

FINAL NARRATIVE REPORT

BACKGROUND AND OVERVIEW

The Black River, located in Alcona County, drains directly to Lake Huron and supports one of the last populations of migratory brook trout in Michigan's Lower Peninsula. In 2007 Huron Pines staff and volunteers from the Alcona-Black River Watershed Coalition inventoried road/stream crossings within the watershed and identified 39 sites. Of those the Sucker Creek Road/Black River site was ranked as the highest property site for restoration because of the severely perched and undersized culverts and high sediment load from the sandy approaches.

The purpose of the project was to replace twin 5' diameter perched culverts with a single-span structure to open nearly 18 river miles for aquatic organism passage. In addition the steep, long, sandy approaches contributing 72 tons of sediment/year to the river would be hardened and appropriate diversion outlets would be installed. Both of these project goals were accomplished. The twin culverts were removed in November 2012 and a 32' long by 54' span by 9.3' rise 3-span timber bridge was constructed. This greatly increased the flow capacity under the road and allowed for uninhibited fish and other aquatic organism movement. In addition, eight stone-lined turnouts were installed along the approaches to convey runoff into the ditches and prevent sediment from entering the river. The road was reshaped and widened and over 1,300 tons of crushed limestone was placed on the approaches to reduce sediment loading to the river. Guardrail was installed along the embankment for safety reasons. The project was completed as planned. The project was successful because of strong partnership between Huron Pines, Alcona County Road Commission, project engineer, resource partners and funding entities working together to accomplish this highly-impactful project.

OUTCOMES

The intended outcome were to increase aquatic organism passage while reducing sediment loading to the Black River. Both of which will make for a healthier river system. These were achieved with the new bridge and road work that was done. Additionally, the original crossing washed out frequently creating maintenance issues for the road commission and safety concerns for those travelling. The new crossing has greatly improved both transportation safety and will result in reduced maintenance costs.

Huron Pines worked closely with project partners, area residents and the local community to ensure everyone understood the reason why the crossing was being replaced. The adjacent landowners were very supportive of the project even though it resulted in detours for them while the new bridge was being constructed. Haynes Township was also very supportive and contributed \$10,000 to the project. Through this large-scale project we were able to build upon the relationship we have with the Alcona County Road Commission and are currently replacing two other crossings in the county.

The impacts on the Black River caused by the Sucker Creek Road crossing were no different, in terms of the physical changes to the stream, as any dam or poorly designed road crossing. The elevation of the culvert setting was incorrect and the capacity of the existing tubes did not allow for proper flood conveyance. The expected impacts of a crossing like this – interruption to sediment transport, division of

stream grade and plunge pool – were captured through a longitudinal profile survey, where each dominant streambed feature was captured.

After the project was completed and the old, poorly designed crossing was replaced with a timber bridge, a follow up stream profile survey was conducted to capture changes to the streambed precipitated by the project. In order to allow the changes to take place, Huron Pines staff allowed for nearly one year of time to pass after construction, including the high water season in spring, before completing the post construction survey. To document the scope of the changes, project staff from Huron Pines conducted a rod and hand level survey of the stream both upstream and downstream of the crossing until it was evident we were outside the zone of influence of the structure.

Changes at the crossing, in terms of the longitudinal profile, were quite pronounced. Beyond the result of reconnecting the stream mileage by removing the perched culvert, stream dynamics were also restored. Most notably, sediment movement has been reestablished. This is evident by analyzing the pre and post construction profiles. From the crossing upstream to nearly 75 feet, the sediment that was impounded by the old crossing has mobilized downstream. In doing so, it has a new riffle/pool sequence just upstream of the new bridge. In this reach, the slope of the stream has been restored to a more natural 0.95%, whereas prior to the replacement, the streambed actually rose up to the culverts (-0.25%). Upstream of the zone of influence from the old crossing, stream grades were 0.86%.

