

Colorado Water Conservation Board - Fish and Wildlife Grant

COALITION FOR THE UPPER SOUTH PLATTE



Final Report
PO # OE PDA 12000000003
October 7, 2011

Final Report



The most significant water quality issue from a fish and wildlife standpoint in the upper South Platte watershed is excessive erosion that results in both in-channel and bank deposition of sediment, and ultimately causes overwidening of the stream and loss of depth. The deposition directly impacts fish by smothering riffles, or suitable reproduction areas, and filling the deeper pools that are used for overwintering. This deposition also smothers riparian vegetation and habitat that is critical to birds, insects, and amphibians. The loss of depth also causes water temperatures to increase, which can be deadly for trout during the heat of summer. The overall combination significantly reduces both fishery biomass and age/class diversity in this section, which is



Looking up-stream at Sportsman's dam prior to construction

heavily used as a recreation area, and has rippling effects on other species. Due to these issues the Colorado Division of Wildlife and the Pike National Forest requested that the segment be added to the 303d list in the late 1990s, and a TMDL was completed in 2002 to address the elevated sediment pollution along this portion of the South Platte River. Sediment sources identified in the TMDL included roads,

campgrounds, picnic areas, livestock grazing, and other disturbed areas. Unfortunately this report was completed prior to the 2002 Hayman Fire, which added orders of magnitude of increased sedimentation within this stretch.

The South Park Ranger District of the Pike National Forest controls much of the river through this area, which is known as Happy Meadows. The Sportsmen's Paradise property is a residential inholding, with 157 parcels in the subdivision. The area was subdivided as a private fishing club in the late 1950s, and the community acquired water rights in a 1963 decree for a fishing pond adjacent to the river. These rights are delivered by a diversion structure from the mainstem of the South Platte. The community initially built a small rock structure to increase stage in order to run water to the pond, but due to sediment deposition, they continued increasing the height over the years until they had a full dam across the river. The dam was not engineered, and is perpendicular to the channel, so it has continued to accumulate and deposit ever-larger quantities of



Beginning to remove the dam and redevelop the diversion

sediment behind it, and upstream onto national forest lands. Following the fire, two smaller dams on Vermillion Creek blew out due to fire-related debris flows, adding large volumes of excessive sediment below the mainstem dam through the club's property, and downstream onto the National Forest lands below the property.



Jeff Crane, of Crane Associates, and Pete Gallagher, of Fin-Up Habitat Consultants, were joint design contractors for this project. Here, Crane directs the equipment operator from Chaparral Construction in beginning to remove the dam.

In 2008, South Park District personnel requested the Coalition for the Upper South Platte's (CUSP's) assistance in finding funding and implementing a



Prepping the hole for the new diversion structure. (Jeff Crane checking elevations in the hole, Pete Gallagher at left on bank, and Justin Jameson of Chaparral at right.)

project or a series of projects to address the sediment. At about the same time as the Pike personnel contacted us seeking assistance the Sportsmen's Board of Directors contacted CUSP to inquire if we could assist them. Based on these requests, we were able to build a great cross-boundary project that addresses needs of both the private landowners and the public lands managers. CUSP successfully applied to the CDPHE 319 Nonpoint Source Program and the Park County



Above and left: forming and pouring the new diversion. Finished diversion, fed by a double cross weir (below), which is designed to be able to deliver water in all flow regimes.



Land and Water Trust Fund for two large grants to go toward implementation (with earlier planning assistance from CWCB, Park County, and the South Platte Enhancement Board, who all contributed smaller grants to aid us in the early planning phases of the project).

In 2011 we were finally able to begin the actual implementation of the first phase of restoration, which includes redeveloping the diversion and performing the river restoration immediately upstream of the dam on national forest lands and through the Sportsmen's portion of the area.

Work began on the project on August 30th, with equipment mobilization and collection of rocks and trees from the Sportsman's property. Denver Water and Aurora Water took flows down beginning September 1st to a low enough level for work to begin in the stream. The first order of business was to remove the existing dam and redevelop a new diversion structure that served the Sportsman's needs while meeting ecological goals. For me (CUSP Executive Director, Carol Ekarius) this was one of the most special days of my career. To actually see a problematic dam removed and a new diversion developed that met the owner's needs, yet allowed free fish passage and proper hydrologic function, was a really a great feeling. The sediment field that had built up behind was stabilized with large wood, and is being revegetated.

By mid-September the diversion area work was complete, and work began in earnest on the river restoration and riparian habitat work through the Sportsman's portion of the river, and on the first 1,500 feet of river upstream from the dam (the rest of Happy Meadows will be completed in 2012). Restoration treatments were designed based on both WARSSS and Hec-Raz models for this portion of the river. Treatments were installed to reduce the width of the channel and increase the depth, and include j-hook veins and cross-weirs, as well as habitat trees. Several islands were removed or were redeveloped into small peninsulas with backwater pools for habitat.



Narrowing the stream back up just above the dam site, where it had over-widened over decades and threatened the road. On left, filling, on right replanted with sedge and willows.

Property owners from Sportsman's and other volunteers (from local schools and Trout Unlimited) have come out to help with seeding, willow planting, and social-trail obliteration in the treated reach. To date, volunteers have completed 562 hours, and will continue to work with us in the coming months and years.



