

East Kootenay Ecosystem Enhancement Project (COL-F20-W-3013-DCA)

2019-20 (F20) Activity Report

1 April 2019 to 31 March 2020



Prepared for: Fish & Wildlife Compensation Program

Prepared by: Ministry of Forests, Lands, Natural Resource Operations and Rural Development,
Resource Management (FWCP – Section)

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The Fish & Wildlife Compensation Program is a partnership between BC Hydro, the Province of B.C., Fisheries and Oceans Canada, First Nations, and Public Stakeholders to conserve and enhance fish and wildlife in watersheds impacted by BC Hydro dams.

Date: 13-May-2020

Executive Summary

The East Kootenay Enhancement Project includes the coordination, oversight and implementation of restoration activities including: prescription development; invasive weed treatment; slash, pile and burn; mastication; burn planning; prescribed burn; monitoring and reporting. Natural Disturbance Type 4 (NDT4) habitats are ecosystems that have been created and maintained by naturally occurring events. This year's restoration efforts included:

1. 300 hectare Sulphur Cr Prescribed Burn
2. 21 hectare, 300 piles, East Columbia Lake Pile Burning and Seeding
3. 60 hectares of Lizard and Galton Range Invasive Weed Treatment
4. 300 hectare Supply Cr Stand Management Prescription (SMP) Development
5. 100 hectares of future slashing for Forsyth Cr SMP amendment
6. 80 plus Wildlife Tree Creation and Monitoring
7. Forsyth Cr, Lizard West and Supply Cr Vegetation Monitoring

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1. Introduction

Fish & Wildlife Compensation Program (FWCP) projects are delivered through several different mechanisms including contribution agreements, annual grant intakes, directed projects, contracts, partnerships and long-term agreements. All FWCP funded projects must align with Columbia Region Action Plan priorities and go through a three-stage review and evaluation process that ends with a final decision by the FWCP Columbia Board, which includes representation from BC Hydro, the Province of BC, First Nations and Public Stakeholders.

In the Columbia Region, annual and ongoing fish and wildlife projects are delivered with support from the Ministry of Forests, Lands, Natural Resource Operations and Rural Development (FLNRORD) through a Letter of Agreement (LoA). The East Kootenay Ecosystem Enhancement Project is one such project delivered by FLNRORD staff, contractors and partnerships.

The East Kootenay Enhancement Project includes the coordination, oversight and implementation of restoration activities including: prescription development; invasive weed treatment; slash, pile and burn; mastication; burn planning; prescribed burn; monitoring and reporting. Natural Disturbance Type 4 (NDT4) habitats are ecosystems that have been created and maintained by naturally occurring events. In the majority of the Upland and Dryland habitats, wildfires and flooding are the main natural disturbances that occurred historically. For the last 60-80 years, fires have been suppressed due to the value of the timber and the risks to communities and industries. The Ecosystem Restoration Program was developed to convert these forest types back to a density where prescribed burning in a controlled manner can be used to achieve similar results to the wild fires. In areas where stand densities and ground fuels are significant, treatments such as logging, slashing/ piling/pile burning and mastication need to be implemented before the introduction of fire to reduce the fuel loads and potential burn severity. The ecosystem enhancement efforts also include burning of higher elevation stands (NDT3) which historically are stand replacing fires.

Monitoring of various treatments and ecosystems are conducted to ensure that desired habitat conditions are achieved and maintained. A system of permanent sample plots, control plots and invasive plant plots is used to monitor ecosystem restoration work.

This year's restoration efforts included:

1. Sulphur Cr Prescribed Burn
2. East Columbia Lake Pile Burning and Seeding
3. Lizard and Galton Range Invasive Weed Treatment
4. Supply Cr Stand Management Prescription (SMP) Development
5. Forsyth Cr SMP amendment
6. Wildlife Tree Creation and Monitoring
7. Forsyth Cr, Lizard West and Supply Cr Vegetation Monitoring

In fiscal year 2019-20 (F20), the FWCP Columbia Board approved \$345,948.53 for annual and ongoing East Kootenay Enhancement.

