



HABITAT
CONSERVATION TRUST
FOUNDATION

Evaluation of Project #0-451

**BC/TNTBC Joint Conservation Land Management Program
2016-17 Thompson-Okanagan Region**



June 2018



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Thompson-Okanagan Region 2016-17

1. INTRODUCTION	3
2. GOALS & OBJECTIVES	4
3. SCOPE	4
4. METHODOLOGY AND APPROACH	5
5. RESULTS AND DISCUSSION	6
5.1 Financial Review	6
5.2 Field Component of Evaluation	10
6. SUMMARY AND NEXT STEPS	10
7. ACKNOWLEDGEMENTS	11

Appendix 1: O&M Guiding Principles

Appendix 2: Field Evaluation Report - *Evaluation of Operations and Maintenance Activities Undertaken on Selected Conservation Lands in the South Okanagan.*

1. Introduction

The Habitat Conservation Trust Foundation (HCTF) provides annual funding to Province of British Columbia for operations and maintenance (O&M) costs on conservation lands, mainly those administered by the Ministry of Forests, Lands, Natural Resource Operations & Rural Development (FLNRORD). The Province subsequently transfers a portion of this grant to The Nature Trust of British Columbia (TNTBC) for the purpose of carrying out the land management activities identified in their jointly-submitted application, as approved by the HCTF Board. TNTBC is a non-profit land conservation organization that leases some of their properties to the Province. The program is made up of three funding envelopes with different sites being eligible for the various funding envelopes, as shown in Table 1 below.

Table 1: Funding Envelopes included in the BC/TNT Joint Conservation Land Management Program

Funding Envelope	Eligibility	Source	% of total, 2016-19 Cycle
Conservation Land Endowment (CLE/TNTBC)	Land owned by TNTBC and leased to the province	Interest generated on \$6M of an endowment provided to HCTF by the Province	43%
Conservation Lands Operating Account (CLOA)	Land included on the eligible sites list, including land leased to the Province from TNTBC, and land owned and managed by TNTBC or FLNRORD	Interest generated on an endowment, with funds from the Province (\$3.5M) and HCTF surcharge contributions	31%
Land Management Revenue	Land owned and managed directly by FLNRORD.	Revenue generated on Conservation Lands, e.g. range tenures, movie filming fees	26%

The inaugural three-year cycle of the program began in April of 2013, when HCTF approved \$570,000 annually for operations and management activities on approximately 100 properties in eight regions of the Province. This amount increased to \$617,500 per year for the 2016-19 funding cycle.

The program was developed with a set of guiding principles which are included as Appendix 1. This evaluation is in part to confirm that the program is living by the guiding principles set out for the program. This report summarizes the results of the evaluation looking at expenditures for the 2016-17 fiscal year in the Thompson-Okanagan region.

2. Goals & Objectives

The goals of this evaluation are to ensure that money invested in the program resulted in tangible outcomes on conservation lands consistent with the approved plan, and was used in accordance with the program's administrative guidelines. The more specific objectives of this evaluation are as follows:

1. Conduct a financial audit of the total expenses reported per site in the Thompson-Okanagan region's 2016-17 project report to determine: the figures are accurate and in agreement with the program's *Eligible Activities List*; activities were undertaken on an eligible site included in the proposal; and expenses were charged to an approved funding envelope for the site.
2. Conduct a field evaluation of the activities to determine whether the short term outcomes were met as reported in the 2016-17 Thompson-Okanagan report.
3. Evaluate the cost effectiveness of expenses given the outcomes reported, as per the O&M program guiding principles (Appendix 1).
4. Recommend any potential improvements to the program, for consideration under the next funding cycle (2019-22).

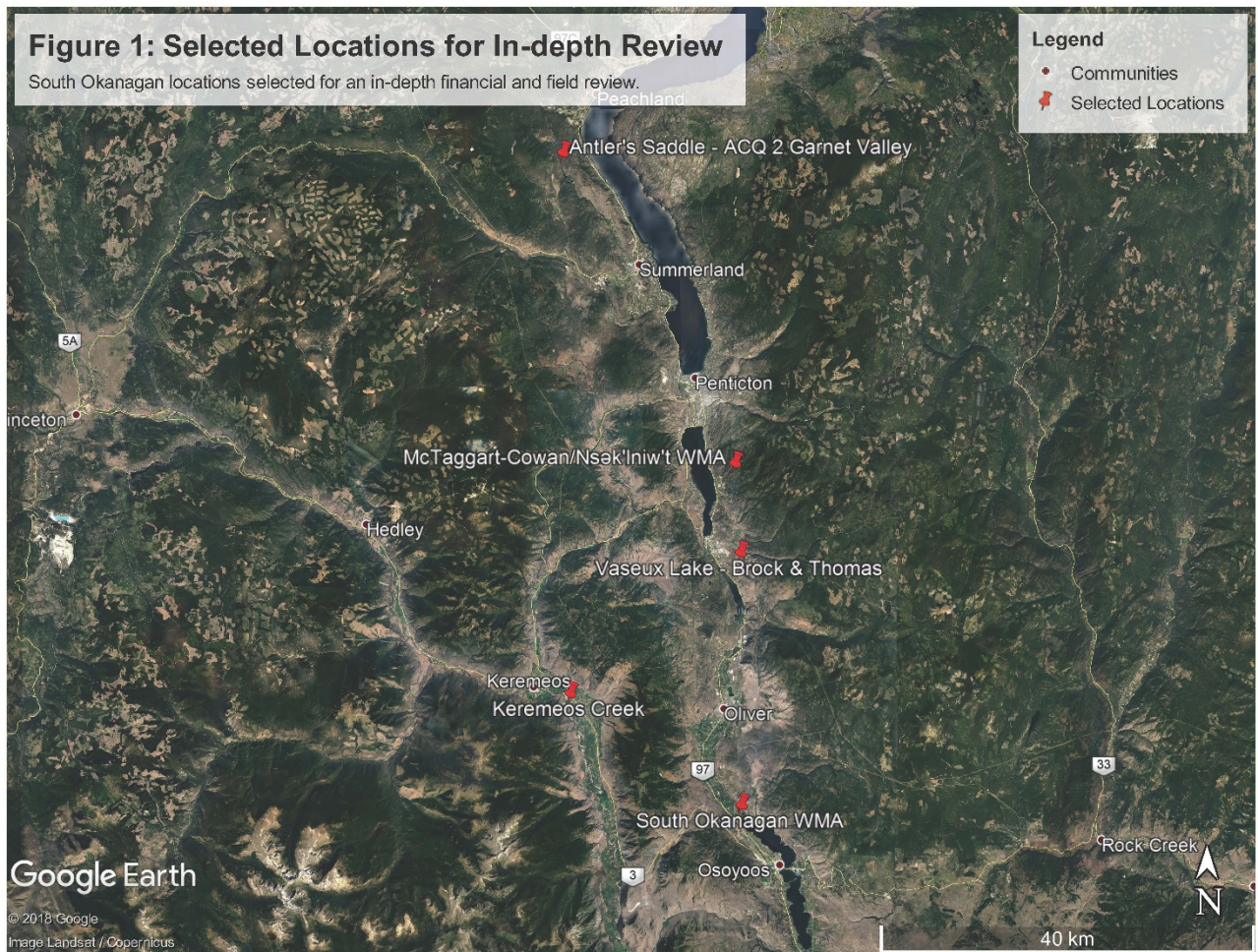
3. Scope

This report focused on expenditures and outcomes included in the Thompson-Okanagan region's 2016-17 report. HCTF requested and reviewed expenditures for the entire region and compared the actual expenditures to the amounts included in the Outcomes Report. After reviewing this information, we selected four properties for an in-depth financial and field review. The properties selected were as follows:

1. Keremeos Creek
2. Vaseux Lake – Brock & Thomas
3. Antler's Saddle
4. South Okanagan Wildlife Management Area (SOWMA)

A fifth site, McTaggart-Cowan/Ns?k'Iniw't WMA, was selected when it was determined we would be unable to visit Antler's Saddle due to wildfire activity in the area.

