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Tamarisk Coalition — Native Riparian Plant Materials Program

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Abstract: The Tamarisk Coalition (TC), a nonprofit organization dedicated to riparian restoration in the western United States, has created a Native Plant Materials Program to address the identified need for native riparian plant species for use in revegetation efforts on the Colorado Plateau. The specific components of the Native Plant Materials Program include: 1) provide seed collection and riparian restoration training; 2) work with various partnerships and collaborators to help define needs/goals for active restoration; 3) help facilitate the development of appropriate replacement plant species for restoration; and 4) work with partners to develop a business model for the sustainable production of locally grown native plant materials. The TC has received numerous grants to assist with implementing this program. Grantors include the Central Utah Project Completion Act, Xcel Energy, Walton Family Foundation, and the Colorado Healthy Rivers Fund. Based on experiences resulting from implementing the Native Plant Materials Program and feedback received from multiple watershed organizations, native plant materials development for active restoration efforts remains an important, if not critical, need. TC continues to document its work and that of other organizations in an effort to help inform ongoing efforts.

Keywords: riparian, native plants, long-stem, pole planting, Colorado Plateau

Background

Tamarisk Coalition (TC), based in Grand Junction, CO, is a 501c(3) non-profit organization whose mission is to provide technical assistance and educational support for the restoration of riparian lands. As part of that mission, TC has been helping landowners and land managers meet their active restoration goals. TC's Native Plant Materials Program has been designed to address the identified need for native riverside plant species for use in revegetation efforts on the Colorado Plateau.

Several community-based watershed groups, located within western Colorado and eastern Utah, have been working towards the goal of watershed restoration, with an emphasis on the reestablishment of native species in areas currently occupied by tamarisk (*Tamarix* spp.) and Russian olive (*Elaeagnus angustifolia*). Current projects focus on the revegetation of areas where tamarisk and Russian olive have been actively removed or where tamarisk has been affected by the tamarisk leaf beetle (*Diorhabda elongata*), a biological control agent introduced to manage tamarisk.

While many areas may naturally regenerate, active revegetation is often necessary. The importance of using native plants in revegetation efforts has been emphasized in watershed restoration efforts (Sher and others 2010); supply of locally adapted, or ecotype-specific, plants that can be used with minimal post-planting maintenance, however, is currently limited. There are local nurseries that specialize in the production of native plants, yet many of these nurseries are not geared towards large-scale production of ecotype-specific plants in appropriate containers and/or growth forms for watershed restoration efforts.

Materials grown as long-stem transplants and outplanted using deep planting methods are especially useful in arid land revegetation efforts. Plants grown in this manner develop robust root systems capable of extending into the capillary fringe, that is, the permanent soil moisture above the water table. As a result, the need for post-planting irrigation is greatly reduced or eliminated. Revegetation success rates of 90% or more have been found in areas where these techniques have been used (Dreesen and Fenchel 2010).

Despite their proven utility, ecotype specific and long-stem plant materials are generally unavailable across the Colorado Plateau except at the Los Lunas Plant Material Center (LLPMC) in New Mexico. Land managers often use commercial non-adapted nursery stock, or they resort to transporting materials from the LLPMC.

Due to the identified need for suitable-sized cottonwood poles for revegetation efforts, TC is also coordinating the establishment of a cottonwood pole plantation in western Colorado. TC believes that it can, through the creation of this plantation, greatly reduce costs while simultaneously improving product supply for restoration practitioners. Once established, cottonwood poles can be sold at minimal cost to help generate maintenance funding as well as supplemental income for landowners.

Ultimately, TC envisions local nurseries sustainably growing native, long-stem products and cottonwood poles. From cursory research, there appears to be resistance and/or barriers to the adoption of these grow-out methods commercially. TC would like to further explore options for including commercial growers in restoration efforts. Given the anticipated need for materials in western Colorado alone, TC recognizes a niche that could profitably be filled by local entrepreneurs. TC has been working with the Upper Colorado Environmental Plant Center (UCEPC) to help further develop technologies that can subsequently be transferred to commercial growers.

The specific components of the Native Plant Materials Program include: 1) provide seed collection and riparian restoration training; 2) work with various partnerships and collaborators to help define needs/goals for active restoration; 3) help facilitate the development of appropriate replacement plant species for restoration; and 4) work with partners to develop a business model for the sustainable production of locally grown native plant materials. The TC has received numerous grants to assist with implementing this program. Grantors include the Central Utah Project Completion Act, Xcel Energy, Walton Family Foundation, and the Colorado Healthy Rivers Fund. The following program accomplishments are a result of activities conducted through these grant programs.

Program Components and Accomplishments

Seed Collection and Riparian Restoration Training

In partnership with UCEPC, LLPMC, Colorado State University, and Rim to Rim Restoration, the TC has hosted numerous training opportunities for land managers, private land owners, and other organizations. These trainings include topics such as seed collection, secondary weed control (focus on Russian knapweed [*Rhaponticum repens*]), long-stem and pole outplanting techniques, and native grass establishment methods. In 2010 and 2011, the TC coordinated training for over 120 land managers and private land owners in western Colorado and Utah. These trainings have helped to educate watershed partnership members currently engaged in restoration activities on successful planting methodologies.

