



11/28/2023

Randi M. Kim, P.E.
Colorado River Drought Task Force Representative
Utilities Director, City of Grand Junction
910 Main Street
Grand Junction, CO 81501

Dear Randi,

This letter serves as recommendations from RiversEdge West (formerly Tamarisk Coalition) pertaining to the Colorado River Drought Task Force's draft document, specifically the subsection "Invasive Phreatophyte & Species Removal".

Suggested edits to existing wording in red:

Invasive phreatophytes (deep-rooted, water intensive vegetation like Russian Olive and Tamarisk) and other invasive **plant** species can fundamentally alter stream channels and systems by preventing floodplain connectivity, **changing** sediment deposition, altering the nutrient cycles of riparian areas, and **impacting water quantity and quality**.

Specific Impacts of Phreatophytes such as tamarisk:

- **Accessing more water through deep taproots**
 - Tamarisk roots reach further and deeper compared to native trees and shrubs.
 - This allows tamarisk to persist and thrive in prolonged drought.
- **Using high rates of water**
 - Tamarisk use water at a high rate for growth
 - This high water use in combination with the deep-reaching taproots has the effect of drying up the stream or floodplain.
- **Crowding out native vegetation**
 - Tamarisk reproduces by seed and by cuttings very quickly, which results in dense thickets.
 - Tamarisk thickets block the sun from native species that would otherwise be germinating and growing.
- **Increasing fire frequency and severity**
 - The dense tamarisk thickets are more fire-prone due to more continuous plant material as fuel.
 - Native trees and shrubs in riparian areas recover more slowly post-fire, so tamarisk re-sprouts and recolonizes in another dense monoculture stand.
 - Tamarisk leaves are more flammable compared to native tree and shrub leaves.
- **Decreasing diversity and complexity in riparian systems**
 - When tamarisk is the only species making up the vegetation in a river corridor, the habitat becomes one-dimensional and lacks diversity for all organisms.
- **Degrading wildlife habitat**
 - With a simplified vegetation makeup, the food web associated with that vegetation is

also simplified, leading to a decrease in wildlife habitat quality.

- Channelizing banks
 - Tamarisk colonizes in tight thickets and armors riverbanks that would normally participate in erosion and deposition events.
 - Erosion occurs on the riverbed instead of the banks, which drops the river level and lowers the level of water in the floodplain (also referred to as incising). As a result, the surrounding vegetation changes from wetlands and meadows to dry shrublands.

Long-term Outlook:

Tamarisk is listed as an invasive species in at least nine western states and has established itself so readily that it is displacing native plant species.

The management of tamarisk and other invasive plant species requires a long-term commitment of time and resources. With proper management, in combination with restoration measures (e.g. revegetating with native plants), we can return riverside habitats to a more diverse and functional ecosystem.

Local removal efforts can complement stream or riparian improvements but large-scale efforts to remove these species require effective management across jurisdictions.

The legislature should consider funding a state-wide assessment **of changes in riparian plant communities, the state of riparian ecosystem function and those impacts to water resources** ~~of the water loss and other impacts~~ associated with invasive phreatophytes. **Ultimately, this would support the development of** a state-wide program for ~~eradicating~~ controlling these invasive **plant** species on a larger scale. ~~rather than relying upon small locally based efforts led by non-profit organizations.~~ Further, the legislature should address increasing the Colorado Department of Agriculture's noxious weed removal enforcement program.

Recommendations:

1. Removal of Invasive Phreatophytes are Replaced with Native Vegetation

When invasive plant species such as tamarisk and Russian Olive are removed, these areas should be prioritized for restoration of native plant species. This is a critical component to river restoration as well as reestablishing ecosystem functions for improved ecological, social, cultural, and recreational values.

2. Support Established Watershed Partnerships with Established Restoration Plans

Many of the rivers and streams in Colorado have Watershed Partnerships (public and private collaboratives) which have prioritized areas for removing invasive plant species and replacing with native vegetation. Many of these groups are well-established watershed-based partnerships that are already collaborating on phreatophyte management and riparian restoration. These groups have infrastructure in place (e.g. restoration plans, priority areas for restoration, restoration best practices, governance systems, diverse stakeholders relationships), and have developed social capital within public/private partnerships, currently work with local, state and federal agencies. Most notably these watershed partnerships have existing plans that are paramount for conducting large, reach-scale



removal and restoration projects. These plans identify critical elements such as, enabling conditions for invasive plants and other stressors to native plant communities, actions to address stressors, project sites located and prioritized within a defined time frame, and control and revegetation strategies to be implemented. RiversEdge West (REW) recommends that the establishment of a statewide effort are done cooperatively with these local/regional partnerships. Through this recommendation, designated funding streams for removal and restoration should be developed in a manner that avoids unnecessary delays and provides accessible and flexible avenues for non-federal groups, non-profits, and private landowners to fund implementation of projects in an expedient manner. REW is aware of the following partnerships working within the priority areas previously identified. Others may exist as well.

- Desert Rivers Collaborative (Colorado and Gunnison)
- Dolores River Restoration Partnership (Dolores)
- White River Partnership (White River)
- Middle Colorado Watershed Council (Colorado River)
- Uncompahgre Watershed Partnership and Uncompahgre Partners (Uncompahgre)
- Purgatoire Watershed Partnership (Purgatoire)
- Arkansas Partners (Arkansas)
- South Platte Partners (South Platte)
- Yampa River Partners (Yampa)

3. Support Monitoring, Maintenance and Capacity

In addition to a statewide program that supports the implementation phase of invasive plants species, we strongly recommend this program support the additional planning, monitoring, maintenance, and capacity needs for these projects to be efficient and effective.

Restoration is a process that happens over time, almost always extending beyond the timelines of individual projects. To know if efforts are successful, on the right path or meeting objectives, monitoring is needed. When monitoring is conducted and the data are analyzed over time, we can measure how a site has changed and plan for future removal and restoration projects. All removal and restoration projects need to factor in maintenance for follow up treatments of invasive plants, reseeding, and replanting of native species. These projects are never one and done endeavors, and so resources for maintenance (treatment of invasives, revegetation of natives) will ensure public and private initial funding investment are protected. Lastly, these projects could not be accomplished without the resources to support the capacity and the people get them done. We encourage the program to invest in and support the agencies, organizations, and watershed groups capacity to oversee large scale restoration projects.

4. Funding Process & Mechanisms

REW recommends that funding for removal and restoration be placed in a grant type program, specifically a block grant model for partners working in Colorado watershed over multiple years. This block grant model will allow the funding to be allocated from a state or federal governments to recipients or established groups to be used specifically for its intended purpose of removing invasive



plants species and restoring native habitat. The use of a block grant program would allow localized and/or regional “bundling” of projects which have similar objectives and characteristics, reducing administrative burdens and costs on both the grantee and grantor. We encourage this program to have a low match requirement for grantees, as this is many times an inhibiting factor to grant programs.

Please feel free to contact me if you have any questions about these recommendations. My number is (970) 256-7400 and email is rlloyd@riversedgewest.org.

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