The sites were selected primarily as they had the largest spending for sites in the region. Other factors included the size of individual invoices and proximity to each other for ease of evaluation. We also chose two sites primarily managed by TNTBC and two sites primarily managed by FLNRORD. The fifth site was chosen because of the close proximity and also because it was replacing a FLNRORD managed site with another. The locations of the properties are illustrated in Figure 1 below.



4. Methodology and Approach

The evaluation included a detailed review of expenditures for the region as a whole, with a further financial and field review of select sites. The Thompson-Okanagan region was chosen for the 2nd evaluation of the BC/TNT Joint Conservation Land Management Program, primarily because it has the third largest budget of all regions after West Coast and Kootenay Boundary which was reviewed in 2015. The first step in the evaluation was to request a breakdown with detail of financial expenditures for all charges to the program. Reports were received from TNTBC and FLNRORD with general ledger reports of all invoices charged to the program, and which funding envelope was charged. Also received was a report on the summer student crew activities on TNTBC properties and a tracking sheet of Land Manager time spent per quarter. All the information received was compared against reports received to determine if reporting was accurate. Once this information was compiled, any discrepancies against reporting were noted for discussion. All charges were also checked to ensure the correct funding envelopes were accessed depending on site eligibility under the program guidelines. All sites were also checked to ensure they were included and background plans approved in the proposal.

After reviewing the financial information and reporting, four sites were selected for further financial and field review. The sites were selected primarily based on the amount of spending at the site or if there were any large charges in particular. Two sites with spending by FLNRORD, and two with spending by TNTBC were selected. An additional site administered by FLNRORD was added shortly before the field visit due to wildfire impacting the visit to the initial site. All invoices charged to the program for these sites were requested and received, and labour charges compared in detail against the reporting. Field visits on the selected sites were undertaken on September 19th and 20th, 2017, and attended by both Christina Waddle (HCTF staff), and Gary Tipper (HCTF contractor), accompanied by Nick Burdock of TNTBC for Keremeos Creek and Vaseux Lake, and Josie Symonds of FLNRO for SOWMA and McTaggart-Cowan/Ns?k'Iniw't WMA. Since we could not visit Antler's Saddle, FLNRO staff provided an office presentation on the work completed. The goal of the field visits was to determine whether the outcomes of activities was as described in the report. Gary Tipper completed a full report for the field review, including an evaluation of cost efficiency by comparing the cost of the activities and against benchmarks for similar work completed (where possible).

5. Results and Discussion

5.1 Financial Review

5.1.1 Eligible sites

Sites that are eligible for spending under this program must be on the Eligible Sites List and be included in the approved proposal with a background plan. All sites with spending reviewed were eligible under the program; however, there was one site with a minor amount of spending which was not included in the proposal (no background plan). This site was Ginty's Pond which is owned by Southern Interior Land Trust (SILT) and leased to FLNRORD where payment for a property sign was charged to the program. This cost was included in the report as part of the site total for the South Okanagan Wildlife Management Area. The cost was relatively small, \$270. Future instructions at the proposal and recording stage will highlight that in order for sites to be funded, they must be included in the proposal with an approved background plan.

It was also noted that there was no background plan on file for the Skull Mountain property. There was no spending at this site in 2016-17, but there is spending planned for 2017-18. A plan has now been submitted.

It was noted that the Skaha Lake property was included as a separate site in the proposal, despite being part of the McTaggart-Cowan/Ns?k'Iniw't WMA which also has a separate background plan. In other regions, TNTBC leases that are included in a WMA are not included as separate sites in the proposal; however, it may be more straightforward to keep them separate since they are eligible for different funding envelopes.

5.1.2 Funding Envelope Eligibility

All sites funded in the region accessed appropriate eligible funding envelopes, with one concern noted. The Vaseux Lake - Brock and Thomas complex has four parcels, and only one is leased to the province (9% of the land base). All the funding used for this complex was from the CLE envelope for lands leased to the Ministry, \$8,300 reported for 2016-17, roughly 20% of the total CLE spending for the region. This was discussed with TNTBC staff and the Project Leader, Karen Wipond. A lease was in place at one point in the past, and a land swap occurred and lot lines re-drawn, and no lease was reinstated. A new lease document has been produced, received legal review from both parties and since 2015 is awaiting to be signed off by TNTBC/FLRNORD. This issue needs to be resolved and eligibility for the site confirmed.

5.1.3 Eligible activities

All activities undertaken in the region were reviewed to ensure compliance with activities listed on the Eligible Activities List. All activities were deemed to be in keeping with those on the Eligible Activities List, with one possible exception. There was one charge for coffee and snacks for volunteers/partners for the ecological restoration project collaboration opening at the Antler's Saddle site, a FLRNORD managed site. The amount was minimal (\$62.27) and could be argued as an expense associated with "Managing human activities on these lands – management activities associated with community education regarding the purpose of the lands and the value of the natural assets, and trespass management."

5.1.4 Reporting

The HCTF instructions for completing the O&M Outcomes Report request that rows for any new unplanned activities are highlighted green, and any planned activities not completed highlighted red. This allows for easy review of any new unplanned or uncompleted activities. The Thompson-Okanagan report highlighted all cells that were completed in green, rather than just any new activities. Note that mistakes in following the directions on the O&M Outcomes report form are common across regions. There were some variances between the reported site expenditures and the totals calculated for each site based on invoices and labour charges information provided. The table below summarizes the total calculations between reported figures and totals calculated during the evaluation, by funding envelope.

Table 1: Funding envelope totals administered by TNTBC and FLNRORD: reported vs. evaluation figures

	CLOA	CLE (TNTBC)	LMR	TOTALS
TNTBC Evaluation	\$12,456.88	\$45,343.86		\$57,800.74
FLNRORD Evaluation	\$18,467.50		\$14,375.00	\$32,842.50
TOTAL EVALUTION	\$30,924.38	\$45,343.86	\$14,375.00	\$90,643.24
TNTBC Reported	\$13,500.00	\$42,294.00		\$55,974.00
FLNRORD Reported	\$18,467.50		\$14,375.00	\$32,842.50
TOTAL REPORTED	\$31,967.50	\$42,294.00	\$14,375.00	\$88,636.50
VARIANCE	-\$1043.13	\$3049.86		\$2,006.74

As shown in the table above, spending records supplied for the evaluation showed that spending was less than reported for the CLOA envelope, but more than reported for the TNTBC envelope with the overall figures showing ~\$2,000 more spending than reported. Given that all sites included are eligible for CLOA funding, this reporting discrepancy is less of a concern. TNTBC spends more at the sites than HCTF funding provides, so it makes sense that more labour costs were incurred than covered by HCTF funding.