2. Goals and Objectives and Linkage of FWCP Action Plans and specific action(s)

To restore degraded priority habitats in the Columbia Basin. Targets for restored habitats are identified through large scale Restoration Plans. The main goal of this project is to expedite the recovery of grassland habitat. This is facilitated by the participation by FWCP Biologists on the Trench Restoration Committees and through the funding of grassland restoration opportunities in the Rocky Mountain Forest District. These opportunities are operational in nature and include the development of Ecosystem Restoration Prescriptions, Burn Plans, Pre-Burn Slashing and Prescribed Burning. It is estimated that 4500 ha per year will need to be treated to restore grassland and open forest habitat and their dependent wildlife. Monitoring and invasive plant control are also be conducted under this project. Fiscal 20 proposed activities include:

1. Sulphur Cr Prescribed Burn (300 ha.) to be completed fall of 2019.
2. East Columbia Lake (21 ha) to be pile burned and seeded in fall/spring 2019 or 2020. Leading to a 150 ha. prescribed burn
3. Lizard and Galton Range (60 ha.) to invasive weed treat in spring/summer 2019. Leading to a 250 ha. and 300 ha. prescribed burn, respectively.
4. Supply Cr (300 ha.) Stand Management Prescription to be development summer 2019. SMP will cover an area of approximately 400 ha.
5. Forsyth Cr (200 ha.) SMP amendment to be completed fall 2019. SMP will cover an area of approximately 300 ha.
6. Wildlife Tree Created and Monitored . Wildlife Trees Created (80-90 trees) and monitored for presence of heart rot or use.
7. Forsyth Cr, Lizard West and Supply Cr veg monitoring to be completed summer 2019. Monitoring will provide baseline or post enhancement data to enable the evaluation of the results of the treatments.

Below are the linkages of the FWCP Action Plans to our specific action(s):

The Columbia Action Plan that this proposed project most closely aligns with is:

Upland and Dryland

Ecosystem Chapter

Ecosystems

Action Type

Habitat-based Actions

Priority Action

COLUPD.ECO.HB.12.01 Restoration of upland habitats-P1

Numbers 1,2,3,4,5,6, above apply to this action.

**The secondary Columbia Action Plan that this proposed project aligns most closely with is
Upland and Dryland**

Ecosystem Chapter

Ecosystems

Action Type

Monitoring & Evaluation

Priority Action

COLUPD.ECO.ME.17.01 Pre and post restoration vegetation monitoring-P2

Number 7 above apply to this action.

3. Study Area

Figure 1: EK Enhancement Study Area

Figure 1 outlines the area that encompasses all the activities that are occurring as part of the East Kootenay Ecosystem Restoration Program.

