

**Dolores River Dialogue**  
**Final Report to the Colorado Water Conservation Board**  
**Field Science and Related Water Policy Issues**  
**Spring 2007**

Funding in the amount of \$20,000 made available by the Colorado Water Conservation Board to advance Dolores River Dialogue field science and related water policy objectives was used to accomplish the following activities and work products:

1. Geo-referenced and ortho-rectified high resolution digital imagery made available by the Bureau of Reclamation.

An additional set of high resolution low altitude photography was taken by Aerial View Photography after the spring 2007 spill. This photo set was added to the pre and post spill photography provided by Bureau of Reclamation in conjunction with the 2005 spill. These photo sets have been geo-referenced and a portion ortho-rectified, in order to map and monitor changes to channel morphology and vegetation along the length of the Lower Dolores River.

The geo-referenced photography also serves as a key component of the GIS foundation that is being developed for the Big Gypsum Study site described in items 3. and 4. below. Samples of the photography and its application to the study site are included in the Big Gypsum Study Site Summary 2007, found on the “Resources” link of the DRD website at <http://doloresriverdialogue.org>. (Attachment 1)

2. Conducted macro-invertebrate studies on three reaches of the lower Dolores River.

In spring 2007 study by B.U.G.S. (Bioassessment Underwater, Stats and Graphs) was completed and summarized in a draft report entitled Benthic Macroinvertebrates Dolores River McPhee to Downstream. Study evaluated aquatic ecosystem health by measuring species composition and species diversity of Benthic Macroinvertebrates at 18 sample sites McPhee Dam to one mile downstream of the confluence with the San Miguel River. Sample results, discussion and recommendations as summarized in the report can be found in the “Resources” link of the DRD website and <http://doloresriverdialogue.org>. (Attachment 2)

3. Continued ecological assessments at the Big Gyp Field Monitoring Site for a second season of baseline and monitoring work to build on the work done in 2006. Continued work on gathering and analyzing data related to the riparian ecology and geomorphology of the site using the permanent transects that are in place and establishing additional random monitoring points.

The spring 2007 field work advances the Study Plan formulated in December of 2005, and established in the field in spring of 2006:

The primary purpose of this study is to field test the findings of the paper presented in *Ecological Applications*, 12(4), 2002, pp. 1071–1087 “ PROCESSES GOVERNING HYDROCHORY ALONG RIVERS: HYDRAULICS, HYDROLOGY, AND DISPERSAL PHENOLOGY DAVID M. MERRITT<sup>1,3</sup> AND ELLEN E. WOHL<sup>2</sup> “. Specifically to use current G.I.S. mapping with high resolution color imagery and the The Five-S Framework for Site Conservation: *A Practitioner’s Handbook for Site Conservation Planning and Measuring Conservation Success* © 2000 by The Nature Conservancy approach to study various spill releases from McPhee reservoir. (Attachment 3)

In 2007 Jesse Lanci of the Fort Lewis College Biology Department worked in cooperation with the DRD science coordinator to establish 100 random sampling points, on 5 defined reaches of the Big Gypsum Study Site. The sample points were established using a GPS Unit, pen flags and three photos at each point which were hot linked using ArchView. Sites for tamarisk treatment were also mapped to support monitoring of responses to experimental tamarisk treatments as described in Activity 4 below.

The Lanci report entitled [Big Gypsum Study Site Summary 2007](http://doloresriverdialogue.org), can be found on the “Resources” link of the DRD website at <http://doloresriverdialogue.org>. (Attachment 1)

4. Evaluated the ecological response from the experimental tamarisk removal completed in 2006 and removed Tamarisk from a second key area in 2007.

Three individual treatment areas have been selected and treated with a variety of methods. All tamarisk locations along the entire length of the study site have been mapped using a “Garmin etrex legend”. This information has been uploaded into our GIS mapping program. Total acres of tamarisk treated are approximately 15-25 acres. Monitoring for changes to channel morphology began in spring 2007 using aerial photography. Examples of this work can be found on the “Resources” link of the DRD website at <http://doloresriverdialogue.org> under the Summary of the Big Gypsum Study Site Summary 2007. (Attachment 1)

5. Critical policy issues on the Dolores River were framed regarding options for providing additional water below McPhee Reservoir for fish inventories in a manner that protects water rights and Dolores Project allocations in conformance with Colorado water law.

A variety of DRD participants and experts were interviewed to frame a set of potential options for providing fish inventory water below McPhee. These options were placed in a framework that allows for the inventory of pluses and minuses that need to be investigated and weighed with regard to each option. This analysis will also contribute to the broader discussion being undertaken by the DRD in the fall of 2007 concerning options for base flow enhancement below McPhee Dam.