Trout Unlimited member planting willows.

Pre-project monitoring included collection of cross-sections and longitudinal profiles, pebble counts, benthic samples, and fish shocking, establishment of photo points, and mapping weeds. Post-project monitoring will be performed in the future to assess overall project success.

LESSONS LEARNED

This was the first time we did a project of this nature with a subdivision rather than a single private landowner, and that added some communication challenges. We worked closely with the the HOA board of directors and the HOA's "fish committee," and attended three different community annual meetings, but as work began, a few property owners who had not engaged during our earlier outreach, and who didn't know about the project became concerned. We were able to review plans with them, and explain exactly what we were doing and why, and they decided the project was a good thing, but it made for a few harried days. If we were planning one of these projects again in the future I would do a bulk mailing to each property owner's primary residence when we put the plans online, explaining about the project and telling them where they could review plans, and who to contact with questions.

This is also the first time we had two design contractors working together, but I felt that was an important component due to the complexity of the project, and the high visibility in this area. It cost us a bit extra, but I'm actually very happy with the decision. This provided us with additional security, and the two contractors worked well together, treating the opportunity to work together as a great learning experience.

This particular project did remind our staff that patience is a virtue: we began planning in 2007, so at times it started to feel as if the project might never actually get off the ground, but by its very nature (cross-boundary, multiple landowners, water rights concerns, heavily-used public recreation area, etc.) it needed plenty of time to stew before it was ready to bite into.



Looking upstream, where the dam once blocked the river. The cross-weir in the foreground guides the thalweg into the middle of the area as the water flows under a bridge.

FINANCIAL SUMMARY FOR THIS REPORT

OVERALL

Description	\$
Grant Funds Requested With This Invoice	\$75,000.00
Match With This Invoice	\$315,400.00
Total Project	\$390,400.00

BUDGET

Tas k	Description	Target Start Date	Target Completi on Date	CWCB Funds	Sports- man's Cash	CUSP	CDPHE	Park County Cash	Sports- man's In- Kind*	CUSP In- Kind*	Total
1	Planning & Development		7/1/11							\$88,000	88,000.00
2	Instream Work	1-Aug-11	Oct 1 2011	\$75,000	\$15,000		\$62,000	\$50,000	\$15,000		217,000.00
3	Riparian Habitat Work	1-Aug-11	Oct 1 2011				\$23,000		\$5,000	\$8,000	36,000.00
4	Trail Work	1-Aug-11	Oct 1 2012			\$8,000				\$8,000	16,000.00
5	Monitoring Effectiveness	1-Aug-11									0.00
6	Reporting	1-Aug-11									0.00
7											
	TOTALS			\$75,000	\$15,000	\$8,000	\$85,000	\$50,000	\$20,000	\$104,000	\$357,000

NOTE: TASKS ESTABLISHED IN THIS TABEL WERE SET TO AGREE WITH 319 GRANT SCOPE... MONITORING AND REPORTING FOR 319 IS OVER NEXT TWO YEARS, AND IS BEYOND THE SCOPE OF THE CWCB PORTION, BUT CUSP WILL PROVIDE ADDITIONAL REPORTS AND MONITORING INFORMATION TO CWCB F&W GRANT MANAGER AS THEY BECOME AVAILABLE.

ACTUAL COMPARED TO BUDGET

Tas k	Description	Target Start Date	Completion Date	CWCB Funds	Sports- man's Cash	CUSP	CDPHE	Park County Cash	Sports- man's In- Kind*	CUSP In- Kind*	Total
1	Planning & Development		7/1/11							\$97,188	97,188.00
2	Instream Work	30-Aug-11	Oct 1 2011	\$75,000	\$15,000	\$11,192	\$62,174	\$50,000	\$20,520		233,886.00
3	Riparian Habitat Work	30-Aug-11	Oct 1 2011			\$12,086	\$23,000		\$6,540	\$13,100	54,726.00
4	Trail Work	30-Aug-11	Oct 1 2012							\$4,600	4,600.00
5	Monitoring Effectiveness	30-Aug-11									0.00
6	Reporting	30-Aug-11									0.00
7											
	TOTALS			\$75,000	\$15,000	\$23,278	\$85,174	\$50,000	\$27,060	\$114,888	\$390,400

EXPENSE BREAKOUT

Task	Description	Target Start Date	Completion Date	Fin-Up	Crane Associates	Chaparral Construction	CUSP Staff	Materials & Supplies	Volunteers	CUSP pre-project expenses	Total
1	Planning & Development		7/1/11							\$97,188	97,188.00
2	Instream Work	30-Aug-11	Oct 1 2011	\$17,831	\$11,160	\$188,078	\$11,192	\$34,385	\$2,835		265,481.00
3	Riparian Habitat Work	30-Aug-11	Oct 1 2011	\$5,000			\$8,085	\$2,800	\$6,498		22,383.00
4	Trail Work	30-Aug-11	Oct 1 2012				\$4,001		\$1,347		5,348.00
5	Monitoring Effectiveness	30-Aug-11									0.00
6	Reporting	30-Aug-11									0.00
7											
	TOTALS			\$22,831	\$11,160	\$188,078	\$23,278	\$37,185	\$10,680	\$97,188	\$390,400