

Final Report:
NTBC Land Stewardship Activities for F21
COL-F21-W-3343 (Conservation Youth Crew)



Prepared for: Fish and Wildlife Compensation Program

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Executive Summary

In 2020, The Fish and Wildlife Compensation Program (FWCP) Columbia Board approved \$15,000 to support The Nature Trust of British Columbia's (NTBC) Conservation Youth Crew, which employs post-secondary students on an annual basis to implement important 'on-the-ground' operations and maintenance work. FWCP funding was leveraged and combined with other funders to make the project a success. The 2020 Conservation Youth Crew (CYC) workplan put a specific focus towards the prevention and management of invasive species, identified in both the Upland and Dryland, and Wetland and Riparian Actions Plans (COLUPD.ECO.HB.11.01, COLWRA.ECO.HB.14.01, respectively).

NTBC employed a CYC from the start of June until the end of August 2020. The crew was comprised of post-secondary students, and crew activities were overseen and managed by the Kootenay Conservation Land Coordinator. Of the crew members employed, one was a returning employee of several years, which provided many benefits, and one was new to the organization. The returning crew member served as the Conservation Crew Supervisor, and the newly hired staff member served as a Conservation Crew Member. The CYC helped to complete vital on-the-ground conservation work activities in the 2020 field season. Due to the COVID-19 pandemic, NTBC was unable to hire a longer term technician position like anticipated, and the CYC season started late, due to uncertainty with the pandemic. NTBC postponed the CYC start dates from the usual May 1st until the second week in June, when NTBC felt it could operate the CYC safely and effectively within the Federal and Provincial health guidelines and regulations.

Although it was a challenging year logistically, the crew was still able to participate in several important training and professional development opportunities and undertook a variety of work activities, all with a focus on conservation. Aside from addressing specific FWCP Action Plans, some of the crew work activities included: fence maintenance and repair, invasive species removal/inventory, kiosk and signage installation, hand seeding, litter removal, vegetation plot monitoring, wildlife camera installation and monitoring, infrastructure inventory, work plan prioritizing, and other basic assessments and inventories. These activities were carried out on twenty three (23) NTBC and BC Ministry of Forests, Lands, Natural Resource Operations and Rural Development (FLNRORD) conservation properties/complexes throughout the Kootenay Region. The crew also spent several days assisting local biologists and experts with different projects, serving as on-the-job training for the crew. The following report compiled by NTBC staff provides more details on the 2020 CYC Program.

The Nature Trust of British Columbia gratefully acknowledges the financial support of the Fish and Wildlife Compensation Program for its contribution to this component of the project.

NTBC also wishes to acknowledge the other funders for the 2020 Conservation Youth Crew in the Kootenay Region. They include: The Habitat Conservation Trust Foundation, Employment Skills and Development Canada, and Wheaton Precious Metals.

Introduction:

In 2020, NTBC continued its tradition of employing post-secondary students to establish a crew of 2 conservation crew members, supervised by the NTBC Kootenay Conservation Land Coordinator in the Kootenay region. Although the Kootenay Conservation Crew's primary responsibility is to fulfill the objectives specified in the annual Kootenay Conservation Land Operation and Maintenance Plan, there were also other opportunities built into the work schedule. These opportunities enabled the crew members to network with local biologists and conservation groups to learn techniques which helped to prepare them for their upcoming careers in the environmental field. This aspect of the program is a very important component of NTBC's provincial mentoring initiative.

The 2020 crew was engaged in a variety of projects on NTBC and FLNRORD conservation properties in the East and West Kootenays. Work activities that took place on these properties are outlined below and contributed to important 'on the ground' conservation efforts that address specific actions within the FWCP Upland and Dryland, and Wetland and Riparian Action Plans.

The crew's 2020 field season began on June 8th and finished on August 31st, 2020. The Conservation Crew Supervisor began a week early for planning and preparation purposes. The Conservation Crew Supervisor was a returning staff member, which provided the benefit of the crew being able to mobilize quickly into a new season.