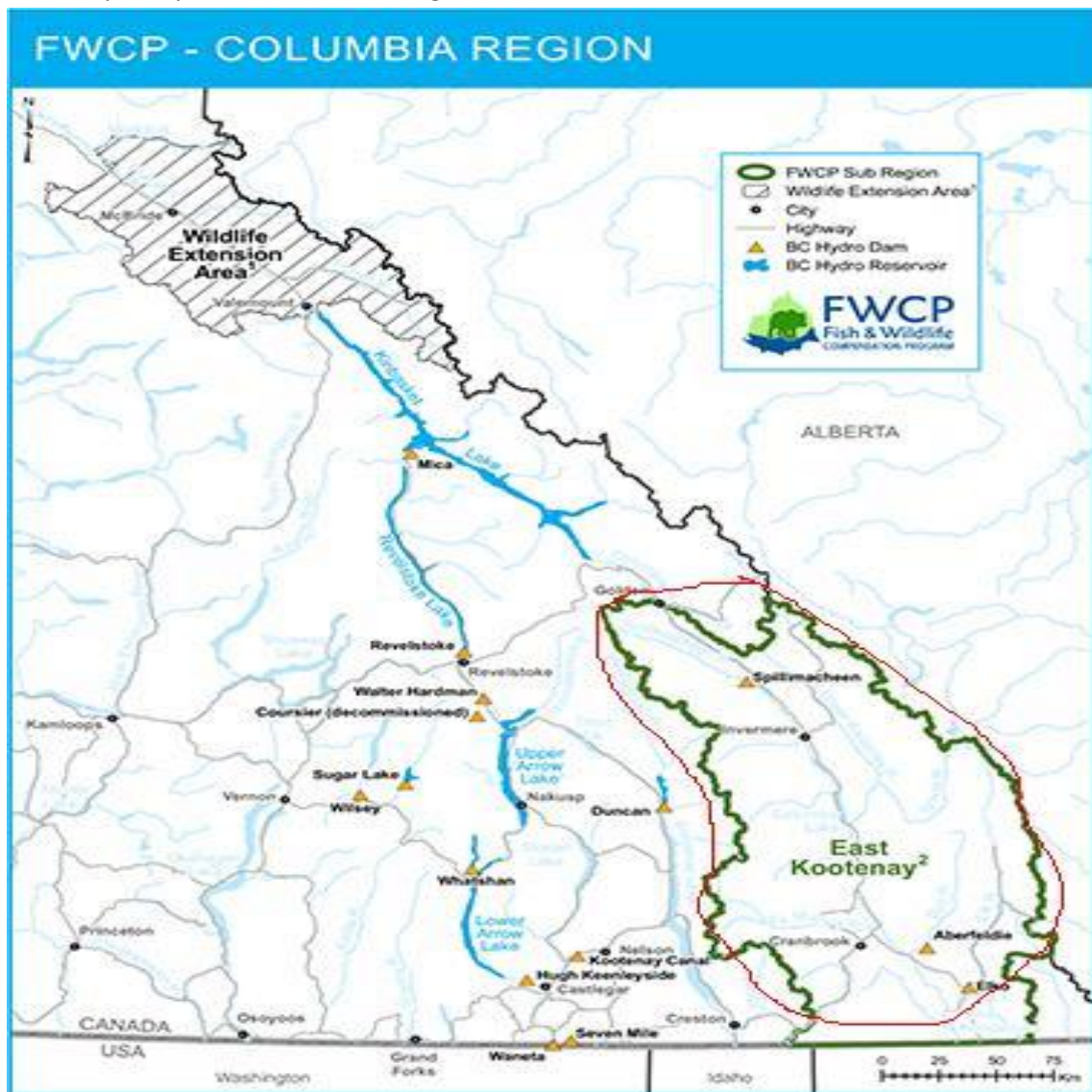
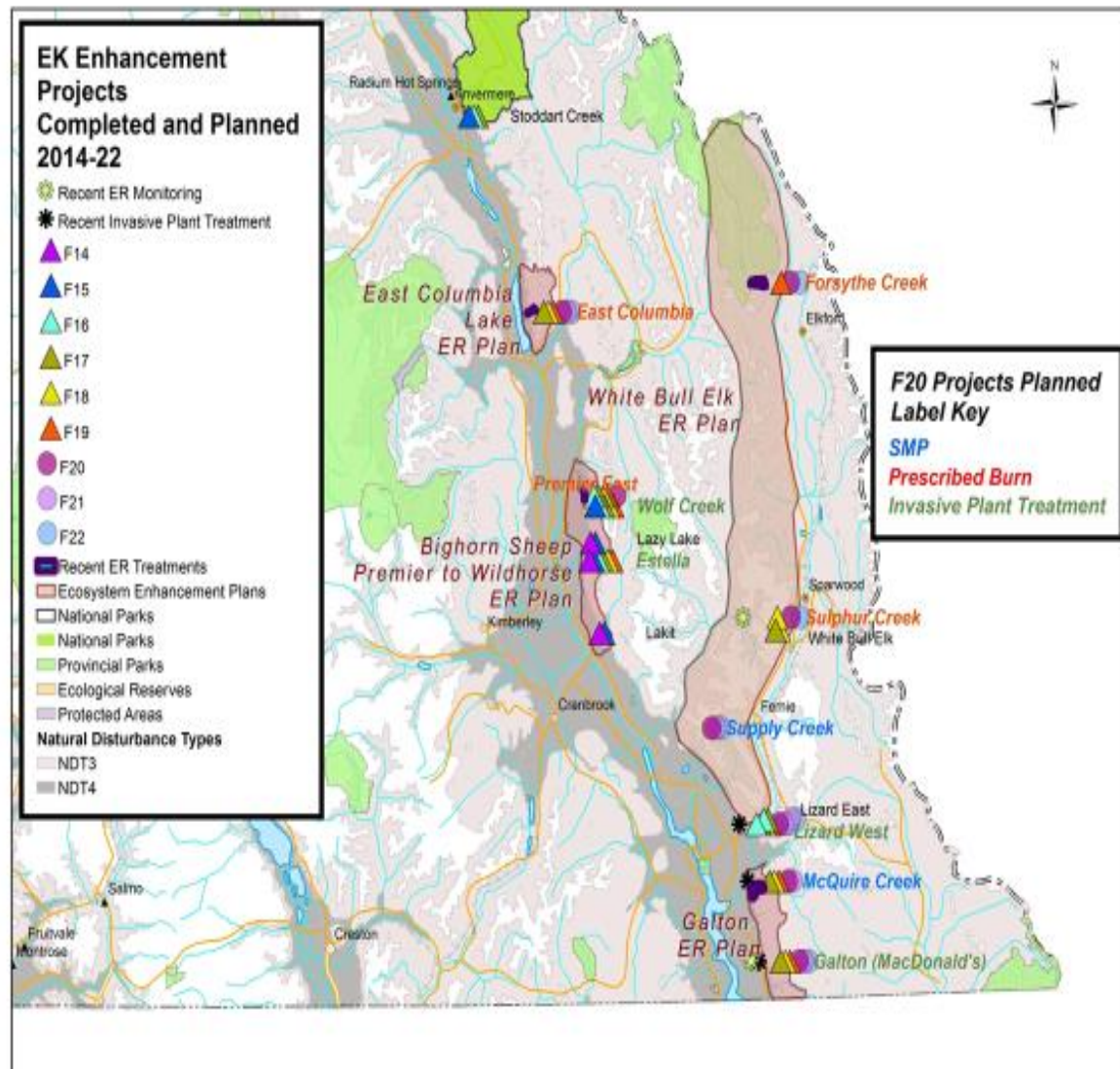


