

Final Report:
NTBC Land Stewardship Activities F23 – Conservation Field Crew
Program
COL-F23-W-3672



Prepared for: Fish and Wildlife Compensation Program

Prepared by: Joe Strong: NTBC Kootenay Conservation Land Coordinator



Prepared with financial support of the Fish and Wildlife Compensation Program on behalf of its program partners, BC Hydro, the Province of BC, Fisheries and Oceans Canada, First Nations and Public Stakeholders

20-MAR-2023

Contents

Executive Summary	3
Introduction:	4
Goals and Objectives:	4
Work Area:	4
Methods:	6
Results, Outcomes & Discussion:	6
Work Activities	7
Training & Professional Development	12
Recommendations:	15
Acknowledgements:	15
Conservation Youth Crew Photos:	16
Figure 1: NTBC Kootenay Region Overview Map	5
Figure 2: Swift Water Rescue Technician training course	16
Figure 3: Assessing a Wood duck box at the Wasa Slough	16
Figure 4: Crew members during a native pollinator seed collection workshop – with KinSeed Ecologies	16
Figure 5: Wildlife tree monitoring workshop facilitated by the FWCP section - Wycliffe	17
Figure 6: Culvert replacement and gate install at Lot 881 – Duncan - Lardeau	17
Figure 7: Signage replacement – Walter Clough Wildlife Sanctuary	17
Figure 8: NTBC staff assessing and installing signage on the Columbia River Wetlands - RCMP Flats parcel	18
Figure 9: Installing and assessing monitoring plots for the Bummers Flats Pollinator Meadow Restoration Project	18
Figure 10: Lunch break during the annual work party with the BC Back Country Hunters and Anglers (Bull River Grassland Corridor)	18
Figure 11: Drone photograph of Columbia River Wetlands – RCMP Flats.	19
Figure 12: Crew assisted with re- vegetation efforts after a riparian bank repair project at Redfish Creek	19
Figure 13: Kootenay Conservation Land Manager discussing Conservation land acquisition with the crew – Hoodoos Wetlands parcel	19
Figure 14: Sun Creek wetland enhancement and beaver relocation project.	20
Figure 15: Access road assessment and removal of trash from the Hoodoos property	20
Figure 16: 2022 Chainsaw Operation and Maintenance course – Bull River Grassland Corridor	21
Figure 17: Crew helping lay a fish-grade pond liner for the Big Ranch wetland enhancement project	21
Figure 18: NTBC Field Maps Application showing the access road inventory completed at the Hoodoos Conservation Area in 2022-23	22
Figure 19: NTBC Field Maps Application showing the area prioritized for a Habitat Enhancement Prescription at the Bull River Grassland Corridor (area is outlined in green). The HEP will aim to improve Rocky Mountain bighorn sheep habitat and ungulate winter range.	22

Executive Summary

In 2022-23, The Fish and Wildlife Compensation Program (FWCP) Columbia Board approved \$34,100 to support The Nature Trust of British Columbia's (NTBC) Conservation Field Crew (CFC) program, which employs post-secondary students or recent graduates on an annual basis to implement important 'on-the-ground' operations and maintenance work. The FWCP funding was leveraged and combined with other funders to make the project a success. The 2022-23 CFC workplan put a specific focus towards access management issues and the protection of conservation lands, identified in the FWCP's Columbia Region Upland and Dryland Action Plan (COLUPD.ECO.HB.16.01 Access management issues-P1). A significant component of the 2022-23 field season was also directed towards identifying areas for restoration as identified in the Upland and Dryland Action Plan (COLUPD.ECO.RI.07.01 Identify candidate upland areas for ecosystem restoration-P1).

NTBC employed the CFC from early April 2022 until the end of March 2023. The crew consisted of a Field Operations Technician, a Crew Supervisor, and two Field Crew Members, for a total of four seasonal staff. The Field Operations Technician worked from April 2022- March 2023, the Crew Supervisor worked from May 2022 – December 2022, and the Field Crew Members worked from May 2022 – September 2022. The crew consisted of post-secondary students or recent graduates, and crew activities were overseen and managed by the Kootenay Conservation Land Coordinator. Of the Crew Members employed, three were returning employees, and the fourth was new to the organization. The CFC helped to complete vital on-the-ground conservation work activities in the 2022-23 field season.

Although some returning Crew Members held valid training certificates, 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, there was a particular focus on The Duncan-Lardeau, Slocan River Island, Waldie Island, Hoodoos, and Bull River Grassland Corridor conservation areas. Some of the crew work activities included fence assessment/maintenance/repair, restoration area assessment/layout, invasive species inventory/removal, kiosk and signage installation, hand seeding, litter removal, vegetation plot monitoring, wildlife camera installation/monitoring, infrastructure inventory, work plan prioritizing, and other basic assessments and inventories. These activities were carried out on 31 NTBC and BC Ministry of Water, Land, and Resource Stewardship (WLRS) 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. The following report compiled by NTBC staff provides more details on the 2022-23 CFC 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 2022-23 Conservation Field Crew in the Kootenay Region, which included; Environment and Climate Change Canada, The Habitat Conservation Trust Foundation, and Wheaton Precious Metals.