Goals and Objectives:

The following list provides the goals/objectives for the Kootenay Conservation Youth Crew:

- a) NTBC, FLNRORD and funding partners enable a crew that assists with important operation and maintenance works on conservation properties in the region, thereby maintaining or enhancing wildlife and biodiversity values;
- b) Provide crew members (students or recent graduates of an environmental discipline) with important, related work experience to build their career from;
- c) Address actions within FWCP's Upland and Dryland Action Plan focused on the prevention and control of invasive species (COLUPD.ECO.HB.11.01)
- d) Address actions within FWCP's Wetland and Riparian Action Plan, focused on the prevention and control of invasive species (COLWRA.ECO.HB.14.01)

Work Area:

The NTBC Kootenay Conservation Crew work area was the East and West Kootenay Region, as shown in Figure 1 - Kootenay region Overview Map. This included work locations that ranged from the Columbia Valley in the north to as far south as Lake Koocanusa and the South Rocky Mountain Trench. Work stretched in the east from the Elk Valley to the Slocan Valley in the West. The below map shows NTBC conservation properties in the region but, does not depict FLNRORD conservation properties which are widely scattered throughout the region also.

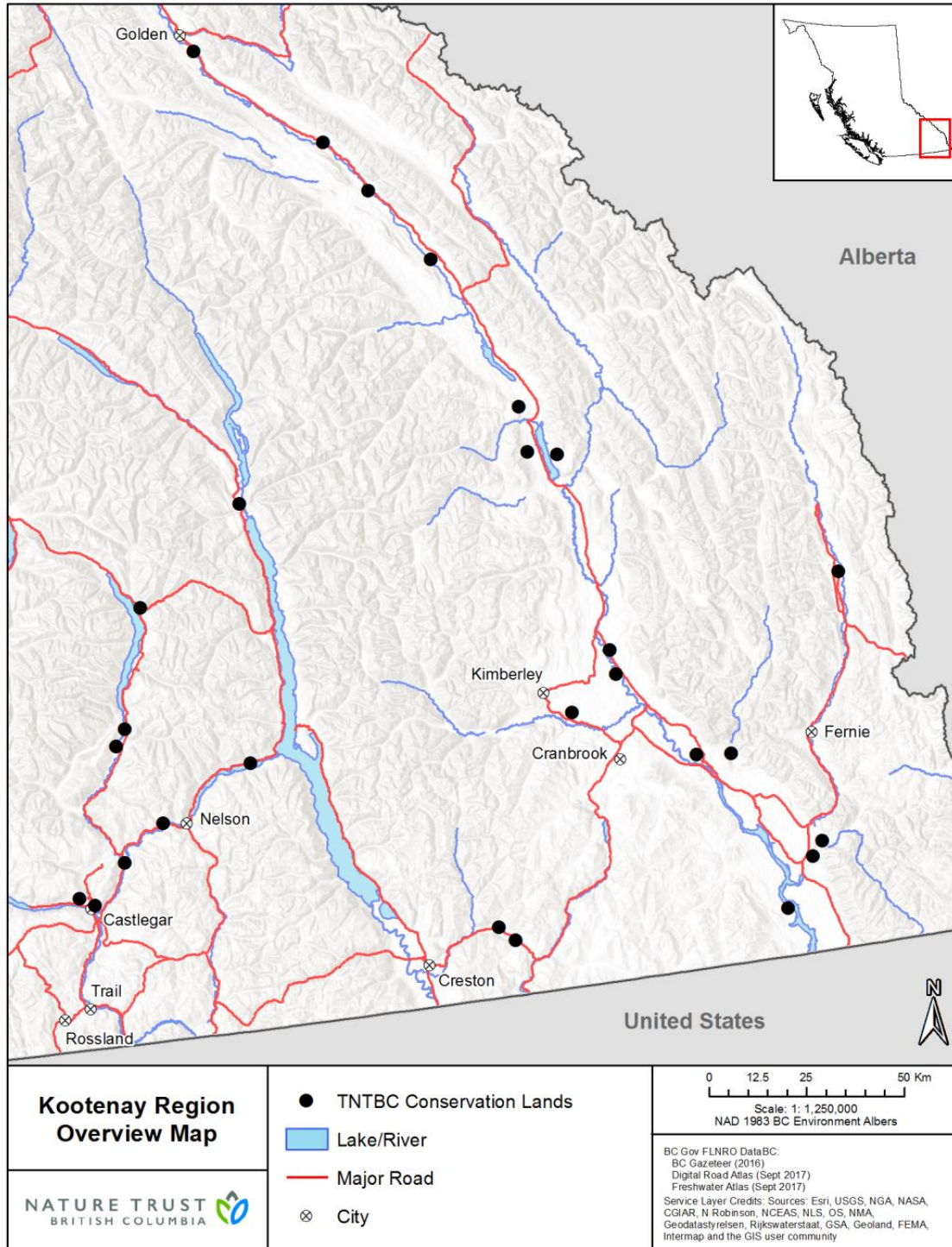


Figure 1: Kootenay Region Overview Map

Methods:

The project was delivered through a 2 person crew, inclusive of Conservation Crew Supervisor, A conservation Crew Member, and overseen by the NTBC Kootenay Conservation Land Coordinator. The annual work plan was established in advance of the crew's employment start. Since annual work activities took place over a wide geographic area, a focus on efficient project delivery was important. NTBC also makes every effort to ensure that a culture of safety is bestowed upon the all crew members, some of whom have limited, previous work experience. The focus on safety was exaggerated in the 2020 season, as the crew started during an uncertain period of COVID-19. NTBC took extra measures of caution related to COVID-19, including having all staff travel in their own vehicles, which were fully equip with sanitization supplies and personal PPE. Staff were also briefed weekly as the COVID-19 pandemic changed throughout the summer.

Work activities varied greatly but, there were best practices and methods employed by the crew to ensure safety, efficiency and effectiveness in their work.

For example, mechanical invasive plant treatments were typically conducted in sensitive areas (i.e. riparian zones) where chemical treatments could not be undertaken. Mechanical treatments included hand pulling, bagging and disposing of the plants in a properly specified manner at local transfer stations and landfills. Hand pulling was done primarily prior to seed set, to reduce the threat of future spread and establishment. In some cases, gas powered weed whips or brush saws were used to cut plants to prevent their growth and seed set.

Whenever possible, invasive plant inventories were undertaken in a methodical manner. This typically meant that a focus was placed on spread vectors and pathways (i.e. roads, game trails, riparian areas). The crew recorded infestations through NTBC's *Collector* App which was then later transferred into the Provincial Invasive Alien Plant Program (IAPP), thereby assisting with future treatment planning.

Other restoration work conducted by the crew, live-staking, re-seeding, and riparian planting were completed according to prescriptions developed by professionals or, in concert with pre-existing property management plans with specific, identifiable goals and objectives. Every effort is made to re-vegetate soil disturbances with native species, using clean seed.

For data collection, NTBC continues to use its geo-referenced *Collector* App which allows for collection and storage of nearly all of NTBC's field data and monitoring in a single, easy to access space. These data are easily revisited for monitoring and updating in the field on subsequent visits. NTBC continues to work with FLNRORD trying to establish an agreement which would allow NTBC to use the *Collector* app for data collection and sharing on both NTBC and FLNRORD conservation properties.

Finally, for infrastructure construction, modifications and repair – basic carpentry and fence building best practices are employed that will ensure longevity in harsh, outdoor conditions. Fences are built and repaired to be wildlife friendly, using design and construction techniques and materials that do not serve as impenetrable barriers, yet, ensure that conservation properties are protected from cattle trespass and unauthorized motor vehicle access.

Results, Outcomes & Discussion:

Results, outcomes and discussion have been combined within this section and specifically cover training and professional development, as well as, work activities.

Training & Professional Development

The 2020 Conservation Land Operation and Maintenance Program was designed, in part, to provide crew members with the training and certifications required to work safely. Professional development opportunities also allow for the crew to be exposed to a variety of conservation disciplines, with the intent of cultivating interest and potentially increasing their employability within the environmental sector. Due to the COVID-19 pandemic, training opportunities were very limited. Usual courses were either not offered, or it was deemed unsafe for staff to attend. Fortunately, all crew members had valid First Aid/CPR certifications when hired.

Training and professional development in 2020 included;

Workplace Hazardous Materials information System (WHMIS):

- The course was completed online. A special focus was on materials commonly carried by field crews.

Bear Aware Training:

- This course was completed online. The course provided an overview to crew members about the dangers of bears when working in an outdoor setting. Also included was information related to identification, behavior, habitat, avoidance, and reactions to bears.

Invasive Plant Identification and Management.

- This course was put on by the East Kootenay Invasive Species Council, as an online event. The course focused on regionally noxious and important species of concern. This course helped provide a base for a more in depth invasive plant ID field session provided by the NTBC Conservation Land Coordinator.

