstem Bulrush	SCAC	9/23	1	7
<i>Scirpus acutus</i>	Hardstem Bulrush	SCAC	9/24	1	1
<i>Scirpus acutus</i>	Hardstem Bulrush	SCAC	9/25	1	3
<i>Scirpus acutus</i>	Hardstem Bulrush	SCAC	9/26	2	10
<i>Scirpus acutus</i>	Hardstem Bulrush	SCAC	9/30	2	8
Total SCAC					53
<i>Carex nebrascensis</i>	Nebraska Sedge	CANE2	9/3	1	1
<i>Carex nebrascensis</i>	Nebraska Sedge	CANE2	9/17	1	2
<i>Carex nebrascensis</i>	Nebraska Sedge	CANE2	9/30	2	3
Total CANE2					6
<i>Carex sp.</i>	Sedge	NA	9/11	3	3
Total <i>Carex sp.</i>					3
<i>Juncus balticus</i>	Baltic Rush	JUBA	9/3	4	2
Total JUBA					2
<i>Juncus torreyi</i>	Torrey Rush	JUTO	9/3	4	2
<i>Juncus torreyi</i>	Torrey Rush	JUTO	9/4	4	2
<i>Juncus torreyi</i>	Torrey Rush	JUTO	9/9	4	1
Total JUTO					5
<i>Juncus sp.</i>	Rush	NA	9/4	4	5

Total	<i>Juncus sp.</i>					5
	<i>Eleocharis palustris</i>	Creeping Spikerush	ELPA3	9/3	1	1
	<i>Eleocharis palustris</i>	Creeping Spikerush	ELPA3	9/18	1	3
	Total					4
	<i>Eleocharis rostellata</i>	Beaked Spikerush	ELRO	9/4	4	4
	<i>Eleocharis rostellata</i>	Beaked Spikerush	ELRO	9/19	4	4
	<i>Eleocharis rostellata</i>	Beaked Spikerush	ELRO	9/23	4	8
	<i>Eleocharis rostellata</i>	Beaked Spikerush	ELRO	9/24		6
	<i>Eleocharis rostellata</i>	Beaked Spikerush	ELRO	9/25	4	3
	<i>Eleocharis rostellata</i>	Beaked Spikerush	ELRO	9/25		1
	Total					26
	<i>Typha latifolia</i>	Broad Leafed Cattail	TYLA	9/18	1	
	1					
	Total					1
	<i>Iris missouriensis</i>	Western Iris	IRMI	9/3	4	1
	<i>Iris missouriensis</i>	Western Iris	IRMI	9/4	5	1
	<i>Iris missouriensis</i>	Western Iris	IRMI	9/11	5	1
	<i>Iris missouriensis</i>	Western Iris	IRMI	9/17	5	1
	<i>Iris missouriensis</i>	Western Iris	IRMI	9/18	7	12
	<i>Iris missouriensis</i>	Western Iris	IRMI	9/20	1	1
	<i>Iris missouriensis</i>	Western Iris	IRMI	9/20	6	4
	<i>Iris missouriensis</i>	Western Iris	IRMI	9/24	7	2
	Total					23
	<b>Scientific Name</b>	<b>Common Name</b>	<b>Symbol</b>	<b>Date</b>	<b>Location</b>	<b>No. bags</b>
	<i>Potentilla fruticosa</i>	Shrubby Cinquefoil	POFR	9/9	4	1
	<i>Potentilla fruticosa</i>	Shrubby Cinquefoil	POFR	9/30	4	9
	Total					10

Total Number Of Bags Collected For All Species  
138

Collection Locations:

- 1 End of Sheepskin Rd. (Big Curve)
- 2 Bronco Rd. Under Power Lines
- 3 Head End
- 4 Upper Buffalo Pasture
- 5 Kenney Cr.
- 6 Sucker Hole
- 7 Cable Bridge

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