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INTERAGENCY RIPARIAN/WETLAND PLANT DEVELOPMENT PROJECT

Third Quarter 1994 Progress Report

Project Staff

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Introduction

This quarter was mainly involved with collecting willows, research into seed stratification and greenhouse propagation, planting both willows and wetland plants, planning for constructed wetland systems, professional presentations, workshops, production of a PBS TV special on wetlands, planting an willow initial evaluation plot, and conducting several tours.

April Business Meeting

On April 21, we had our annual spring business meeting to discuss the budget, Project operation, and expenditures. Decisions made during this meeting included:

- * We will go to a semi-annual progress report instead of a quarterly report, 1 in June and 1 in December.
- * We will try and produce an annual newsletter from 1 to 2 sheets front and back. This will serve as the response for requests to be put on our mailing list.
- * We have written a paper on seed collection and transplant techniques that will be sent out to the sponsors.
- * The Created Wetland Ponds at the PMC have become a real problem in that we are no longer able to discern individual accessions because they have grown together. Attendees agreed that we should use the ponds as transplant sources for our various off-center sites. One pond should be planted to a multi-species community as a demo site for future tours. One pond should be used to demonstrate seeding techniques - mats with seed impregnated in them, drill with rice hulls, and broadcast the seeds. Work on eradication efforts for wetland plants in the ponds as we take the plants out of them. Work on establishing how long we can harvest seed off a "seed increase field". How do we establish a seed increase field.
- * Next year's business meeting will be April 13, 1995 at 8:30 am at the SCS State Office conference room in Boise (on Elder Street). Please write this on your calender and plan to attend. We need your input.
- * If anyone has a problem with the decisions made at the business meeting, let me know ASAP. We are already starting to implement them.

Corvallis PMC Wetland Coordinated Study

We are working on a wetland coordinated study with the Corvallis PMC in which we are comparing collection techniques, establishment techniques, maintenance criteria, and accessions of ELPA3 from the Corvallis and Aberdeen area. Two accessions of ELPA3 from the Corvallis PMC and three from the Aberdeen PMC have been propagated in greenhouses at both sites and will be transplanted into created wetland ponds later this month. We will also be collecting and exchanging wild ELPA3 plants from the same 5 accessions next week. These will

be planted out with the greenhouse grown plants the end of July. These data will be made available to our cooperators as they become available.

Willow Collections and Field Planting at the PMC

Four species were collected for this years field plantings at the PMC. These were Black Cottonwood, Peachleaf Willow, Drummond Willow, and Lemmon Willow. Ten collections of each were made in the service area and they included 20 cuttings each. The collections were completed by May 6, and stored until June 6th. They were then planted into a field on the PMC Fish and Game farm adjacent to last years initial evaluation plots. A total of 800 cuttings were planted. This year, weed barrier was used on the new cuttings.

Last years plantings had some maintenance by mowing the weeds between the cuttings and placing weed barrier over the top of the established cuttings. There was some mortality involved but success of the remaining cuttings should be increased. 40 new cuttings of Coyote willow went in. These were collected from the shores of Salt Lake to look at higher alkaline soil ecotype.

Id Transportation Department

A planting demonstration/training session using "The Stinger" Stinger" was conducted on Beaver Creek, in the Centennial range, near the Montana border. This training session was conducted during May 10-11 on a small section of the heavily rock rip-rapped stream. It was attended by IDTD Environmental Planners and Idaho Fish and Game personnel. We provided 40 cuttings from our increase blocks. We video taped the process of using "The Stinger." This will be used for making a training tape that can be made available to interested parties.

BOR American Falls Reservoir Plantings

Stinger Rock Riprap Planting

As part of our continuing research into vegetating rock rip-rapped shorelines and riparian corridors, 40 cuttings were planted in the Poulson riprap area on American Falls Reservoir. Two varieties of poplars were placed in the riprap. It was also used as a demonstration of "The Stinger." It was attended by Idaho Fish and Game, Bureau of Indian Affairs, and private land owners. It was video taped to make a training film for future customers.

Fort Hall

In the reimbursable agreement with the BOR for vegetating American Falls Reservoir shorelines, we attended a meeting with tribal members and BIA to discuss potential training of tribal members on how to propagate and plant riparian and wetland plants on the Reservation. This technology would be used on eroding sections of the Reservoir bottoms.

Seagull Bay Nursery

A new willow and cottonwood production nursery will be started at Seagull Bay. This nursery is part of a reimbursable agreement with the BOR. We will be putting in about 75 cuttings with weed barrier. This is to supplement the nursery at Fenstermaker Bay, which had a failure in the drip system. It will be an ongoing planting project until the plots are established.

Wetland/Wildlife Poster Paper

Hoag, J. C., M. Zierke, M. Sellers, and R. Schmidt. 1994. Constructed wetlands systems for water quality improvement. Paper to be presented at the Annual Wildlife Society Meeting, Albuquerque, N.M.