HCTF spoke with Laurie Desrosiers, Finance Manager for TNTBC about the site variances between the report figure and the actual totals from submitted documents. She also mentioned that variances likely occur between the financial report and the regional reports in part because the financial numbers are due before the actual report is due. The invoice is due to FLNRORD by ~April 7th, but the report isn't due until ~April 22. It can be very difficult in some regions when invoices have not all been received by the time the report is due. TNTBC will often have to estimate when GST/PST will be paid on an invoice, which can affect the final amount. Often, regional staff will find more information for the report, and the numbers reported won't match the financial report. Nick Burdock of TNTBC said that he reallocated funds from Duck Meadow to Salmon Arm Bay did not change the numbers in the Outcomes Report, the variance on these two sites balanced out, are under the 30% variance allowance, and both are eligible sites and activities.

5.1.5 TNTBC Labour

TNTBC provided information on O&M labour costs with a spreadsheet showing land manager hours spent on each site per quarter and a report on the overall activities of the conservation youth crew showing the total days spent at each site. They also provided a work crew planning schedule for the season. These records were a large improvement over the last evaluation in 2015.

A few improvements to the recording and presenting of this information would have made it easier to connect the report with the time spent. The time tracking spreadsheet for the Land Manager was the

same template as the proposal so it was easy to connect the time back to proposed activities. The conservation crew information could have been more detailed with a log for each day and work completed, rather than the overall number of days per site and a summary of activities.

Laurie indicated that the TNTBC administration fee is not added on top of the \$450 Land Manager and \$250 Field Technician Daily Rate, but only to the direct expenses. This is not the case in other regions, where the TNTBC Administration Fee is added on top of the daily rate. For example, the West Coast Region adds the 12.5% admin fee to all expenses. There is clearly a different practice going on in different regions with respect to the Administration Fee. HCTF, TNTBC and FLNRORD need to meet and discuss this discrepancy and decide on a consistent method prior to the 2019-22 cycle.

HCTF also noticed that the Land Manager daily rate was used for the time incurred by Nick Burdock and that his official title is “Conservation Land Coordinator”. There are additional staff in other regions that report to the regional Land Manager, but the only rate reported under O&M is the Land Manager rate. There is a daily rate for “Professional/Technical” staff, but this rate is not used in practice¹. HCTF may ask TNTBC to confirm whether the Land Manager rate is appropriate for all regular staff charged under the program, based on the actual costs incurred.

5.1.6 Spending against budget

The CLOA and LMR funding envelope was underspent by \$8772.50 and \$3,125.00 respectively.

Table 2: Spending against budget in Thompson-Okanagan

	Budget	Spending	Unexpended	% variance
CLOA	\$40,740.00	\$31,967.50	\$8,772.50	-21.5%
TNTBC	\$42,294.00	\$42,294.00	\$0.00	0%
LMR	\$17,500.00	\$14,375.00	\$3,125.00	-17.9%
TOTAL	\$100,534.00	\$88,636.50	\$11,897.50	

The amount underspent on CLOA is primarily due to a large piece of work not being completed at the Dewdrop-Rosseau WMA due to shortage of provincial staff resources (survey and assessment of conservation values, current habitat suitability and capability, impacts from human use and potential mitigation actions). These funds could have been re-allocated to other sites in the region, including TNTBC leases. This evaluation showed that TNTBC spent more at approved sites than was allocated, so this CLOA could have been accessed for those sites. The amount underspent on LMR is more difficult to re-allocate as it can only be spent on FLNRORD owned sites (not leases).

¹ The changes submitted for 2018-19 for the Kootenay Boundary and South Coast included other day rates than the Land Manager.

5.2 Field Component of Evaluation

HCTF contracted Gary Tipper, P.Ag, R.P.Bio, of Phase II Ventures Ltd to assist HCTF with the evaluation including a field inspection and review of activities completed at the selected sites, including an assessment of cost effectiveness. This complete field evaluation report *Evaluation of operations maintenance activities undertaken on selected conservation lands in the South Okanagan* is attached as Appendix 2.

6. Summary and Next Steps

On the whole, this evaluation found that FLNRORD and TNTBC are managing HCTF funds well and completing important operations and maintenance activities on conservation properties in keeping with the guiding principles of the program. There are a few points noted through the report which warrant further discussion between the parties. These items are as follows:

1. TNTBC properties that are part of WMAs
 - TNTBC leases that are included in WMAs are included within the background plan for the WMAs in some instances and included as a separate plan in other instances. Should regions make the decision as to what works best for them, or should we strive for consistency? It may help foster cooperation between the parties to include as one plan, but is more administratively complex.
2. Vaseux Lake - Brock and Thomas
 - There is currently no lease in place for most of this complex. If no lease is registered, only CLOA funds should be accessed for this site (or only a small amount of CLE relative to the land leased).
3. Event related costs
 - HCTF, FLNRORD and TNTBC should consider whether to amend the Eligible Activities List to clarify the eligibility of costs associated with events on sites, e.g. volunteer work parties, management planning events, etc.
4. Timing of invoicing and reporting
 - HCTF, FLNRORD and TNTBC should discuss the timing of the Outcomes Report deadline and invoicing deadline, to avoid discrepancies between the invoice and Outcomes Report figures.
5. Time tracking
 - The labour costs back-up documentation was much better than the information available in 2015. Land Manager time provided by quarter was sufficient, but the information provided for the crew could be improved. HCTF, FLNRORD and TNTBC should discuss how this could

be improved. One possibility could be a log of where the crew was on each day with a description of work completed.

6. Administration Fee on Labour changes

- There is a different practice among regions with respect to whether the administration fee is added on top of the Labour rates. HCTF, FLNRORD and TNTBC should discuss how to make this consistent across regions.

7. Land Manager vs. Professional/Technical day rates

- It was noted that the Land Manager day rate is the only rate used across the program for all TNTBC regular staff, including the Conservation Land Coordinator in the Okanagan region. The Professional/Technical rate appears not to be used. There are some new hires that may be charged to the program (e.g. VI Restoration and Inventory Biologist, Kootenay Conservation Land Coordinator). HCTF may ask for confirmation from TNTBC as to the most appropriate day rate for the various positions based on actual costs incurred.

8. Monitoring of Invasive Plant Treatments

- As noted in the Field Evaluation report, the instructions for completing the 2016-19 proposals included a request to maintain before and after photos of invasive plant treatments. Some photos were provided for Vaseux Lake – Brock and Thomas, but not from the same locations. HCTF, TNTBC and FLNRORD should discuss what monitoring requirements might be appropriate for next cycle.

HCTF, FLNRORD and TNTBC will meet soon to discuss the various items listed above, as part of planning for the next 2020-2023 cycle. HCTF looks forward to continuing to work together to improve the Conservation Land Management funding program for the benefit of conservation lands in BC.

7. Acknowledgements

HCTF staff wish to thank FLNRORD and TNTBC staff for their cooperation and support to undertake this evaluation, namely Karen Wipond, Josie Symonds and Ramona Epp of FLNRORD, and Nick Burdock and Laurie Desrosiers of TNTBC.

