COLORADO
Colorado Water Conservation Board
Department of Natural Resources

1313 Sherman Street
Denver, CO 80203

P (303) 866-3441
F (303) 866-4474

John Hickenlooper, Governor

Robert Randall, DNR Executive Director

James Eklund, CWCB Director

TO: Colorado Water Conservation Board Members

FROM: Carlee Brown, Chief, Interstate, Federal & Water Information Section
Steve Miller, Interstate, Federal & Water Information Section

DATE: November 16 -17, 2016 Board Meeting

AGENDA ITEM: **8. South Platte Phreatophyte Study Update (SB-195)**

Background: SB 14-195 directed the Board to: "*conduct at least the preliminary stages of a comprehensive study to evaluate the growth and identification of phreatophytes along the South Platte River in the aftermath of the September 2013 flood*". Staff has worked with the South Platte Basin Round Table (BRT) to scope the study and review findings. Researchers from Colorado State University (CSU), the Colorado Water Institute (CWI), and the Tamarisk Coalition (TC) are conducting the study.

A final report on the study is due to the General Assembly by December 31, 2016. The required interim report was provided to the General Assembly in May 2016, however no comments were received. The final report is being prepared by the CWI and an initial draft will be available and distributed at the Board meeting. This agenda item is to review study findings as presented by members of the research team, agree on the process for finalizing and delivering the report to the General Assembly, and as time allows begin to discuss next steps. A similar presentation will be given to the BRT on November 15.

Discussion: The study used on-the-ground field sampling, aerial photographs, and remote sensing to inventory woody riparian vegetation along the South Platte and its major tributaries between Ft. Lupton and Julesburg. Efforts to identify vegetative changes caused by the 2013 flood were confounded by exceptionally high flows on the South Platte that occurred in both 2014 and 2015. Using the inventory data cost estimates for various levels of phreatophyte control, weed control and revegetation were developed. As directed, the study will also provide information on the influence of flood-induced groundwater on phreatophyte growth and estimates of consumptive water use by the existing riparian forest along the South Platte River.

Significant findings that will be discussed include:

- Due to human influence, the South Platte River riparian zone has undergone significant changes, including the growth of an extensive riparian forest. These changes began in the 1880s and reached a new equilibrium in the 1940s. Additional channel and forest changes continue to occur.

- The current forest consists primarily of native phreatophytes (cottonwood and willows at 90% of the tree basal area). Approximately 2-5% of the forest is non-native Russian olive, tamarisk presence was negligible, and the remaining forest is occupied by other species.
- The 2013 flood magnitude and duration did not cause groundwater changes that would influence phreatophyte recruitment. Phreatophyte consumptive use estimates developed prior to the 2013 flood are still considered valid.
- Cost estimates by river reach were made for two scenarios: complete removal of all Russian olives and for comparison thinning of 20% of the entire riparian forest, and include various levels of weed control and revegetation. The study takes no position on what the appropriate density of the riparian forest should be. Those costs range from 3.5 to 45 million dollars, with the extent of desired revegetation being the main cost driver.
- Significant data and mapping products have been generated through this study and will be preserved and available for additional follow-up research and planning of future restoration projects.
- The CSU research summary concludes that "It seems unlikely at this point that the last few years of floods and high water have resulted in an outbreak of native or non-native tree species in the study area."

Staff recommendation: Staff recommends that the Board authorize completion and delivery of the final report as follows:

1. Board and BRT members send comments and input on the draft report to CWCB staff through December 1.
2. Staff incorporates all comments into a proposed final report by December 15, and redistributes to the Board and BRT for final review.
3. CWCB Director delivers final report to General Assembly by December 30, 2016.

In addition, staff recommends that the Board direct staff to continue working with the research team and the BRT to develop a plan for future research needs. Upon direction from the Board, staff could begin working with potential local sponsors to develop suitable restoration strategies through the stream management planning process.