This meeting is in August and Robert Schmidt will be presenting this poster paper at the meeting: A Constructed Wetland System for water quality improvement of irrigation wastewater is designed to mimic a natural wetland's purification processes that remove a variety of nutrients, sediment, and other contaminants. Another benefit of a Constructed Wetland System is that it provides additional habitat for a variety of wildlife species, such as waterfowl, shorebirds, songbirds, and mammals. The System is designed to include 5 components: 1) Sediment Basin, 2) Primary Filter, 3) Shallow Wetland, 4) Deep Water Pond, 5) Final Filter. These five components provide the necessary diversity for feeding, breeding, and nesting. Each component is specifically sized to remove various contaminants from the wastewater as it makes its way through the system and returns to surface or groundwater. The actual size of each component is based on contaminant levels (e.g. nitrogen, phosphorous, or total suspended solids) in the water, hydraulic loading rates, and water retention time. The System is not meant to replace proper on-farm management, only to supplement it, especially in situations where no other cost effective alternatives are available. Occasional harvesting of above-ground vegetation in the different components and infrequent sediment removal from the sediment basin and deep water pond are critical parts of system maintenance. Existing Systems have produced removal efficiencies of 66 to 95% for nitrogen, total phosphorous, and total suspended solids.

Tours, Training Sessions, and Workshops

Training sessions were given on Riparian Zone Ecology and Restoration Management for the USA COE in Montana, PMC operation and function for SCS and BLM Employees here at the PMC, and IDTD Beaver Creek Riparian Revegetation. Tours were conducted for the Idaho Academy of Sciences, PMC Field Day,

USBR H-Drain Project, Paul, ID

The H-Drain Constructed Wetland System is in cooperation with the Minidoka Project, USBR, Burley, Idaho. This project deals with the planting of both wetland plants and willows in a CWS designed and constructed by the USBR. 1000 willows were planted in the center and along the shore of the sediment pond. An additional 50 cuttings were placed further along the system on an island created for wildlife habitat. We also planted about 1000 wetland plants (ELPA3, JUBA, CANE, SCAC, SCMA, and SCAC) in the sediment basin and seeded the shoreline and central portion with the same 6 species as well as CAHY4. 200 plugs were planted in the lower portions which was also seeded with stratified and unstratified seed.

This project is designed to provide research opportunities into how to plant wetland plants and maintain the community. We are gaining information on establishment procedures, competition, community dynamics, water quality, and survival.

The plugs which were planted last November seem to be doing well. Initially, we thought they had all died out, but closer examination this spring showed about a 40% survival rate with these particular plants.

PMC Created Wetland Ponds

We transplanted approximately 300 plants (50 per species) from these ponds to the sediment basin at H-Drain during May. We will continue to monitor their progress at their new location.

This spring, we collected some amphibians that have made the PMC created wetland ponds home. We noticed two distinct types of tadpoles and kept a watch out for the adults. Both types were captured and keyed. We have Great Basin Spadefoot toads (*Scaphiopus intermontanus*) and Western Chorus frogs (*Pseudacris triseriata*).

Poulson Constructed Wetland System Demonstration Site (CWS)

After intensive study and design work by the SCS engineering staff, the cost estimated to construct the Poulson CWS was between \$56,000 - \$70,000. This is mainly because of government contracting procedures and required hourly wage. It was decided that we could not afford to build it for 2 reasons: 1) we didn't have \$50,000+, and 2) how could we justify this to local farmers who might want to use this technology. In short, the Poulson CWS is canceled.

We do have another site located in the heart of furrow irrigation country -Burley/Paul, ID. The CWS can probably be built by the A & B Irrigation District for the remaining \$24,000 from the BOR. We will be examining this site further in the near future.

Willow Studies

A storage length combined with a rooting trial is underway. Cuttings that were collected are in cold storage to investigate the length of time cuttings are able to be stored without detrimental effects. Coinciding with this, we will be looking at ways to increase and stimulate root growth of these stored cuttings.

The collection of willow seed has been made to look at alternative ways of willow propagation and planting for functional use. It is in the preliminary stages and we will look at this closer in the future.

USBR Smith/Sterling

Construction at these two sites is nearly complete. Due to weather conditions last fall, they were unable to complete a retaining wall and head gate at the Smith site. These will be completed in September. We will be planting herbaceous wetland plants, willows, and upland grasses as soon as construction is completed.

Nature Conservancy Constructed Wetland System, Hagerman, ID

Planting of the Primary Grass Filter and the Shallow Wetland was completed in May. Several hundred ELPA3, JUBA, SCPU3, and SCMA from the project will be used on the site in addition to plants grown by Express Farms at Melba, ID.

The 'Garrison' Creeping Foxtail is establishing well along with the CANE2, ELPA3, and JUBA live plants. The seeded JUBA and ELPA3 are starting to sprout. Live plants planted in the shallow wetland have shown dieout in the areas that were deeply flooded for the establishment period. Some of this plants that were shallower are doing well. Weeds are coming into the area and are being treated with a combination of chemicals (out of the water) and mowed.