Appendix 1: O&M Guiding Principles²

HCTF has developed the following guiding principles for all O&M funds:

- i. **Accountability**
All parties will meet the requirements of the Endowment Agreement and any other funding agreements associated with O&M on conservation lands.
- ii. **Financial Sustainability – “Live Within the Means”**
Wildlife O&M funding will live within the investment income interest. HCTF will not backstop any overages with surcharge dollars.
- iii. **Maximum Conservation Benefit**
All activities will seek to follow an ecosystems approach and achieve the maximum conservation benefit.
- iv. **Cost Effectiveness**
Applicants must use least cost / most benefit methods in applications.
- v. **Administrative Simplicity**
HCTF will strive to simplify the application process, technical review and reporting processes.
- vi. **Adaptability**
If conditions change, the Board can approve changes / amendments to existing eligible activities and/or sites.
- vii. **Cooperation / Coordination**
Joint application and sign-off between the Ministry and The Nature Trust of BC are required for leased lands.

² Developed for meeting held January 12 2012 with staff from The Nature Trust of BC, Ministry of Forests, Lands and Natural Resource Operations and HCTF. Suggested revisions from that meeting are reflected in the list.

Appendix 2

EVALUATION OF OPERATIONS AND MAINTENANCE ACTIVITIES UNDERTAKEN ON SELECTED CONSERVATION LANDS IN THE SOUTH OKANAGAN



PREPARED FOR
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JANUARY 31, 2018

TABLE OF CONTENTS

TABLE OF CONTENTS.....	2
BACKGROUND	3
RESULTS	3
17-09-19 SITE VISITS	3
Keremeos Creek.....	3
Vaseaux Lake-Brock and Thomas	9
17-09-20 SITE VISITS	16
South Okanagan Wildlife Management Area	16
McTaggart-Cowan Wildlife Management Area	21
Antler's Saddle.....	22
Time Spent on Evaluation.....	23
DISCUSSION	24
RECOMMENDATIONS	27
Evaluation	27
Specific operations and maintenance activities	28
Expensive or Very Expensive operations and maintenance activities	28
REFERENCES	30
APPENDIX I	31
APPENDIX II	32
APPENDIX III.....	33

BACKGROUND

In 2015, staff of the Habitat Conservation Trust Foundation (HCTF) decided to undertake an evaluation of selected Operations and Maintenance activities on conservation lands owned by The Nature Trust of BC (TNTBC) in the East Kootenay of British Columbia. HCTF provided funds for operations and maintenance activities. In 2017, staff of HCTF decided to undertake a similar evaluation in the South Okanagan. Phase II Ventures Ltd. was hired to evaluate evidence that work was completed and that the charge for the work was reasonable. Evidence of the various treatments was observed, discussed and photographed.

Site visits on September 19, 2017 on TNTBC properties were led by Nicholas Burdock (TNTBC); Gary Tipper P.Ag., R.P.Bio., Phase II Ventures Ltd. (the consultant) and Christina Waddle (HCTF) conducted the evaluation. Additional site visits of Wildlife Management Areas on September 20 were led by Josie Symonds, Ministry of Forests, Lands, Natural Resource Operations and Rural Development (FLNRORD); Gary Tipper and Christina Waddle conducted the evaluation.

Each of the properties and associated operations and maintenance activities evaluated were chosen by staff of HCTF and costs of activities evaluated were provided to the consultant by staff of HCTF. Benchmark costs were collected/derived by the consultant in order to allow cost comparisons following the field component of the evaluation.

A field assessment of Antler's Saddle was not possible due to the still-active Finlay Creek wildfire, which burned onto the property. An office review, complete with slide show, was held instead with FLNRORD staff Josie Symonds, Craig MacLean and Jamie Leatham.

RESULTS

17-09-19 SITE VISITS

Keremeos Creek

Assess property for management needs

Reported short term outcome: Property assessment complete, work plan updated.

Evaluation: Outcome was discussed.

Work completed: Yes

Verification: Anecdotal, provided by Nicholas Burdock.

Cost of work: ½ Land Manager Day, \$225

Benchmark cost: N/A

Notes: There is no management plan for this property but there are guiding documents.

Activity is based upon what is traditionally done; workplans are updated annually. Is a management plan desirable? Probably not a high priority at this time.

Remove rubbish; document and manage invasive plants

Reported short term outcome: Parking area maintained rubbish removed during site visits. One pick up load of construction debris removed from property. Main access trail and access points surveyed for invasives.

Evaluation: Site was inspected; the fenceline trail and parking area were free of common hound's-tongue (*Cynoglossum officinale*) and great burdock (*Arctium lappa*), the invasive plants of concern, and the parking area was free of rubbish.

Work completed: Yes

Verification: Site was inspected; example of fenceline trail free of common hound's-tongue and great burdock, invasives of concern, are shown in Figure 1 below; clean parking area which is free of hound's-tongue and burdock, is shown in Figures 2 and 3 below.

Cost of work: 1 Crew Day, \$500

Benchmark cost: N/A



Figure 1. Fenceline trail free of common hound's-tongue and great burdock.



Figure 2. Clean parking area, which is also free of common hound's-tongue and great burdock.



Figure 3. Parking area showing signs.

Assess property for management needs, including fence repair and signage

Reported short term outcome: Signage maintained and replaced as required. Work plan updated.

Evaluation: Site was inspected and new signs were noted.

Work completed: Yes

Verification: Site was inspected; signs are shown in Figure 4 below and Figure 3 above

Cost of work: 1 crew day, \$500

Benchmark cost: N/A



Figure 4. Repaired fence and signs.

Repair and replace boundary fence

Reported short term outcome: 800 m of boundary fence repaired and replaced, pedestrian access gate installed at one location.

Evaluation: Site was inspected, upgraded fence was noted, wildlife-friendly design was discussed and observed as was the pedestrian access gate.

Work completed: Yes

Verification: Site was inspected; new brace and posts with tight wire are shown in Figure 5; new pedestrian access gate is shown in Figure 6



Figure 5. New brace and tight wire on perimeter fence.



Figure 6. New pedestrian access gate and sign.

Cost of work: 1 Land Manager Day, \$450 and contract, \$5000 to rebuild 800m of fence = \$6.81/m

Benchmark cost¹: \$5/m to \$20/m

Proportion of benchmark (using the bottom of the range): 1.36

Proportion of benchmark (using the top of the range): 0.34

Notes: Wildlife-friendly design entails lowering the top strand of barbed wire to 42".

The fence, which is for human control, was previously in poor condition, particularly the braces.

Discussions with Regional District of Okanagan Similkameen Area B Director

Reported short term outcome: Discussion with Regional District of Okanagan Similkameen Area B director regarding trail and condition of dike.

Evaluation: Outcome was discussed.

Work completed: Yes

Verification: Anecdotal, provided by Nicholas Burdock.

Cost of work: ½ Land Manager Day, \$225

Benchmark cost: N/A

Notes: The trail on the dike is regularly used by foot traffic, bicycles and ATV's from Cawston traveling downstream to the Regional Park. Meetings/dialogue occur on a semi-regular basis and the manager touches base with groups at the beginning of each season. Groups include the Okanagan and Similkameen Trail Alliance, Regional District of Okanagan Similkameen and the Rail to Trail Corridor.

Conduct risk assessments for “non-built” hazards

Reported short term outcome: Risk assessment complete, work plan updated.

Evaluation: Outcome was discussed.

Work completed: Yes

Verification: Anecdotal, provided by Nicholas Burdock.