NTBC Project Safety Analysis and Safe Work Procedural Overview:

- The NTBC crew had an in-depth review of the NTBC Project Safety Analysis (PSA) and Safe Work Procedures before commencing field work. This overview includes, but is not limited to the following:
 - COVID-19 health and safety protocols
 - Vehicle safety checks
 - Tailgate Safety Meetings
 - Check-in Procedures (SafetyLine)
 - Missed check-in protocols and responsibilities
 - InReach device overview
 - Risk/hazard assessment guidelines
 - Backroad vehicle and ATV operation
 - Safe handling and use of power tools
 - PPE requirements

- VHF radio use and procedures
- Etc...

Work Activities

NTBC and FLNRORD conservation properties in the Kootenay Region were acquired for their outstanding wildlife habitat and biodiversity values. However, to ensure that these values are sustained and enhanced over time, it is essential that property infrastructure is maintained and habitat enhancement and restoration activities are implemented on an annual basis. Consequently, NTBC has been engaged, for many years, in employing post-secondary students, interested in conservation, to conduct maintenance and restoration projects on NTBC and FLNRORD properties throughout BC. This seasonal operation and maintenance program also provides permanent NTBC staff with an opportunity to establish a mentorship platform, enabling them to engage crew members in a number of special projects and to work with conservation specialists and professionals in the field. In 2020, the crew was able to work on twenty three (23) different conservation properties/complexes within the Kootenay region.

Operation and maintenance related work activities are outlined below, with land ownership indicated:

Redfish Creek Conservation Property (NTBC)

1. A property inspection was conducted of illegal waste disposal.
2. The crew conducted a danger tree assessment along the walking trails.
3. COVID-19 Public Notice signage was installed
4. The crew mapped and assessed a section of the creek that had experienced erosion during the spring of 2020.

Marsden Face (NTBC)

1. A property inspection was conducted.
2. Litter was collected from several parts of the property.
3. Illegal camping sites were investigated and reported to the Natural Resource Officers.
4. 2 game cameras were installed in the higher elevation sections of the property to gain insight into ungulate use in the recently enhanced areas.
5. Wildlife tree identification and mapping
6. COVID-19 Public Notice signage was installed

Shore Acres Beach (NTBC)

1. A property inspection was conducted.
2. Invasive plant infestations were investigated, recorded, and mapped. Information was entered into the Collector App, and into IAPP.
3. Spotted Knapweed (~0.08ha) and Rush Skeletonweed (~0.01ha) infestations were mechanically treated.
4. Litter was collected from several parts of the property.
5. Property signage was installed, including
 - a. Informational signage (2)
 - b. Parking signage (4)
 - c. Swim at own risk signage (4).

- d. Boundary signage (1)
- e. COVID-19 Public Notice (1)
- 6. Disturbed areas were hand seeded with a native seed mix (0.01ha).

Bummers Flats/Cherry Creek Conservation Complex (NTBC & FLNRORD)

- 1. Infestations of Spotted Knapweed along Pesticide Free Zones (~0.5ha) were hand pulled and bagged. Common burdock infestations (~0.2ha) were slashed with brush saws and pruning shears, bagged and disposed of at transfer station.
- 2. New Canada thistle infestations (0.25ha), resulting from recent wetland work, were brush-sawed twice to reduce the amount of seed production
- 3. A conveyor belting initiative for a Spotted Knapweed infestation in a Pesticide Free Zone was implemented in 2020. This was an initiative put forward by the crew. Conveyor belting was donated by a local lumber mill.
- 4. Hand-pulling of Purple Loosestrife infestation in the wetlands (12 bags from ~ 39ha of wetland). This was completed as a partnership initiative with the East Kootenay Invasive Species Council and FLNRORD staff.
- 5. Repaired exclusion fencing around wetland planting blocks (5 total) adjacent to recently restored wetlands.
- 6. The crew assisted in a bridge replacement project. Vegetation clearing and reseeding efforts were their main contribution.
- 7. Covid-19 Public Notice signage installed

The Big Ranch Conservation Complex (NTBC)

- 1. Existing elk proof enclosure fencing around 7 aspen restoration sites was inspected and repaired as required.
- 2. Photo monitoring plots/ growth plots within aspen enclosures was completed.
- 3. Trimmed grass around public information kiosks and parking areas at property entrance.
- 4. Enclosure fencing around riparian vegetation were repaired and competing grasses were removed.
- 5. Boundary fence lines were repaired as required (1.5km)
- 6. Covid-19 Public Notice signage installed