In the downstream direction, mobilized sediment has also begun to renaturalize the stream slope. Initial deposits have filled in the former plunge pool. There is still a pool present, though it has shifted downstream and is more consistent with other naturally occurring pools in the Black River when it comes to average depths and lengths. Slope downstream of the crossing has also lessened, as appropriate with the reduction in “flashy” energy pulses caused by the velocity spikes at the old culverts. The new slope of the downstream bed is 1.03%, though this is expected to decrease a bit more as sediment continues to trickle through the system.

What was encouraging throughout the project is that upstream and downstream 500 feet, no significant changes in the streambed, form, or bankfull widths were detected. This shows that restoring the stream function at a site that was seen as severely interrupted, can be accomplished in close proximity to the project site. Meanwhile, in completing the project and restoring stream function locally, the improvement in connectivity of the habitats for passage of aquatic organisms and the new habitats to which they now have access is profound.

The habitat benefits of opening the river is truly significant. The Black River is one of the few river systems in Northern Lake Huron that does not have a large dam near the mouth of the river. It receives a significant spawning run of steelhead, salmon and coaster brook trout and removing the road/crossing barrier opens up nearly 18 miles for migrating fish. It also provides more habitat used for foraging and nursery/rearing grounds for juvenile fish. In addition to the habitat benefits, being able to complete a large-scale restoration project such as this one in an economically depressed county is a very beneficial outcome. This project had strong support from natural resources experts, county road commission and local community. This success has also lead to other similar projects taking place in the county which will also result in improved river habitat.

RELATED EFFORTS

The installation of the timber bridge is part of an effort to improve the overall health of the Black River Watershed. Because of the scope of work and cost, nearly \$400,000, multiple funding partners were involved. Funding for this site includes:

U.S. Forest Service-American Recovery and Reinvestment Act	\$165,000
U.S. Fish & Wildlife Service-Great Lakes Basin Fish Habitat Partnership	\$90,500
Great Lakes Fishery Trust	\$60,000
Alcona County Road Commission	\$36,000
U.S Fish and Wildlife Service-Fish Passage	\$24,500
Haynes Township	\$10,000
Great Lakes Fish and Wildlife Restoration Act	\$10,000
Michigan Fly Fishing Club	\$3,000
Total	\$399,000

Momentum for the watershed continues to grow. Additional funding from the Great Lakes fishery Trust and U.S. Fish and Wildlife Service-Fish Passage Program will result in 4 other priority crossing to be replaced in 2014 and 2015 in the Black River System.

COMMUNICATIONS/DISSEMINATION

A project summary is available on the Huron Pines [website](#). We also circulated several eNews articles reaching nearly 2,000 people and provided updated status reports. Several project updates were also created and shared with partners and local leaders.

Staff attended the 2012 Great Lakes Conference and were asked to speak about working with local road commission and this project site was used as a case study. The installation of the timber bridge was also deemed as a [Great Lakes Restoration Success Story](#) by the Healing Our Waters Coalition. In October, staff will participate in a 2-day public tour of Alcona County and the Black River/Sucker Creek road crossing replacement is a featured stop.

In any article or presentation the funding sources and partners were acknowledged, punctuating the importance of strong partnerships to accomplish highly impactful restoration projects.

REFLECTIONS

The project work was completed as planned. There were a few unanticipated hurdles to overcome during installation of the timber bridge, like large cobble found when pile driving. However those issues were quickly overcome by all partners working together and Huron Pines providing effective project management. The community support for the project was also an unanticipated benefit. The adjacent landowners were very supportive, allowed Huron Pines staff to access their land and allowed the road commission to stage their equipment as well. The local township contributed funds to the program and the local road commission also provided matching funds. This project was funded in part by the American Recovery and Reinvestment Act through the U.S Forest Service and Huron Pines is receiving a regional award in part for completion of the this project.

With a large-scale project like this one with multiple partners and funding sources it's very important to have a dedicated project manager responsible for meeting deadlines, maintaining fiscal responsibility, coordinating efforts of partners and solving problems. It's also important to work with a diverse set of partners because building network not only helps complete the project but provides a structure for future habitat improvement work.