

2009/10 FINAL REPORT

FSWP File Number*	FSWP 09 D HWRS 18
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* Please use the FSWP File Number provided in previous FSWP project correspondence.

1. Project Information

1.1. Project Title			
Evaluation of restoration activities on the Horsefly River Riparian Conservation Area			
1.2. Proponent's Legal Name			
TLC, The Land Conservancy of BC			
1.3. Project Location			
Horsefly River Riparian Conservation Area			
1.4. Contact for this report			
Name: Barry Booth	Phone:250-564-2064	Email:bbooth@conservancy.bc.ca	
1.5 Funding Amount			
Original Approved Grant Amount:	Total FSWP Expenditures:	Final Invoice Amount:	Final Non-FSWP leveraging, including cash and in-kind:
\$13,100	\$13,100	\$2620	\$16,579.02

2. Project Summary

Please provide a single paragraph describing your project, its objectives, and the results. As this summary may be used in program communications, clearly state the issue(s) that were addressed and avoid overly technical descriptions. Maximum 300 words.
<p>This project had three separate, but related components. The first was to develop an evaluation and monitoring plan to assess past and present restoration on the Horsefly River Riparian Conservation Area (HRRCA), a 300 ha property owned and now managed by TLC. This was accomplished by refining the photo monitoring project that was initiated in 1999 and establishing a number of permanent empirical sampling plots that were associated with each newly established photo points. The second part of this project was to evaluate three large construction projects that were undertaken between 1999-2007. These were where examined with the help of professional engineers and a restoration ecologist to determine what intervention, if any, is required on each of these projects. The last part of this project involved the refinement of a GIS mapping project that was initiated 2007. At this time, TLC began to construct that a mapping project that digitized the polygons originally delineated by Richard Case as part of an overview of the entire HRRCA. This year we wanted to ground-truth as many of these polygons as possible to further refine this mapping effort in order to improve our ability to manage present and future restoration efforts.</p>
<i>OPTIONAL</i> Please give a short statement (up to 100 words) of the most compelling activity or outcome from your project.

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3.Final Project Results and Effectiveness

3.1 Copy EXPECTED OUTCOMES from your detailed proposal and insert into this section. Add additional rows as needed. Then please list the FINAL OUTCOMES (the tangible end products resulting from this work) associated with expected outcome.

If FINAL OUTCOMES differ from the original EXPECTED OUTCOMES please describe why, and the implications for the project.

EXPECTED OUTCOMES	FINAL OUTCOMES
Rigorous photo monitoring and empirical sampling protocol established. Clear and concise summary of photo monitoring plots from 1999-2009. Empirical data collected and summarized	All of the relevant previous photos from past years have been retaken. Photo point animations were completed for 6 photos. A total of 23 photo locations totaling 68 photo points were established. These were purposively located in order to effectively monitor vegetation growth. Thirty-seven (37) fixed area plots and forty-three (43) shrub intercept transects were established at these photo locations (at least 1 fixed area and 1 shrub intercept at each photo point).
Clear understanding of status of restoration efforts and increased effectiveness of future restoration initiatives as a result of Outcome #1	The above will inform this objective. We do have a much better understanding some of the sites that have not had active restoration on them since 2001.
Reports for three major projects completed with implementation plans for mitigation completed if mitigation is required	I was able to get help from DFO at three of our major projects. Mitigation was completed for one site, further work is planned for a second this spring, and the third will require closer examination before any mitigation is conducted.
Updated GIS mapping project resulting in increased effectiveness in tracking restoration efforts and needs	I visited the majority of polygons on the HRRCA. Data have been recorded on aerial photos and is being transferred to the GIS database.

3.2 Please evaluate the EFFECTIVENESS of your project in achieving Project Objectives. Please identify the indicators you have used to measure the effectiveness of your project. Please include any notable successes or challenges.

In many ways this was an incredibly successful project. I was able to explore almost the entire HRRCA. Permanent sampling plots (photo, fixed area, and shrub intercept) were established in all areas where restoration work has been initiated. I was also able to re-photograph all of the original photos that pertained to relevant areas on the HRRCA. This level of examination and evaluation will be incredibly valuable for future restoration efforts on this site.

The use of photo point animations was not as successful as anticipated. This was due to the fact that: a) photos were taken using different focal lengths between years, b) photos were taken from different locations between years because there were very few permanent markers for the location of points, and c) not all photos were taken in each year. As a result, it was difficult to find a series of photos to

examine using this technique. Nonetheless, I was able to construct 6 animations that both illustrates the change and/or lack there of, at sites that were subject to restoration work and those that have naturally regenerated.

One of the most challenging, yet important aspects of this project, was the examination of the major restoration projects that were initiated in 1999-2001. Arranging site visits to these locations with DFO engineers was very difficult due to their very busy schedules. I am very grateful that Judy Hillaby from DFO acted as my point person on this aspect of this project. She worked tirelessly in coordinating sites visits and reviews of these projects. Without her assistance, I would be no further ahead in diagnosing the issues at these sites. In addition, she was also able to secure funds for the mitigation of the debris catcher site, one of the most problematic of these projects. She was also instrumental in conducting the fish sampling at the rearing channel.

3.3 REQUIRED: attach all DOCUMENTATION of Final Outcomes, and LIST attachments here. These may include technical reports, maps, photos, evidence of communications, lists of meeting participants, etc.

TLC report on 3 projects final.pdf
TLC detailed photo point summaries.pdf
TLC back channel photo point summaries.pdf
TLC original photo point summaries.pdf
TLC photo point animations.ppt

3.4 Please describe how the benefits of this project will be sustained and/or be built upon into the future. What are the planned next steps, or recommendations for further work, if applicable?

One of the most reveling aspects of this project was how much time was required to initially establish the photo and empirical monitoring sites. Now that these are established, they will be revisited every 2-5 years at far less cost than this initial project. Empirical sampling will be repeated on a similar time frame. One or two more additional photo points will be established, but at an earlier time due to the over-whelming influence of reed canary grass. In there locations planted hawthorn are doing reasonably well, but the amount of reed canary grass in this area in July/August was such that photos taken at the time we were working would have been ineffective monitor their change in growth.

This exercise also illustrated that it is very difficult to construct photo point animations after the fact. It was very difficult to replicate photos taken in the past without knowledge of the type of camera and lens used. To this end, I have noted the focal length and exposure settings for each of the photos that I took this season. I have also established permanent markers at each photo point location.

In terms of the major projects, we need to seek funds to further sample the rearing channel in order to ascertain whether Coho fry are actually becoming trapped at the head cut (please see attached document). I have been in contact with researchers at UNBC to explore the idea of using a student on this project. I will continue to work with UNBC, the high school in Horsefly, and with Judy Hillaby on this project.

3.5 What are the top three lessons learned from this project that could be useful to communicate to others doing similar work in the Basin?

1. While time and energy consuming, monitoring is critical to restoration work

2. One has to be prepared to modify methods to meet specific needs

3. Partnerships are of vital importance to overall project success