Hoodooos Conservation Property (NTBC)

- 1. Shrubs and grasses around the information kiosk sites and parking lot areas were trimmed.
- 2. Litter pick-up around two main parking lots
- 3. Extensive fence repair was conducted in the North East corner of the property (~2.6km) where unauthorized motor vehicle access is an ongoing issue.
- 4. Damaged or removed chain and locks on gated roads were replaced or repaired.
- 5. Old posts (200) and wire were removed and taken to the RDEK landfill.
- 6. An invasive species "Boot-Brush" and informational sign was installed.
- 7. Covid-19 Public Notice signage installed.
- 8. Installed 5 new property boundary signs on a new fenceline.

Lardeau - Duncan Flats Conservation Complex (NTBC)

- 1. Mechanically removed thistle (Canada and Bull) seed heads at lot 570 and 881 (~0.7ha).

2. GPS'd treated sites and collected IAPP information.

Sheep Mountain Conservation Property Complex (NTBC/FLNRORD)

1. Continued the lowering of the top wire on a recently installed fenceline, as it was proving to be a barrier to wildlife movement (~1 km).
2. Removed old posts, vehicle parts, etc... and took to RDEK landfill.
3. Covid-19 Public Notice signage installed

Bull River Conservation Complex (Lower Norbury, Armstrong, Bull River Grassland Corridor (BRGC), Red Barn – NTBC and FLNRORD)

1. Inspections and repairs on the property boundary fences were conducted (~3km).
2. Installed wildlife crossing locations on a newly built fenceline (4).
3. Installed 2 pedestrian walk throughs on a new fenceline.
4. 2 game cameras were installed to assess sheep and ungulate use in recently restored areas (sightline thinning).
5. Covid-19 Public Notice signage installed

Wasa Slough Conservation Complex (NTBC and FLNRORD)

1. Spotted Knapweed infestation was conveyor belted in a trial section (0.01ha), as hand pulling efforts were proving to be ineffective.
2. Aquatic invasive species assessment was done in Wasa Sloughs in cooperation with Provincial fisheries staff.
3. Domestic livestock trespass issue was investigated around Cameron Pond.
4. Covid-19 Public Notice signage installed

Kidd Creek Conservation Property (NTBC)

1. Property was inspected for trash, illegal dumping etc.
2. Knapweed infestation along Fortis gas line were mapped and recorded.

Wolfbush/Premier/Pommier/Three Sons Conservation Properties (FLNRORD)

1. Spotted Knapweed (~0.2ha) along the Wolf creek dyke and riparian areas were pulled, bagged, and disposed of at transfer station. This was completed in coordination with FLNRORD habitat section staff.
2. A new thistle infestation (0.1) was mapped and brush-sawed to remove seed heads.

Wigwam Flats Conservation Complex (NTBC/ FLNRORD)

1. Invasive plant assessment
2. Property assessment
3. Removal of two 16' trailer loads of trash from the conservation property (i.e. old metal and wire)

Wycliffe Wildlife Corridor Conservation Complex (NTBC/ FLNRORD)

4. A new parking lot was created to contain visitor access to an already impacted site underneath the BC Hydro transmission line.

5. Covid-19 Public Notice signage installed

Carroll Creek Conservation Property (NTBC)

1. Boundary fence lines repaired to protect from cattle trespass (2km).
2. Significant repair required on fencing across the Fortis gas line.

Columbia Lake Eastside Conservation Complex (NTBC)

1. Continuation with the dismantling and piling of old abandoned water tower for future burning.
2. Removal/disposal of all non-combustible material from the water tower.
3. Growth measurement, assessment and mapping of previously planted Limber pine seedlings (40 seedlings)

Columbia Lake Westside Conservation Complex (NTBC)

1. Boundary fenceline assessment/repair (5km) in the North East corner. Over 20 trees needed to be cut off the line.

Gold Creek Game Reserve (Strauss Road) Conservation Property (NTBC)

1. Newly installed southern boundary fenceline was inspected/repared (800m).
2. 3 wildlife crossing points were installed along the new fenceline.
3. 2 game cameras were installed to assess ungulate winter use on sections of the property that are currently under prescription for thinning. Data will be used for post-treatment comparison.