Figure 2: Locations of Specific EK Restoration Activity Area

Figure 2 identifies the locations of individual activities that are occurring as part of the East Kootenay Ecosystem Restoration Program.



4. Methods

Projects are identified through the development of landscape level restoration plans, such as The White Bull Elk, East Columbia Lake, Galton and Wildhorse to Premier. Some of these plans are species specific and others identify opportunities for a large number of different ungulates and carnivores, considering all rare and endangered species and ecosystem that may be present. Potential projects identified from these plans are prioritized and SMP's developed. SMP's can include treatment to reduce fuel loads or invasive weed treatment before completion of the end objective of prescribed burning. Methods, protocols and best practices have been developed for all aspects of Restoration Plan and SMP development, habitat treatments and monitoring. Once the SMP has been signed off it is presented to a Map Meeting Committee (held 1 time per year) to be packaged with all other proposed activities for the East Kootenays, including ecosystem restoration and community protection projects. This package is then sent to First nations for review and comment. After First Nations concerns are addressed, the SMP is sent to the FLNRORD district office, where it is circulated for comments from other potentially impacted agencies. All comments are consolidated by Stewardship Branch of FLNRORD and recommendations to approve or decline are submitted to the Resource Manager. If approved, a Section 52 authorization is issued based on recommendations set out in the SMP and comments received.

5. Results and Outcomes

1. Sulphur Cr prescribed Burn (300 ha ignited, approx. 100ha successfully burned)

- a) Completion of burn plan by BCWS staff- May-June 2019
- b) Remote Portable Weather Station installation by Radio Tech. and Biologist, (1665m elevation) -July 2019
- c) Information signs designed, created and installed by Habitat Bio, Sign contractor and EK Technician contractor- Aug 2019
- d) Media Release prepared by Rocky Mt Trench Society Communication contractor, BCWS, Habitat and Wildlife staff- Aug 2019
- e) Prescribed burn carried out on Aug 28, 2019 by BCWS unit crew (8), 2 helicopter, FLNRORD staff (5) and contractors (1). Indices from weather station were within prescribed ranges. Approximately 300 ha area was ignited with heli-drip torch and Aerial Ignition Device. Only approximately 20-30% of the area burned. Vegetation appeared to be too green to facilitate desired fire spread.
- f) Wet summer, narrow drainage contributed to not completely achieving our objectives.

