

# **Tamarisk Coalition Mapping Project- South Platte River Data Interpretation**

## **I. Overview**

In the summers of 2005 and 2006, the Tamarisk Coalition developed and implemented a tamarisk inventory survey for the mainstems of each major river system in the state of Colorado. The survey was a collaboration of efforts between the mapping team of the Tamarisk Coalition and several government and private organizations. Local knowledge and previous mapping efforts were used to guide the mapping team in their survey locations. The tamarisk survey was designed and performed by a two person mapping team utilizing GPS and GIS technology.

## **II. Methods**

The Tamarisk Coalition mapping protocols consisted of 7 steps designed to maximize time and cost efficiency in the mapping process, while maintaining an 85-90% degree of accuracy.

1. Prioritize mapping areas by acquiring local land/resource management knowledge of tamarisk infestations.
2. Arrange prior access to private or closed lands when possible for mapping.
3. Systematically map each major river mainstem and tributaries for significant tamarisk infestations.
4. Record the locations of tamarisk using a combination of GPS/GIS technology. Data was also recorded digitally on high resolution aerial photography using remote sensing/photointerpretation.
5. Record attribute data for each infestation including percent cover, average height, accessibility for mechanized removal and a digital photo of each tamarisk stand.
6. Create cartographic mapbooks displaying the infestations on high resolution aerial photography.
7. Utilize attribute data (e.g. acreage) to develop cost-of-removal and water-use models for each mapped area.

## **III. Results**

The resulting outcomes for the Tamarisk Coalition Mapping Project were as follows:

- High resolution map books displaying the infestations in each major watershed
- Full mapping database including GIS shapefiles, attribute data, and digital photos
- Water-use and cost-of-removal estimates for each area mapped
- Collaborative partnerships with resource managers and non-profit organizations in CO (i.e. NRCS, The Nature Conservancy)

## **IV. Limitations of South Platte River Tamarisk and Russian olive Mapping**

Tamarisk and Russian olive mapping on the South Platte took place in July of 2006. The area mapped included the mainstem of the South Platte and the major

tributaries between Ft. Lupton, CO and the CO/NE border. The inventory mapped is a relatively small infestation compared to those elsewhere in CO.

Overall, tamarisk was relatively rare on the South Platte mainstem, which limited the Tamarisk Coalition's mapping methods. Much of the land adjacent to the South Platte is private. There was relatively little response to requests for access to these areas, and therefore a limited survey. In areas that the mapping team was granted access to, little or no tamarisk was observed. Where tamarisk was found, with a few exceptions, there were only a few individual plants or small stands. These infestations were commonly observed near areas of disturbance on the river corridor (e.g. bridge crossings). Small infestations such as these proved difficult to remotely sense and verify on high resolution aerial photography, which was an important tool in the mapping methods.

The major exception to this trend was a large infestation at the confluence of Bijou Creek and the mainstem of the South Platte. This series of tamarisk stands comprised the majority of the area mapped on the South Platte. Total acreage for the Bijou Creek confluence was ~884 acres, compared to < 1 acre for most other infestations mapped. Additionally, nearby reservoirs were checked for tamarisk (Riverside, Jackson, Empire, Prewitt, North Sterling and Jumbo), with little or no results.

Tamarisk mapping was the primary objective of this project; thus, Russian olive locations were not actively pursued. Russian olive stands were mapped solely where they coincided with, or were visible from tamarisk locations. Therefore, the Russian olive inventory included in this data is more anecdotal than comprehensive.

The mapping protocols used in this survey were effective for major infestations on other river systems, but did not allow for a complete survey of the mainstem of the South Platte. The Tamarisk Coalition mapping team estimates there are small stands of tamarisk that they were unable to map due to the time, cost and logistic restraints they encountered.

## **V. Recommendations**

A complete survey of tamarisk and Russian olive on the South Platte River system can be accomplished by a linear survey of the entire riparian corridor. This method would necessitate full cooperation of all land owners (private and governmental) adjacent to the river and tributaries, requiring them to grant full access to these areas. A long prior notice for these owners (at least 6 months) is recommended for an adequate response.

During the tamarisk and Russian olive mapping project on the South Platte, the mapping team also collected data for significant infestations of Russian olive. The Russian Olive was significantly more prevalent than tamarisk in the riparian corridor. Some Russian olive stands were planted (e.g. windbreaks), but others were volunteer stands crowding out native vegetation. While performing a full survey of tamarisk, a data set for Russian Olive could easily be collected as well.

The nature of the small, isolated infestations of tamarisk on the South Platte River provides a unique opportunity to utilize early detection and removal practices to prevent large infestations such as those found on the Arkansas River in southern CO. In some areas, mapping crews equipped with hand tools and herbicide could eradicate small stands on the spot, eliminating the need for a secondary removal operation after mapping.

A prompt and complete action for tamarisk control in the South Platte watershed is possible under the current conditions.