

HB-1006 Testimony – Colorado House of Representatives
Agriculture, Livestock and Natural Resources Committee

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Organizational Overview

Tamarisk Coalition (TC), a 501(c) 3 non-profit organization, was founded in 2002 based in Grand Junction, with the mission of advancing the restoration of riparian lands through collaboration, education, and technical assistance. Our role is to support public and private entities and individuals in their work managing invasive species and restoring riverside lands, and work with partners throughout the State of Colorado.

Introduction

Rivers in Colorado are at risk from a variety of threats, including invasive phreatophyte plants such as tamarisk and Russian olive. Since its introduction into the United States, tamarisk (*Tamarix* spp.), for example, has spread over many arid and semi-arid river systems and become the dominant or sub-dominant species in many of them. Restoring riparian areas from these plants is an important component of water resource management because it protects river corridors from fire and channelization, enhances wildlife habitat, and can help to enhance river flows. Approximately 79,000 acres of Colorado's riparian lands are infested with tamarisk (mapped in 2007). Dozens of partners across the state are embarking on such projects. In order to ensure their success they are in need of technical support and funding to support their work. HB-1006 will help to provide these important resources to support the implementation and ongoing success of these projects statewide. The proposed bill will continue the State of Colorado's role as a leader in advancing river health and water resource management in a sustainable and effective manner.

Positively Impacts of Riparian Restoration to Water Resource Management

The control and restoration of tamarisk and Russian olive-infested lands within Colorado presents a unique opportunity to not only gain potential water savings, but additionally enhance the health and utility of riparian corridors, benefiting wildlife and humans alike. Some examples of how tamarisk control activities might benefit water resources are mentioned below:

Water Savings through Restoration. The restoration of tamarisk and Russian olive-infested lands could provide an opportunity for water savings if it targets higher elevation surfaces (upper terraces) along the river corridors. It is known that the replacement of tamarisk with less water consumptive xeric upland species creates the opportunity for water savings and an increase in overall water available to the system. While tamarisk is able to access deeper groundwater from these upper terraces, the priority for replacement vegetation would be on species with less ability to access deeper groundwater. Whether the water can be recovered and/or quantified for beneficial use is undetermined at this point. Research is commencing to answer this question. It is important to note that water savings from restoration of the wetter riparian areas is considered to be negligible as transpiration rates of typical native riparian species may be similar to that of tamarisk. Less is known about the potential water savings of Russian olive replacement, but studies indicate that evapotranspiration averages for Russian olive were similar to those of tamarisk.

The amount of water savings are not easily measurable, however, experts estimate that water savings from tamarisk management (replaced with appropriate vegetation) could range from zero to approximately 1 acre/ft per 1.85 acres managed (.54 AF/acre). Specific estimates are dependent on a site by site consideration of a multitude of variables.

While restoration of the tamarisk-infested upper terraces likely have the most potential for water savings, it should be noted that restoration of the entire river bottomland (not just the upper terraces) could be highly beneficial for enhancing riparian health and benefiting humans and wildlife.

River Protection. The replacement of invasive plant species with native plant species, refugium for terrestrial and aquatic organisms, can improve wetland and riparian areas. Restored riparian areas allow for increased access, improved recreation, and enhanced habitat all of which lead to increased protections. As native plants become established, diverse food sources will likely increase in abundance, as will the ability of native plant stands to serve as

a seed source for passive revegetation of surrounding areas. Successful restoration can attract native bird and fish species and increase the likelihood of protections.

Hazardous Fuels Reduction. Native plant restoration can also help to alleviate wildfire threats in riparian corridors. Fire has replaced flooding as the major disturbance regime on many southwestern floodplains and in riparian corridors. Multiple sources report that while fire remains uncommon in tamarisk-free riparian areas, fire frequency has increased in many low-elevation riparian ecosystems where tamarisk has become established. Wildfire impacts include diminished water quality, altered flood regimes, and drier and more saline floodplain environments.

Climate Change Adaptation. Eliminating the tamarisk dominated floodplain area and restoring a healthy diverse riparian ecosystem will likewise increase the system's capacity to react to the uncertainty that is inevitable in any climate-shifting scenario. By providing a richer seed bank from highly stress tolerant plants, restoration efforts will greatly increase the ability of the riparian corridor to adapt to climate change.

Improved Water Quality. Water quality concerns may be lessened with restoration activities as well. For example, the most important variables affecting selenium and salinity impacts that can be influenced by management actions are vegetative cover and compaction. Proper land use, which includes objectives for increasing ground cover, controlling accelerated gully erosion, and minimizing surface disturbing activities, is the preferred method for achieving salinity control. Additionally, native plants and adjacent vegetation can provide valuable riparian buffers. These vegetative zones serve as a buffer to pollutants entering a stream from runoff, controls erosion, and provides habitat and nutrient input into the river system.