Partnerships and Collaborations to Define Needs/Goals for Active Restoration

TC staff members have been actively engaged with numerous watershed partnerships, including the Dolores River Restoration Partnership (DRRP), Escalante River Watershed Partnership (ERWP), Northwest Colorado Watershed Partnership (NWCP), and Southeast Utah Tamarisk Partnership (SEUTP). Through the DRRP and the

ERWP, TC is currently working to identify and plan for restoration needs in these watersheds. Staff has actively participated on committees tasked with shaping restoration goals; in many instances, TC staff has also taken leadership roles in the creation of restoration prioritization documents that identify species for development.

Facilitate the Development of Appropriate Replacement Plant Species for Restoration

Although the need and importance of utilizing native plants in restoration has been expressed, the ability for land managers to actually obtain plant materials is a challenge. To address this, the TC is working to: 1) support development of ecotype-specific, long-stem products for restoration efforts on the Dolores and Escalante Rivers, including collecting or coordinating seed collection to support efforts; and 2) develop and maintain cottonwood plantation(s) along the Colorado River main stem in western Colorado with poles produced to be used in local restoration efforts.

Long-Stem Production

UCEPC has begun propagation of several species from seeds collected by TC and other Colorado sources. Together, existing grant funds will support the development of 350 long-stem plants (Table 1). Plants should be available for restoration efforts in 2 to 3 years.

TC will facilitate the development of additional riparian species at local nurseries on the Colorado Plateau. The exact number of plants that will be made available is not yet known.

Cottonwood Pole Plantation Development

Due to the identified need for suitable-sized cottonwood poles for revegetation efforts, TC is coordinating the establishment of

Table 1. Species identified for seed collection and propagation status.

Species	Collected by TC	Propagation Status
Box elder (<i>Acer negundo</i>)	Yes; seed not viable	UCEPC to use White River Source; in production
Baccharis (<i>Baccharis salicina</i>)	Yes; small quantities	In production
Single leaf ash (<i>Fraxinus anomala</i>)	Yes**; seed not viable	NA
Skunkbush sumac (<i>Rhus trilobata</i>)	Yes; also volunteer collection	In production
golden currant (<i>Ribes aureum</i>)	No*; stock collected from UCEPC	In production
wax curran (<i>Ribes cereum</i>)	No*; stock collected from UCEPC	In production
Woods' rose (<i>Rosa woodsii</i>)	Yes, insufficient quantities; however, cuttings available	In production
silverleaf buffaloberry (<i>Shepherdia argenta</i>)	No*; using UCEPC collection from Dolores	100 in long-stem production; 300 m (1000 ft) in bareroot production

* Seed was not found locally on Colorado River; TC will be working with professional seed collectors to obtain these species in the future.

** This species, while of interest to UCEPC, is not applicable for lower elevation riparian restoration sites. The species was taken off future seed collection lists.

a cottonwood pole plantation in Mack, CO. TC believes that it can, through the creation of this plantation, greatly reduce costs while simultaneously improving product supply for restoration practitioners. Once established, cottonwood poles can be sold at minimal cost to help generate maintenance funding as well as supplemental income for landowners. TC is growing seedlings from both cuttings and wildland-collected seeds. Nearly 1000 cottonwoods were planted in fall of 2011; an additional 5000 cottonwoods will be planted in the spring of 2012.

A private landowner has donated the use of his land, irrigation water, and labor to plant and maintain the plantation. The landowner will, in turn, sell mature cottonwood poles to land managers and others conducting restoration. Proceeds from the sale will support continued plantation operation and maintenance. Plantation stock can be cut approximately three times before replanting needs to occur.

Partnerships to Develop a Business Model for Sustainable Production of Locally-Grown Native Plant Materials

TC has been working with a number of partners to further explore options for how the development and sale of native plant materials can be incentivized and ultimately become a profitable and sustainable endeavor. This continues to be an on-going effort that has been aided by conference participation and other networking opportunities. TC recently attended the Colorado Plateau Native Plant Initiative Annual Meeting (Moab, UT) and the National Native Seed Conference (Snowbird, UT), and TC is currently exploring collaborative opportunities with the Bureau of Land Management (BLM) and Uncompahgre Project.

Evaluation

To date, grant opportunities from the Central Utah Completion Act, Xcel Energy, Walton Family Foundation, and Colorado Healthy Rivers Fund have enabled TC to host relevant and needed training on seed collection and riparian restoration techniques for agencies, non-profits,

and landowners in western Colorado and eastern Utah. Support was also provided to begin working towards the goal of providing native plant species for restoration efforts. These grant programs were critical in building additional backing to further program goals.

The TC learned a great deal over the last year about challenges to native seed collection and plant propagation and marketing by local nurseries. As part of current work, more emphasis is now being placed on identifying ways to enhance communication and collaboration between suppliers and users of native plant materials. TC is also exploring ways to strategically partner with other organizations with complementary goals, such as the Natural Resources Conservation Service, BLM, Colorado State Forest Service, and Rim to Rim Restoration in Moab, UT. The Colorado Plateau Native Plant Annual Meeting, held in Moab, UT in early March, was especially helpful in gaining a better understanding of how TC can complement efforts already underway by collaborators.

TC is also working to develop additional training modules, outreach materials, and Best Management Practices geared towards private landowners and other smaller organizations conducting riparian restoration.

Based on feedback received from multiple watershed organizations, native plant materials development for active restoration efforts remains an important, if not critical, need. TC continues to document its work and that of other organizations in an effort to help inform ongoing efforts. A recently developed strategic plan helps to guide these efforts and provides benchmarks for continued success.

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