- g) Similar proposed burn units would benefit from slashing vegetation 1 year prior to burning. Dried fuel would provide the necessary heat to enable fire spread.

Figure 3: Sulphur Cr. Prescribed Burn Area



2. Columbia Lake East Pile Burning

- a) Approximately 250-300 piles created during a contract to reduce conifer encroachment on a Bighorn sheep winter range, north of Canal Flats.
- b) Proposed burn timing was early spring, once temperatures increased and surrounding vegetation was still moist. Also needed to follow open burning venting indices.
- c) Arranged for contract EK Wildlife tech to work with BCWS unit crew from Invermere to carryout burning.

Figure 4: Piles Created and Burned on East Columbia Lake



3. Lizard and McDonald's Invasive weed Treatment (approx. 60 ha treated)

- a) Contracted Certified Pesticide Applicator to carry out the third year of invasive weed spraying on these proposed wildlife enhancement prescribed burns.
- b) The entire infested area proposed for burning has now been treated. Next year's treatment will include spot treatments of individual and patches missed during the 3 years of treatment.
- c) Burn plans have been initiated for these areas and will be shelf ready.

4. Supply Cr Stand Management Prescription Development (approx. 300 ha prescribed)

- a) RPF and RPBio contractors developed the SMP for Supply Cr.
- b) SMP completed Feb 28, 2020

Deliverable Reference

Hodgins J and S Katholi., 2020. Supply Creek Stand Management Prescription. SMP prepared for Ministry of Forests, Lands and Natural Resource Operations, Rural Development.

Available upon request to Larry Ingham, FLRNORD

5. Forsyth Cr SMP amendment (approx. 100 ha slashing prescribed)

- a) RPF and RPBio contractors amended the SMP for Forsyth Cr.
- b) Amendment to include slashing small diameter stems in Forsyth Cr to increase down and dried fuel to facilitate ignition and spread of fire during future prescribed burning.

Deliverable Reference

Byford G., 2020. Forsythe Creek Stand Management Prescription. SMP prepared for Ministry of Forests, Lands and Natural Resource Operations, Rural Development.

Available upon request to Larry Ingham, FLRNORD

6. Wildlife Tree Creation and Monitoring (104 trees)

- a) This year's Wildlife Tree creation focused along the Lower Corn Creek and Wycliffe area for Williamson Sapsuckers. A new trial area on large diameter aspen north of Golden in the Marl creek drainage also occurred. A Total of 89 wildlife trees were created in open forest/ bunchgrass habitats.

Deliverable Reference

Todd Manning. Kootenay 2018 Wildlife Tree Creation Project Final Report – December, 2019

7. Vegetation Monitoring

- a) Pre-treatment monitoring plots were established by 2 contractors in the Forsyth Cr, Supply Cr and East Lizard proposed prescribed burn treatment areas.
- b) Contractor used methodology developed for the Ecosystem Restoration Program.
- c) Data has been collected and report is published to ecocat.

Deliverable Reference

Phillips B. 2020. 2019 Ecosystem Restoration Monitoring: Forsyth Cr. Report prepared for Ministry of Forests, Lands and Natural Resource Operations, Rural Development.

Phillips B. 2020. 2019 Ecosystem Restoration Monitoring: Supply Cr. Report prepared for Ministry of Forests, Lands and Natural Resource Operations, Rural Development.

Phillips B. 2020. 2019 Ecosystem Restoration Monitoring: West Lizard. Report prepared for Ministry of Forests, Lands and Natural Resource Operations, Rural Development.