Nonconsumptive Needs. Restoration activities are also known to improve nonconsumptive water needs for the reasons outlined above. Many of the Basin Round Tables and the Colorado Water Conservation Board have recognized the importance of riparian restoration projects in achieving nonconsumptive water requirements for the state.

Costs

There are many factors that can affect the cost per acre for tamarisk and Russian olive removal and restoration, such as tree density, control method, site accessibility, soil characteristics, native plant abundance, and water availability. It is also important to remember that removal and biomass reduction make up only a portion of a comprehensive and successful restoration effort. Revegetation, monitoring, and maintenance are other critical components that must be included in a restoration project. Considering all of these elements, Tamarisk Coalition has *estimated* that overall costs per acre could range from \$700 to \$1450 using techniques such as mechanical removal. Other techniques such as hand removal via chain saw could range from \$2000 to \$4500 per acre. It is important to note that some rivers in the state are remote and often difficult to access, which highly impacts the cost of restoration.

Social Benefits and Stakeholder Engagement

The implementation of riparian restoration projects, especially those relating to the reduction of invasive plants such as tamarisk and Russian olive provide added protection of river corridors, wildlife habitat, and vital waterways. For example, restored riparian corridors are often valued as open space commodities and when well-maintained, help to achieve land and water conservation objectives. Rivers and riparian areas also serve as important recreational areas. Enhancement of riparian areas improves the quality of life for local residents and significantly contributes to visitors' experiences. Several of the rivers in the state that would be targeted for restoration run adjacent to community trail systems and parks, which are used by families and youth for recreation, wildlife watching, and as educational venues. Enhanced stakeholder involvement and investment is an integral component of restoration and local governments are key partners in the implementation of restoration activities. While partners undertake restoration actions for a number of purposes, wildlife habitat protection and improvement for myriad species is a nearly universal end goal. Several State of Colorado agencies have played, and continue to play, an instrumental role in regional partnerships working towards improved riparian areas. In many cases, restoration partnerships employ youth via Conservation Corps programs to carry out the restoration work and to provide important educational and workforce training opportunities.

Capacity

There are currently many entities in Colorado that have been implementing, to varying degrees, tamarisk and Russian olive removal and restoration projects in their respective watersheds. These groups and individuals are poised to effectively implement funding from HB-1006. Given existing frameworks, many of these groups would be able to undertake and manage work on a larger scale, provided additional planning and funding. Other groups may need to expand their internal capacity and/or look to partnering agencies for additional support.

In some cases, work is completed under the auspices of a watershed partnership group, such as the Middle Colorado Watershed Council, the Dolores River Restoration Partnership, the Northwest Colorado Riparian Restoration Partnership, and the Desert Rivers Collaborative, to name a few. Please visit the [Tamarisk Coalition website](#) for more information about these and other groups and the efforts they are undertaking to restore river ecosystems. The comprehensive restoration activities of these groups have a collective and positive impact on water resources and river protection throughout the state. In other instances, projects are spearheaded by individual landowners or agencies.

Many contractors and conservation corps programs within Colorado have extensive experience with tamarisk and Russian olive removal, revegetation and other restoration components. It is anticipated that these existing labor sources would be able to provide labor for a large-scale project pending additional employee recruitment, equipment acquisition, and training.

Funding Scope & Leverage

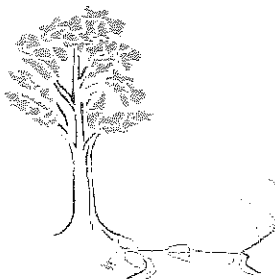
Significant and diverse funding sources are required to successfully implement riparian restoration projects over the course of the project life (from planning and implementation, to evaluation and maintenance). We encourage the scope of funding to include all components of riparian restoration to enable the grant recipients the flexibility and support they need for project success. For example, monitoring (project evaluation) and maintenance of restored riparian areas is essential to ensuring the successful recovery of these river systems and is currently challenging to fund under traditional grant and other funding sources. By building in maintenance and monitoring into the list of funding eligible activities would serve an important aspect for ensuring the long-term stewardship of healthy riparian areas.

The funding provided by HB-1006 has a great potential to bring additional funding resources to the project partners and to the state of Colorado. To date, many organizations and entities conducting riparian restoration have demonstrated a strong capacity to match riparian restoration funding. One example is the Dolores River Restoration Partnership, a multi-stakeholder group taking a watershed-wide approach to restoration, which was able to match seed funding from a foundation 3:1 over the course of 5 years. Another is the Colorado Water Conservation Board grant recipients through the Invasive Phreatophyte Control Program, who matched funding at a greater than 1:1 level. Whether required or not, similar matching results are expected as an outcome of HB-1006.

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