Presentations (posters, papers, talks)

We presented a number of talks, papers, and poster sessions this past quarter. Below is a list of our presentations.

* Selection and acquisition of plant materials for revegetating riparian corridors and Grazing management of Riparian Corridors, Billings, MT

* Hoag, J. Chris and Michael E. Sellers. Interagency Riparian/Wetland Plant Development Project, Plant Materials Center, USDA-Soil Conservation Service, Aberdeen, Idaho -- Use of Greenhouse propagated wetland plants versus live transplants to vegetate constructed or created wetlands. Presented at the Society of Wetland Scientists, Portland, OR, June 1, 1994.

* Plant Materials Center Training Session, Aberdeen, ID. Discussed planning, seed tags, seeding rates, rice hull use, seedbed prep, and wetland/riparian research and plantings.

Germination Studies

A comprehensive germination study of CANE2 has been started. A multiway ANOVA will be used to test what the interactions of such factors as accession, stratification method, perigynia removal, and scarification has on rates of germination. Hopefully, this information will prove helpful in increasing the rate of germination. Preliminary results indicate a significant increase in germination when the perigynia are removed, especially when the seeds are then stratified. We'll keep you posted as to the results of this study.

Outdoor Idaho

The Interagency Riparian/Wetland Plant Development Project was featured in a 1/2 hour special on PBS's Outdoor Idaho on July 7. The special was on wetlands in Idaho and what different parts of the state were doing in wetlands research and management. We do have a copy of the special if anyone did not see it.

Animal Waste CWS

We are cooperating with Utah SCS to set up a Constructed Wetland System to treat animal waste from dairies in the Logan Valley. Utah SCS is doing the design work and getting the funding. We will be setting up the vegetation planting design and monitoring the plant performance. This project will meet our need for a demo site for animal waste treatment.

Total Quality Management (TQM)

We are committed to serving our customer and are striving for 100 % conformance to customer expectations. We would appreciate all feed back, good and bad, so that we may better meet our customer/cooperators expectations.

Technical Assistance Provided

Technical assistance was requested and provided to the following people and organizations:

- * USA Corps of Engineers, Waterways Experiment Station, Riparian section, Vicksburg, MS
- * USA Corps of Engineers, John Carr Reservoir, Boydton, VA - Stinger planting
- * Nature Conservancy, Cindy Lunte, Upland and Wetland plant recommendations, 1000 Springs CWS
- * USDI Bureau of Reclamation, American Falls Reservoir
- * USDI Bureau of Reclamation, Chris Ketchum, Minidoka Project - Seagull Bay, Poulson CWS, Smith Drain, and Sterling Wetlands
- * Three Rivers RC&D, Paula Jones - Grants , research proposals, alternative funding, proposals

- * Idaho Fish and Game - Sterling Wildlife Management Area, Willow propagation on Portneuf River.
- * Idaho Transportation Dept.- Demo of The Stinger at Beaver Creek for their Environmental Planners
- * USFS Lucky Peak Nursery, Kay Beall - potential CWS on the nursery ground to filter field runoff
- * Corvallis Plant Materials Center - Eleocharis coordination study
- * Inter-fluv, Lon Mickleson, Hood River OR, wetland plant propagation consultation
- * Chemical Nuclear Geotech., Lisa Lesperance, Grand Junction, CO, Created wetland species selection consultation
- * Express Farms, ELPA3 seed
- * Gooding SCS FO - Information on riparian planting methods
- * Nancy Shaw, USFS - Possible demonstration site near Glens Ferry
- * E. Crowe, USFS - Baker City willow locations and habitat
- * Willow Collection Locations - Gene Yates, USFS, Mitchel White, USFS, Bob Schmidt, SCS, Wayne Imgard, SCS, Jerry Miller, SCS, Dave Weixelman, USFS, Ken Genz, USFS, Sheril Goodrich, USFS, Jim Brown, SCS, Willy Conrad, SCS, Al Winward, USFS, Karl Holte, ISU.
- * Corey Duehlmeier, Seed Lab, Boise - Strat and Germ on JUBA.
- * Phil Fortunato, Briar Green - Strat and Germ of wetland plants for hydromulching.
- * Rob Brochu, USA COE -Seagull bay dredging and pole planting, ground water in the sterling WMA.
- * Kurt Buchanan, WA F&W, - Stinger info
- * Jim Magee, private consultant - Stinger info
- * Jacy Gibbs, SCS - Plant Materials program information
- * Mark Fleming, IDF&G, planting Wetland Plants.
- * Larry Olson, private grower - willow and poplar establishment
- * M. Miller, NVDOT - pole contracts for planting.
- Dave Musil, IDF&G, - wetland plants for nesting platforms
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