Cost of work: 1 crew day, \$500

Benchmark cost²: 8.55 hr X \$35.71/hr = \$305.32

Proportion of benchmark: 1.64

Notes: The size of the area to be assessed is approximately 20 ha inside of the dike, which is approximately one-half of the property. Observations and management needs are recorded by a combination of Ipad and field notes. An example of a “non-built” hazard is shown in Figure 7.

¹Costs of a new fence are \$17-20/m of new fence and approximately \$5/m for rebuilding/repairing existing fence (provided by N. Burdock). Cost per meter of fencing is estimated at \$15,000/km or \$150/m, as provided by R. Stewart, Ecosystems Biologist.

² Derivation of Benchmark is provided in Appendix I.



Figure 7. Hung up ponderosa pine provide an example of a “non-built” hazard.

Vaseaux Lake-Brock and Thomas

Inventory for Invasive Species

Reported short term outcome: inventory complete, 3.5 ha surveyed.

Evaluation: Outcome was discussed and a portion of the inventory area was inspected.

Work completed: Yes

Verification: Anecdotal, as provided by Nicholas Burdock and a portion of the inventory area was inspected.

Cost: 1 crew day, \$500

Benchmark cost³: 1.5 hr X \$65.00/hr = \$97.50

Proportion of benchmark: 5.13

Restoration of fallow fields

Reported short term outcome: 5 ha mowed.

Evaluation: Outcome was discussed and the site was inspected.

Work completed: Yes

Verification: Site was inspected; mowed field is shown in Figures 8 and 9.

Cost: \$687.50 = \$137.50/ha

³ Derivation of Benchmark is provided in Appendix I; hourly rate of \$65.00/hr is the common charge-out rate of the consultant..

Benchmark cost⁴: cost of 2X4 tractor and sickle mower \$71.53/hr⁵; rate of mowing 1 ha/hr = \$71.53/ha

Proportion of benchmark: 1.9

Notes: The activity is intended to rehabilitate the fields towards a more native grass community from weedy annuals such as cheatgrass (*Bromus tectorum*) and bulbous bluegrass (*Poa bulbosa*). Equipment used was an old, blue Ford tractor with a side-mounted mower that is driven to and from the site.



Figure 8. View of mowed fallow field.

⁴ Benchmark estimate developed in conversation with J. Thibeault, Rancher (2017), who can mow 2.5 ha/hr with his 2007 John Deere 6320 4X4 tractor which cuts 9" per round. We scaled down to 1 ha/hr to account for slower speed, less cut per round with the equipment used on Brock-Thomas and the presence of obstacles in the field.

⁵ Benchmark estimate provided by S. Byford, Grassland and Rangeland Enhancement Program (GREP) Coordinator (2017).



Figure 9. View of mowed fallow field and intact fence along main road.

Hand treat/control invasive species

Reported short term outcome: 1.25 ha hand treated/monitored.

Evaluation: Outcome was discussed and the site was inspected.

Work completed: Yes

Verification: Anecdotal, provided by Nicholas Burdock, since work occurred a year ago.

See note below. Figure 10 shows burdock treatment along the water-delivery pipe in 2016. Figures 11 shows a different site after treatment, also in 2016.

Cost: 4 crew days, \$2000; \$1600/ha

Benchmark cost⁶: \$1650/ha

Proportion of benchmark: 0.97

Notes: Great burdock and common hound's-tongue are treated annually, particularly along the water-delivery pipe that goes through the property. Inspection indicated that little treatment occurred in 2017, since many first and some second-year plants were on site.

⁶ See Appendix II.



Figure 10. Great burdock treatment along water delivery pipe; photo taken 2016-05-19 (provided by N. Burdock.



Figure 11. Great burdock site post-treatment; photo taken 2016-05-19 (provided by N. Burdock).

Update work plan, compile and input inventory records

Reported short term outcome: work plan updated, transition to digital files as per Okanagan and Similkameen Invasive Species Society directive.

Evaluation: Outcome was discussed.

Work completed: Yes

Verification: Anecdotal, provided by Nicholas Burdock.

Cost: 1 Land Manager Day, \$450

Benchmark cost: N/A

Notes: IAPP forms are filled out/submitted as required.

Operational oversight to maintain habitat and water levels

Reported short term outcome: operational oversight complete, review of plans and engineering drawings, participating in working group to direct future of project.

Evaluation: Outcome was discussed.

Work completed: Yes

Verification: Anecdotal, provided by Nicholas Burdock.

Cost: 5 Land Manager Days, \$2250

Benchmark cost: N/A

Notes: This complex activity is at least seven years in duration. TNTBC is a 40% owner of an historic dam on Shuttleworth Creek due to the property purchase and hence is a member of the Allendale Water Users Community. The dam is currently undergoing a geotechnical assessment; it is a very high consequence dam. The Okanagan Nation Alliance (ONA) is driving an initiative to improve the stream as steelhead habitat. The original plan was to decommission the dam; the question is to use water from wells (which have been drilled with money provided by the ONA) or to continue to withdraw water from the stream. This is currently under review. In addition to drilling two wells, the ONA has money to decommission the dam but does not have money to purchase and install the pumps required to deliver the well water.

Assess property for management needs

Reported short term outcome: signs maintained, 1 km of fence line surveyed, minor repairs as required.

Evaluation: Outcome was discussed; fence along main road was inspected.

Work completed: Yes

Verification: Anecdotal, as provided by Nicholas Burdock and a portion of the fence line was inspected; fence along main road is shown in Figure 9.

Cost: 1 crew day, \$500

Benchmark cost: N/A

Notes: There was no cattle sign along the road, which provides indirect evidence that perimeter fences are functioning properly.

Replace farm gates

Reported short term outcome: Gate replaced, access points updated.

Evaluation: New gate was inspected.

Work completed: Yes

Verification: New gate is shown in Figure 12.

Cost: \$399.62 (materials only), labour (~ \$75.00) not charged to HCTF

Benchmark cost⁷ two 4' X 12' farm gates ~ \$500 + \$75 labour = \$575

Proportion of benchmark: 0.70

Note: gate in Grower's Supply invoice is detailed as 52" X 12', yet the installed gate is obviously 96" or 8' in height.

⁷ Benchmark estimate provided by M. Davis, Top Crop Garden Farm and Pet Supply, Cranbrook, BC (2017), who indicated that two 4" X 12" gates used in tandem would be the cheapest option at approximately \$500; an 8' X 12' chain link fence would cost approximately \$850-\$900.



Figure 12. New gate installed.

Photo and vegetation monitoring program

Reported short term outcome: all sites monitored.

Evaluation: Discussed on site; monitoring protocol provided by TNTBC and reviewed.

Work completed: Yes

Verification: Anecdotal, provided by Nicholas Burdock.

Cost: 2 crew days, \$1000

Benchmark cost⁸: 2 plots/day for baseline inventory = \$625.00

Proportion of benchmark: 1.6

Review utility resource plans for conservation concerns

Reported short term outcome: Operational oversight complete, plans reviewed, mitigation/remediation plans developed.

Evaluation: Outcome was discussed; power line was viewed from two locations.

Work completed: Yes

⁸The consultant estimated a cost of \$625.00/day (10 hour day) for establishing sites and collecting data for two plots for a baseline inventory of Pine Butte Ranch South as per Nature Conservancy of Canada's Baseline Inventory protocol (2016).

Verification: Anecdotal, provided by Nicholas Burdock.