A spatial layer showing EKE and WKE burning and slashing is available in the BC Government layer library

<https://catalogue.data.gov.bc.ca/dataset/habitat-enhancement-burning-and-slashing-activity-fish-and-wildlife-compensation-program-columbia-ba>

6. Discussion and Recommendations

A 300 ha. prescribed burn occurred in Sulphur Cr. in August 2019. Other proposed prescribed burns including McDonald's (Galton), Lizard Range, East Columbia Lake, Supply Cr. are currently waiting for the completion of burn plans by BCWS and are at various stages of completion. Once plans are signed off, their delivery is dependent on BCWS availability, weather indices and available funding. In 2019, funding for only Sulphur Cr was approved, however if BCWS and suitable weather was available the FWCP Board would be approached for additional funding to carry out additional burns. For the approximately 300 ha area of Sulphur Cr ignited with heli-drip torch and Aerial Ignition Device, only approximately 20-30% of the area burned. Even though the indices from the weather station showed that they were in the ranges prescribed, the results were mixed. The vegetation on site appeared to be too green to facilitate desired fire spread. This was probably due to the wet summer, narrow drainage contributing to the lack of direct sun drying needed to meet our objectives. For this reason, it was determined that similar proposed burn units (i.e. Forsyth Cr) would benefit from slashing vegetation 1 year prior to proposed burning. The dried fuel would provide the necessary heat to enable fire spread and heat to kill conifers.

The pile burning at East Columbia Lake was necessary due to the slashing and piling project completed the previous year. About 300 piles were left to dry to enable successful removal through burning. The program benefitted from the BCWS unit crew being available to ignite and monitor the burning. All pile burn scars were seeded with native grass seed following burning by EK contract technician. The area is now ready for prescribed burning, however there are some issues related to the presence of listed Limber Pine on site and seasonal limitations of enough ground cover to carry a broadcast burn.

Approximately 30 ha. of invasive weed spraying occurred at the Lizard and Galton sites. Invasive species targeted included Yellow Hawk weed, Sulphur Cinquefoil, Knapweed, St. John's Wort and Blue weed. This was the third year of weed treatment, with about 30 ha. treated at each site annually. After 1 more season of spot treatment, both sites will be ready for prescribed burn plan development. Burn plan development for the Galton site is near completion, with only a few issues related to adjacent private land needing to be resolved. The plan is to burn the Galton 200 ha. burn this fall (2020).

The Supply Cr Stand Management Prescription (SMP) was developed for an area utilized by multiple ungulates and carnivores. The area was identified through our landscape level White Bull Elk Ecosystem Restoration Plan. About 300 ha. of treatment was prescribed by the development of this plan. This SMP will now be submitted to the District FLNRORD office and circulated for comments by all agencies with potential impacts. The plan will also be presented to First Nations for review and input. Once all concerns have been addressed, a Section 52 Authorization will be granted. The Section 52 approval allows us to kill conifers as prescribed. The SMP will then be submitted to BCWS for burn plan development and put into the schedule for burning. Similarly, the Forsyth Cr amendment will first require the slashing of small diameter trees to provide more fuel for fire spread. This amended SMP will also need to be submitted for Section 52 approval before the slashing can occur.

The Wildlife Tree Creation and Monitoring project focused on Aspen Stands this year. Fungal heart rot specific to aspen needed to be cultured and grown before being inoculated into the pre-identified candidate trees. This year's Wildlife Tree creation occurred along the Lower Corn Creek and Wycliffe area for Williamson Sapsuckers. A new trial area on large diameter aspen north of Golden in the Marl creek drainage also occurred. A Total of 89 wildlife trees were created in open forest/ bunchgrass habitats.

Vegetation monitoring used to evaluate the success or failure of the treatments were established in Forsyth Cr, West Lizard and Supply Cr. All 3 of these this year were pre-treatment plots that will be re-read 1, 3, 5, 10 years after treatment. Sites selected for monitoring are based on different treatments and habitat types.

7. Acknowledgements

This project was prepared with financial support from the Fish & Wildlife Compensation Program on behalf of its partners, BC Hydro, the Province of B.C., Fisheries and Oceans Canada, First Nations, and Public Stakeholders to conserve and enhance fish and wildlife in watersheds impacted by BC Hydro dams. We would like to thank all identified above. Also, we would like to thank all branches of the FLNRORD that contributed to the delivery, including Wildfire, Habitat and Wildlife. Other organizations such as EKISC and RMTNRS also participated in aspects of this project and their help is greatly appreciated. Lastly, we would like to thank the local non-

government groups, such as the Elkford Rod and Gun Club that have been working to raise funding to partner with this project.

8. References

References are listed under related Results and Outcomes achieved in 2019-2020.