Newgate/Bar 40 Conservation Property (FLNRORD)

1. Repair of 4 wetland exclusion fencing blocks was led by the NTBC crew with assistance from FLNRORD staff.
2. Repair of boundary fenceline (1.2km), and access gate repair was completed.
3. Covid-19 Public Notice signage installed.

Grand Forks / Gilpin Conservation Property (NTBC)

1. Boundary signage was updated (2 signs).
2. Wetland range exclosure fencing was assessed and repaired.
3. Recently planted trees were assessed for survival, and browse protectors were re-installed around many.
4. Invasive plant inventory was conducted adjacent to the two main access roads.
5. Covid-19 Public Notice signage installed.

Work was completed in partnership with the NTBC Okanogan Conservation Youth Crew

Slocan Lake Conservation Property (NTBC)

1. Assessment and removal plan for fencing on the property was completed in preparation for next season
2. Danger tree assessment and planning was completed.
3. Trail network mapping
4. Game camera installation/monitoring to assess ungulate winter range usage.

Waldie Island (NTBC)

1. Bio-control assessment on invasive plant infestation was completed.
2. Property inspection was completed.
3. A 4'x4' Informational kiosk was transported and installed on the island.

Columbia River Wetlands - Edgewater (NTBC)

1. Removal of fallen trees around parking area – Taken into the property and repurposed as Coarse Woody Debris around wetlands.
2. Installed an invasive species “Boot-Brush” informational sign.
3. Installed a 4'x4' signage kiosk at the parking lot.
4. 4 wildlife cameras were installed in cooperation with The Lake Windermere District Rod and Gun Club. Focus was on recently installed badger culverts and heavily used game trails.
5. Covid-19 Public Notice signage installed.

Recommendations:

While the 2020 field season was a successful one for the Conservation Youth Crew, there are always things that can be improved upon. Due to training limitations and hiring issues resulting from the COVID-19 pandemic, many recommendations from 2019 did not happen. Many are reoccurring on the list below:

- A) Consider supplying the crew with Wilderness First Aid Training.
- B) It is recommended that the crew get certified as Assistant Pesticide Applicators, in order to chemically treat smaller invasive plant infestations under the supervision of the Kootenay Conservation Land Coordinator.
- C) Continue to train crew with S100 and S185 due to the hot, dry summers the Kootenays are experiencing.
- D) Continue training the crew with ATV training.
- E) Continue to integrate the crew with FLNRORD staff and their projects, as the crew had highlighted that as one of the best parts of their employment.
- F) Make a concerted effort to visit West Kootenay properties at least twice annually with the crew.
- G) Continue to upgrade some of the tools and supplies to help to efficiently and safely deliver our work plan.
- H) Aim to hire a full time technician to allow for field work to continue well into the fall, enhanced project coordination, and a stronger presence on West Kootenay properties.
- I) Integration of more wildlife focuses projects (i.e. game camera monitoring) was recommended by the crew

Acknowledgements:

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Conservation Youth Crew Photos:



Figure 2: Crew member installing game camera on a bear den: Bull River – Armstrong Property



Figure 3: A new initiative by NTBC to install invasive plant “Boot-Brush” educational signs – Hoodoos Conservation Property.



Figure 4: Wildlife exclosure fencing block protecting riparian vegetation at the Earl Ranch – Newgate.



Figure 5: NTBC Crew preparing to brush-saw thistle at the Duncan Flats Conservation Property Complex. This work was done in cooperation with FLNRORD - Fish and Wildlife Compensation Program Section staff.



Figure 6: Thistle infestations treated around the wetlands on the Duncan Flats Conservation Complex.

Figure 7: Trash removed from the Wigwam Flats Conservation Complex.

Figure 8: The NTBC crew building/installing a kiosk on the Waldie Island Conservation Property.



Figure 9: Fence repair to keep out domestic cattle – Carroll Creek Conservation Property

Figure 10: Wildlife tree identified and mapped – Marsden Face Conservation Property

Figure 11: Conveyor belting trial to suppress spotted knapweed in a riparian area – Cherry Creek Conservation Property.



Figure 12: Photo plot of thistle infestation at the Cherry Creek wetland complex.

Figure 13: Replacement of a bridge on the Cherry Creek Conservation Property.