Cost: 2 Land Manager Days, \$900

Benchmark cost: N/A

Notes: Ongoing activity, involves touching base with contractor who is undertaking invasive plant treatment, reinforcing conservation values, and working to protect/steward conservation values.

17-09-20 SITE VISITS

South Okanagan Wildlife Management Area

Ecosystem mapping

Reported short term outcome: Inventory and research completed. Report includes description and mapping of waterbirch/rose habitats and other ecosystems plus recommendations for management and restoration at fine scale.

Evaluation: The report was reviewed and components of the topic area were superficially inspected.

Work completed: Yes

Verification: Report was provided

Cost of work: Contract, \$10,000

Benchmark cost⁹ \$12,000

Proportion of benchmark: 0.83

Notes: Report is intended to help show the wildlife and habitat values of the SOWMA and provide evidence for fencing priorities to exclude cattle grazing, which is impacting habitat, particularly that for yellow-breasted chat.

Repair and maintenance of kiosk and parking area

Reported short term outcome: All activities completed. Kiosk roof replaced, kiosk cleaned and maintained, surrounding native plantings tidied and maintained, parking area graded.

Activity: Land leveling/grading, including crush and delivery

Evaluation: Site was inspected and discussed.

Work completed: Yes

Verification: Parking lot is shown in Figures 13 and 14.

Cost of work: Contract, \$2205.00

Benchmark cost¹⁰: \$2749.18 + GST

Proportion of benchmark: 0.80

⁹ The consultant undertook field work and wrote a plan for ecosystem restoration on the McDonald Burn in southeastern BC, an area comprising 326.9 ha on steep, difficult-to-access slopes. The cost was \$12,000.

¹⁰ Benchmark cost for parking area (top of the range estimated at 25 X 30 m by J. Symonds) provided by D. Peters, MacKinley-Clark Paving Ltd., Penticton, BC.



Figure 13. Access road and one-half of parking lot.



Figure 14. One-half of parking lot.

Activity: Weed, rake, remove debris

Evaluation: Site was inspected and discussed.

Work completed: Yes

Verification: Anecdotal, provided by Josie Symonds; work was conducted a year ago.

Cost of work: Contract, \$200 labour

Benchmark cost¹¹: 6.67 hours of labour

Activity: Remove dead plants, spread mulch

Evaluation: Site was inspected and discussed.

Work completed: Yes

Verification: Anecdotal, provided by Josie Symonds; work was conducted a year ago; some mulch was still visible; kiosk and surroundings are shown in Figure 15.

Cost of work: Contract, \$200 labour \$300 product

Benchmark cost¹²: 6.67 hours of labour; \$270 for mulch

Activity: Plant 4X1 gallon pots of native plants

Evaluation: Site was inspected

Work completed: Yes

Verification: Anecdotal, provided by Josie Symonds; work was conducted a year ago and native plants were masked by weedy vegetation, if still present at all. Kiosk and surroundings are shown in Figure 15.

Cost of work: Contract, \$30 labour, \$45 product

Benchmark cost: 1.0 hours of labour

¹¹ The benchmark costs of labour was provided by J. Halterman, 7510 Island Road, Oliver at \$25/hr. and Sagebrush Nursery (O. Kendrick) at \$35/hr.; the average of \$30/hr. was used. Note that, for this and the subsequent two benchmarks, the cost of labour was employed as a means to determine the numbers of hours work undertaken, and it is the hours that are used as a gauge of reasonableness of the activity in the Discussion.

¹²The benchmark cost of Nature's Gold mulch (undelivered) is \$54/yard³ as provided by Pacific Silica, A-6869 Highway 97, Oliver, BC.



Figure 15. Kiosk and surroundings.

Activity: Pressure wash kiosk, install bird spikes

Evaluation: Site was inspected

Work completed: Yes

Verification: bird spikes are shown in Figure 16.

Cost of work: contract, \$200 labour

Benchmark cost: 6.67 hours

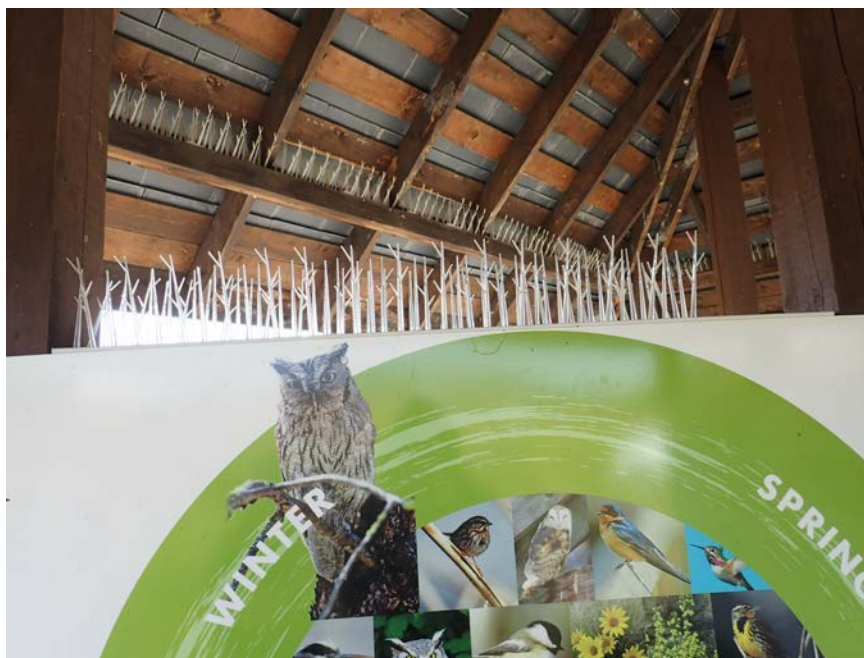


Figure 16. Interior of kiosk showing bird spikes.

Activity: Supply and install roof
Evaluation: Site was inspected
Work completed: Yes
Verification: new roof is shown in Figures 17 and 18.
Cost of work: Contract, \$2940.00
Benchmark cost¹³: \$2246 to \$2461.09
Proportion of benchmark: 1.2



Figure 17. View of kiosk roof showing shingles and cap on hip.

¹³Benchmark cost for top of the range derived for a roof estimated at 6 x 6 m by J. Symonds, and roof angle of 30°. Area of roof was calculated with Hip Roof Calculator <https://myrooff.com/hip-roof-calculator/>; cost estimate provided by Interior Roofing, 466 Dawson Ave, Penticton, BC at \$5.50/ft².



Figure 18. View of kiosk roof showing shingles.

McTaggart-Cowan Wildlife Management Area

Informational kiosk and signs

Reported short term outcome: Kiosk and signage installed.

Evaluation: The kiosk was inspected and discussed.

Work completed: Yes

Verification: Completed kiosk and signage is shown in Figure 19. Construction of the kiosk was funded by HCTF a few years ago, as stated by Josie Symonds.

Cost of work: contracts, \$1700.00

Benchmark cost¹⁴: \$1500

Proportion of benchmark: 1.13

Note: Benchmark is for graphics for map and interpretive sign, printing and production and does not include the rights to photographs.

¹⁴ Benchmark cost was provided by Kootenay Kwik Print, 33 Cranbrook Street North, Cranbrook, BC (S. Colbert).



Figure 19. McTaggart-Cowan kiosk and signage.

Antler's Saddle

A field assessment was not possible due to the still-active Finlay Creek wildfire, which burned onto Antler's saddle. An office review, complete with slide show, was held instead with FLNRORD staff Josie Symonds, Craig MacLean and Jamie Leathem.

