



COLORADO

**Colorado Water
Conservation Board**

Department of Natural Resources

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TO: Colorado Water Conservation Board Members

FROM: Jojo La, Endangered Species Policy Specialist,
Interstate, Federal and Water Information Section
Kirk Russell, Finance Section Chief

DATE: July 17-18, 2019 Board Meeting

AGENDA ITEM: 6. Rocky Mountain Fen Research Project

Background:

The CWCB currently provides funding to the Colorado Mountain College Natural Resource Management Program (CMC NRM) to conduct research on the Rocky Mountain Fen. In 2018, \$100,000 of funds were granted to CMC NRM for long-term monitoring (2018-2021) of translocated historic fen-like materials. The following provides an update on the project.

In 2016, CMC NRM partnered with the City of Aurora Utilities Department, Board of Water Works of Pueblo, Army Corps of Engineers (Corps), U.S. Fish and Wildlife Service (Service), and U.S. Environmental Protection Agency to transplant and mitigate fen-like materials. Historic degraded and dewatered fen-like materials were mechanically harvested from the Hallenbeck Ranch (donor site) and translocated approximately 2 miles east of the ranch on the Hayden Homestead (CMC NRM-owned property). The fen-like organic soils and plant life were removed from the donor site in blocks or bales and reassembled in a specially-prepared groundwater-fed basin.

A fen is a special type of wetland whose impacts cannot be satisfactorily mitigated according to Corps and Service guidelines. In Colorado, the unique organic soil formation of fen wetlands took thousands of years. Fen wetlands support biodiverse plant communities serving essential ecological functions including filtering of contaminants in water. The translocation and mitigation of fen wetlands is especially important to water resources planning and development because the presence of fen wetlands increases the environmental permitting regulatory requirements for water projects. Jurisdictional determinations of wetlands are issued by the Corps, and determine whether a water will be regulated under Section 404 of the Clean Water Act. Federal agencies require that fen impacts be avoided to the maximum extent possible and if an impact to a fen is unavoidable, the functions and values of that fen must be replaced. Because of the impossibility of regenerating fen soils within a meaningful timeframe, regulatory and management agencies have determined that fen impacts are unmitigatedable. However, the unmitigatedable status of fen wetlands may be related to the lack of scientific investigation on fen mitigation.

Since 2016, long-term monitoring of the translocated Rocky Mountain Fen has occurred. 2018 data is currently being analyzed for trends on vegetation establishment, hydrology, soil, and water quality to determine the efficacy of the transplantation and mitigation techniques.

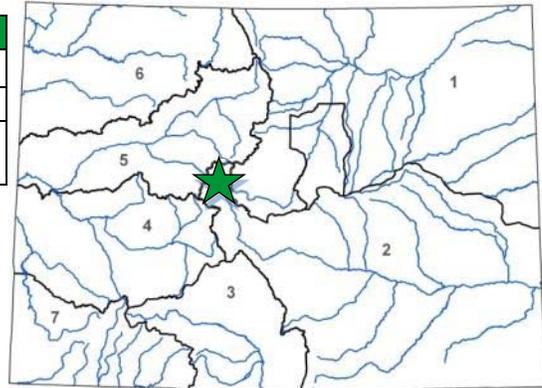
Staff Recommendation:

This item is informational only. No Board action is requested.





PROJECT DETAILS	
<i>Project Cost:</i>	\$100,000
<i>Monitoring Period:</i>	2018-2021
<i>Funding Source:</i>	Non-Reimbursable CWCB Construction Fund and Other



The Colorado Mountain College Natural Resource Management Program (CMC NRM), in partnership with the City of Aurora Utilities Department and the Board of Water Works of Pueblo, is conducting a research project to investigate fen mitigation techniques. A fen is a special type of wetland in which impacts cannot be satisfactorily mitigated according to Army Corps of Engineers and the U.S. Fish and Wildlife Services guidelines. This unmitigated status may be related to the lack of scientific investigation on fen mitigation. Thus, CMC NRM has assembled a technical team to develop techniques to translocate historic, degraded fen-like materials. The technical team includes fen experts, remediation construction representatives, as well as members from the U.S. Fish and Wildlife Service, Army Corp of Engineers, and U.S. Environmental Protection Agency.

LOCATION	
<i>County:</i>	Lake County
<i>Water Source:</i>	Groundwater
<i>Drainage Basin:</i>	Arkansas
<i>Division:</i> 2	<i>District:</i> 11

In 2016, heavy equipment was used to harvest a portion of a historic/hydrologically-altered fen. The degraded fen-like organic soils and plant life were removed from the donor site in blocks or bales to keep the soils and plant life intact. The fen-like materials were transported and reassembled in a specially-prepared basin on Colorado Mountain College property in Lake County, Colorado. The receiver basin was designed to mimic the form and function of natural fen basins.

The project has developed techniques for fen mitigation and translocation of fen-like materials that have already been degraded, dewatered, or in some way damaged. These materials have been protected and monitored to assess the efficacy of the transplantation. For the translocation, approvals to harvest and move the fen were granted by the Army Corp of Engineers, the U.S. Fish and Wildlife Service, the State of Colorado Mined Land Reclamation Board, and Colorado Parks and Wildlife.

CWCB funds have been used to monitor the translocated fen since 2018. Baseline monitoring of the donor site occurred prior to the relocation. After the fen was moved, a rigorous, intensive long-term monitoring program was developed—this is required to determine the success of the transplantation procedure and mitigation techniques. CWCB funds will be used for long-term monitoring of the transplanted fen until 2021.