Habitat management

Reported short term outcome: Conifer thinning, shrub coppicing, piling and burning of conifer ingrowth. Blocking illegal roads and trails using downed conifers.

Evaluation: Office presentation, including slide show, as per notes below.

Work completed: yes

Verification: Office presentation and notes.

Cost of work: Contract, \$8500.00; \$1062.50/ha

Benchmark cost (average) = \$1,400/ha¹⁵

Proportion of benchmark: 0.76

Notes:

1. A fuel-free line 4.5m wide by 500m long was created
2. Northern site-this site occurs in a vehicle-closed area. The fuel treatment and stand treatment was to take a stand dominated by 650 stems per hectare (sph) of Douglas fir (*Pseudotsuga menziesii*) down to a target of 80 sph; it is currently spaced to 150 sph. Work was undertaken in collaboration with sportsman's groups, who limbed and piled the felled material in preparation for burning as a volunteer activity.
3. Southern site This site also occurs in a vehicle-closed area. The fuel modification treatment was to take a stand dominated by 400 sph of ponderosa pine (*Pinus*

¹⁵ Cost per ha of ER is estimated at \$1400/ha, as provided by R. Stewart, Ecosystems Biologist.

ponderosa) down to a target of 40 sph; it is currently spaced to 80-100 sph.
 “Walls” of downed material were created to reduce ATV use.

These activities, which encompass eight ha of stand modification and blocked three illegal roads, are in preparation for a prescribed burn in the spring of 2018. By chance, they also provided a fire-break for the Finlay Creek fire. It is expected that three burn areas will be required to achieve the total area goal of the prescribed burn.

Construct fence

Reported short term outcome: Perimeter fencing installed.

Evaluation: Office presentation, including slide show, as per notes below.

Work completed: Yes

Verification: Office presentation and notes.

Cost of work: Contract, \$3236.00¹⁶ to construct an estimated 820 m of fence = \$3.95/m

Benchmark cost: \$15/m to \$20/m¹⁷

Proportion of benchmark (using the bottom of the range): 0.23

Proportion of benchmark (using the top of the range): 0.20

Notes: Fencing was undertaken with funding from HCTF. Fencing is designed to prevent human impacts and to eliminate trespass livestock grazing. There is no range tenure on Antler’s Saddle, although it is used to move livestock from one range area to another.

The area fenced was approximately 270m X 140m, creating a perimeter of approximately 820 m, assuming a rectangle.

Time Spent on Evaluation

Property	Number of Inspection Hours	Travel Time	Total
Day 1			
Keremeos Creek	2.5	1	3.5
Vaseaux Lake (Brock and Thomas)	2.5	1	3.5
Day 1 Total	5.0	2	7.0
Day 2			
McTaggart-Cowan WMA	1.0	0.5	1.5
South Okanagan Wildlife Management Area	2.5	1	3.5
Antler’s Saddle	1		1

¹⁶ MFLNRORD staff provided volunteer time to manage and execute the project, which reduced its costs.

¹⁷ Costs of a new fence are \$17-20/m of new fence and approximately \$5/m for rebuilding/repairing existing fence (provided by N. Burdock). Cost per meter of fencing is estimated at \$15,000/km or \$150/m, as provided by R. Stewart, Ecosystems Biologist.

Debrief	1		1
Day 2 Total	5.5	1.5	7.0
Evaluation Total	10.5	3.5	14.0

DISCUSSION

TNTBC can include as eligible costs salary expenses at the rate of \$250 per person per day for a field crew (including salary, benefits and travel), and at the rate of \$450 per person per day for the Land Manager. In the Okanagan, one crew day of \$500 is comprised of a two-person field crew. Crew members receive intangible benefits from their work, such as learning field skills, acquiring certification such as First Aid and exposure to experts in the field of resource management and biology. These intangible benefits may result in a cost to the program.

As opposed to the 2015 evaluation in the East Kootenay, there was more time available for this evaluation, since fewer sites were visited and less travel was involved. However, inspection/evaluation was still somewhat superficial and, in some cases, it was difficult to independently verify activities. This is especially true for intangible activities versus those which were tangible and hence readily observable and verifiable. Verification was further confounded by the time lag between activity occurring and the time of evaluation. Nonetheless, in all cases, the “work completed” is noted as “yes”, even if the evidence for it is anecdotal.

For a number of the activities reported anecdotally, there was difficulty in determining a benchmark value. Hence, the evaluation of the charge for this type of work is subjective, based on professional judgement, as opposed to that for those which are more quantitative.

Is the charge for work reasonable?

The following was developed for the 2015 evaluation and is applied to the 2017 evaluation for consistency's sake.

The subjective terms to describe “reasonableness” of the charge for work are defined as:

- Very reasonable < 0.11 below benchmark
- Reasonable within 0.10 of benchmark
- Somewhat expensive 0.11-0.25 over benchmark
- Expensive 0.26-0.50 over benchmark
- Very expensive > 0.51 over benchmark

Keremeos Creek

Assess property for management needs

In the absence of a benchmark, the charge of ½ Land Manager Day (\$225) subjectively seems reasonable.

Remove rubbish; document and manage invasive plants

In the absence of a benchmark, the charge of 1 Crew Day (\$500) subjectively seems reasonable.

Assess property for management needs, including fence repair and signage

In the absence of a benchmark, the charge of 1 Crew Day (\$500) subjectively seems reasonable.

Repair and replace boundary fence

The charge of \$5450 is expensive using the bottom of the range and very reasonable using the top of the range.

Discussions with Regional District of Okanagan Similkameen Area B Director

In the absence of a benchmark, the charge of ½ Land Manager Day (\$225) subjectively seems reasonable, given the scope of the discussions.

Conduct risk assessments for “non-built” hazards

The charge of 1 Crew Day (\$500) is very expensive.

Vaseaux Lake-Brock and Thomas

Inventory for Invasive Species

The charge of 1 Crew Day (\$500) is very expensive.

Restoration of fallow fields

The charge of \$687.50 is very expensive. However, capitalizing on the availability of a local operator to mow the field adds value, since the operator was able to walk his machine to and from the site, hence lessening the cost of transport.

Hand treat/control invasive species

The charge of 4 crew days (\$2000) is reasonable.

Update work plan, compile and input inventory records

In the absence of a benchmark, the charge of 1 Land Manager Day (\$450) subjectively seems somewhat expensive, given the description of activities.

Operational oversight to maintain habitat and water levels

In the absence of a benchmark, the charge of 5 Land Manager Days (\$2250) subjectively seems reasonable, given the scope and complexity of the activity.

Assess property for management needs

In the absence of a benchmark and details of specific activities undertaken, the charge of 1 crew day, \$500 subjectively seems somewhat expensive.

Replace farm gates

The charge of \$399.62 for both materials and labour is very reasonable.

Photo and vegetation monitoring program

The charge of 2 Crew Days (\$1000) is very expensive.

Review utility resource plans for conservation concerns

In the absence of a benchmark, the charge of 2 Land Manager Days (\$900) subjectively seems somewhat expensive, given the description of the activity.

South Okanagan Wildlife Management Area

Ecosystem mapping

The charge of \$10,000 is very reasonable.

Land leveling/grading, including crush and delivery

Regardless of which benchmark is used, the charge of \$2205 is very reasonable.

Weed, rake, remove debris

The charge of \$200/6.67 hours of labour subjectively seems reasonable, given that debris was removed and disposed of.

Remove dead plants, spread mulch

The charge of \$200/6.67 hours of labour and \$300 for product subjectively seems reasonable, given that 5 yards of mulch were delivered spread.

Plant 4X1 gallon pots of native plants

The charge of \$30/1 hour for labour and \$45 for product subjectively seems reasonable.

Pressure wash kiosk, install bird spikes

The charge of \$200/6.67 hours subjectively seems somewhat expensive, although supply of a pressure washer by the contractor improves value.

Supply and install roof

The charge of \$2940.00 is somewhat expensive using the top of the range and expensive using the bottom of the range.

McTaggart-Cowan Wildlife Management Area

Informational kiosk and signs

The charge of \$1550 is reasonable.

Antler's Saddle

Habitat management

The charge of \$8500.00 is very reasonable using both the average and the top of the range. The contribution of volunteers reduced costs.

Construct fence

The charge of \$3236.00 is very reasonable using both the average and the top of the range. The contribution of staff reduced costs.

RECOMMENDATIONS

Evaluation

Additional data that could be provided by the conservation land owner includes the Invasive Alien Plant Program (IAPP) Site and Invasive Plant Survey Record forms that are completed and filed. These reports should be available by year and property and could be utilized as a means of verification and possibly to aid in determining the density and volume of invasive plants treated.

As stated in the 2015 evaluation, additional data that could be collected and provided by the conservation land owner for both verification and benchmarking purposes includes:

- establishing photoplots and undertaking stem counts to determine tree density (stems/ha) prior to treatment. Sites should then be re-photographed and residual stems re-counted following treatment.
- establishing photoplots and undertaking stem counts to determine invasive plant density (stems/ha) prior to treatment. Sites should then be re-photographed and residual stems (if any) re-counted following treatment.

These data could be verified during an evaluation by establishing independent plots, if considered necessary. Alternatively, a subset could be verified by establishing independent plots.

HCTF staff issued the following instructions to proponents for the 2016-19 application cycle:

One of the recommendations of the recently completed Kootenay evaluation report was increased monitoring by regional staff. We understand that monitoring of all wildlife O&M activities would require substantial resources and planning. HCTF will be working with the Ministry and TNTBC to develop some monitoring guidelines for future funding cycles. As an interim step, HCTF requests that, for this cycle, land managers at minimum use photo monitoring to document the results of invasive plant treatments. Please keep photographic records of the subject areas before and after treatment, and on an annual basis thereafter (taken during the same month, is possible). You do not need to submit these photos to HCTF, but please keep them on file, as they may be requested for evaluation purposes (C. Waddle, 2017-11-30 email to G. Tipper).

It is recommended that greater rigour be applied to photo monitoring of invasive plant treatment: it is important that photographs taken before and after treatment be taken from the same location with the same perspective.

Specific operations and maintenance activities

Vaseaux Lake-Brock and Thomas

It is recommended that a greater amount of resources be devoted to undertaking treatment of invasive plants along the water-delivery pipe that goes through the property.

It is recommended that the effectiveness of mowing fallow fields as a means of restoring them be assessed as compared to alternative methods.

South Okanagan Wildlife Management Area

Although this is a small component of the cost for the project, it is recommended that the effectiveness of planting native vegetation be determined, since survival seemed to be low, at best. Altering the planting and/or maintenance regimes should be considered.

Expensive or Very Expensive operations and maintenance activities

It should be noted that the majority of operations and maintenance activities undertaken fell into the Very reasonable, Reasonable or Somewhat expensive categories, which speaks well for the diligence of project managers in their use of the HCTF funds they received.

Keremeos Creek

Conduct risk assessments for “non-built” hazards

The charge of 1 Crew Day (\$500) is very expensive.

It is recommended that the derivation of survey/inventory costs provided in Appendix 1 be employed as guidelines for undertaking such assessments. In this case, 8.55 hours for the assessment plus two hours for travel bring the total anticipated cost to 10.55 hours/\$376.74.

Vaseaux Lake-Brock and Thomas

Inventory for Invasive Species

The charge of 1 Crew Day (\$500) is very expensive.

It is recommended that the derivation of survey/inventory costs provided in Appendix 1 be employed as guidelines for undertaking such an inventory. In this case, 1.5 hours for the inventory plus two hours for travel bring the total anticipated cost to 3.5 hours/\$124.99.

Restoration of fallow fields

The charge of \$687.50 is very expensive.

As stated earlier, capitalizing on the availability of a local operator to mow the field adds value, since the operator was able to walk his machine to and from the site, hence lessening the cost of transport. It is recommended that the Benchmark cost be employed as a guideline for such restoration treatments. In this case, \$71.53/ha X 5.0 ha brings the total anticipated cost to \$357.65.

Photo and vegetation monitoring program

The charge of 2 Crew Days (\$1000) is very expensive.

It is recommended that the Benchmark cost be employed as a guideline for re-monitoring plots. In this case, the total anticipated cost of re-monitoring two plots is \$625.00.

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APPENDIX I

Derivation of survey/inventory costs

Assumptions:

- average walking speed of a human is 5 km/hr
- walking speed is scaled back to 1.0 km/hr to allow for steep or uneven ground, observation for the desired purpose, as well as to allow time for recording of observations as field notes, on prescribed forms or on an Ipad
- a distance of 25 m between transects within the area under investigation
- a square plot is utilized for the purpose of calculations

Results

20 ha requires 8.550 km of transects/1.0 km/hr = 8.55 hours

3.5 ha requires $3.5/20 \times 8.55$ hours = 1.5 hours

APPENDIX II

Information on hand pulling and bagging invasive plants provided by Patricia Logan in 2015 is summarized below.

	2011	2012	2013	2014	2015	Avg.
Area treated	10.77	16.8	16.8	16.8	17.5	
# Field days	12	14	16	18	14	
# Garbage bags collected	52	88	98	55	39	66.4
Weight of invasives collected (kg)	780	814	967	503	395	691.8
# Man hours*	509.5	690	666	641	640	629.3
Cost of treatment (\$)	9118.52	14,406.00	\$14,375.75	\$12,554.70	14,225	
Cost/ha (\$)	\$846.66	857.50	855.70	747.30	812.86	824.00
#Man hours/ha	47.3	41.1	39.6	38.21	36.6	40.56

*Includes volunteer hours

According to Patricia Logan in an email dated 2017-10-31, costs have not gone up since the foregoing information was compiled and is therefore considered to be current.

Note that the information provided is for spotted knapweed. Hand-treating great burdock is slow, time-consuming work since the plants have a very large taproot. In order to account for this, a difficulty factor of 2X more difficult (or ½ as much production per hour) for great burdock was used in benchmarking.

APPENDIX III

Description of photos taken during 2017 HCTF Evaluation

Location	Photo Description	Photo Numbers
Keremeos Creek	Fencing	724-728
	Signage	729-730
	Non-built hazards	731
	Parking area and signage	732-733
Vaseaux Lake Brock-Thomas	Mowed field and perimeter fence	734-736
	New gate	737
	Great burdock	738-740
South Okanagan Wildlife Management Area	Kiosk and surroundings	743, 746-748
	Parking area	744-745
McTaggart-Cowan Wildlife Management Area	Kiosk	741-742