Introduction:

In 2022-23, NTBC continued its tradition of employing post-secondary students and recent graduates to establish a CFC. Due to additional contributions from other funders, NTBC was able to hire a crew of four in 2022-23. The Conservation Field Operations Technician, Crew Supervisor and Crew Members were supervised by the NTBC Kootenay Conservation Land Coordinator. Although the CFC'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 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 crew was engaged in a variety of projects on NTBC and WRLS 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 Action Plan.

The CFC 2022-23 field season began on April 1st 2022 and finished on March 31st, 2023. The Field Operations Technician began on April 1st, the Crew Supervisor on April 25th, and the Field Crew Members on May 2nd. The Field Operations Technician and Crew Supervisor began early for planning and preparation purposes. The Field Operations Technician and Crew Supervisor were returning staff, 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 CFC:

- a) NTBC, WRLS 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;
- c) Address actions within FWCP's Upland and Dryland Action Plan focused on the Access Management Issues (COLUPD.ECO.HB.16.01)
- d) Address actions within FWCP's Upland and Dryland Action Plan, focused on the identification of upland areas for ecosystem restoration (COLUPD.ECO.RI.07.01)

Work Area:

The NTBC CFC's work area is 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 symbolizes which properties have been acquired with FWCP financial supports, as well of other management arrangements.



Figure 1: NTBC Kootenay Region Overview Map

Methods:

The project was delivered through a four person CFC, inclusive of a Conservation Field Operations Technician, Conservation Crew Supervisor, and Conservation Crew Members. The annual work plan was established in advance of the crews employment start. Since annual work activities took place over a wide geographic area, a focus on efficient project delivery was important. NTBC also made every effort to ensure that all crew members at the start of the field season developed a culture of safety. Although the COVID-19 pandemic was less of a factor in 2022-23 compared to the previous seasons, NTBC ensured all staff were vaccinated, and continued to follow the NTBC COVID-19 safety protocol, which adapted with provincial and federal regulations.

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. Disturbed soils were re-seeded with native seed blends following project completion.

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, and riparian areas). The crew recorded infestations through NTBC's *Field Maps* 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, such as wetland enhancement, re-seeding, and tree thinning, were completed according to prescriptions developed by professionals or, in concert with pre-existing property management plans with specific, identifiable goals and objectives.

For data collection, NTBC continued to use its geo-referenced *Field Maps* 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 has officially established a data sharing agreement with the Province of BC, which allows NTBC to use the *Field Maps* app for data collection and sharing on both NTBC and WRLS conservation properties. This also allows for easy sharing of maps/data with the FWCP, especially on joint project sites.

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

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.

Work Activities

In 2022-23, the CFC was able to work on 31 different conservation properties/complexes within the Kootenay region. On these properties, over five hectares of area with invasive plants was mechanically treated, 70+ conservation related signs were installed, over 60 hectares were prioritized for restoration prescription development, 33.5km of fenceline was inspected/repared, 2km of old hazardous fencing was removed, 11 wildlife exclosure blocks were repaired and two access gates were installed. The crew also installed/monitored ten wildlife cameras, monitored eight photo plot sites, and enhanced two wetland sites.

Specific operation, maintenance and enhancement related work activities are outlined below, with land ownership indicated:

Arrow Lakes (NTBC)

1. Removed large pieces of scrap metal and hoses from lower section of property.
2. Installed lock and chain on access gate.
3. Removed old page wire fence (100m) from property.
4. Installed two boundary signs.

ii.

Big Ranch Conservation Complex (NTBC)

1. Existing elk proof exclosure fencing around seven aspen restoration sites was inspected and repaired as required (3km). This required replacing 68 wooden posts with 10' metal t-posts, as wooden posts are starting to rot at the base.
2. Photo monitoring plots/ growth plots within aspen enclosures were assessed.
3. Trimmed grass around public information kiosks and parking areas at property entrance.
4. Boundary fence lines were assessed/repared as required (approximately 5km). Included removing a large tree, fixing three breaks and installing four new posts.
5. A trail camera was installed/monitored in a forest enhancement sites to monitor wildlife use.
6. Rail fence at main parking lot was repaired and re-stained (~50m).
7. Crew spent six days assisting with a wetland creation project.
8. Seeded deactivated road
9. Set up and repaired blue bird boxes on property to increase nesting sites.
10. Crew installed three boundary signs along highway 43

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. Two game cameras were monitored to assess sheep and ungulate use in recently restored areas (sightline thinning).
3. An old garage was removed by a contractor, and crew helped to clean up the site following removal.
4. Property infrastructure and habitat features were inventoried into *NTBC Field Maps* application
5. Installed Woodlot signage on entrances
6. Removed ~400m of barbed wire running through the middle of the property.
7. Over 30 hectares of forested habitat was mapped and prioritized for restoration prescription

development. This area is now under contract for a habitat enhancement prescription, with a focus on improving Rocky Mountain bighorn sheep habitat.

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 (~0.5ha) were slashed with brush saws and pruning shears, bagged and disposed of at transfer station.
2. Canada thistle infestations (0.5ha), resulting from recent wetland work, were brush-sawed 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 area was assessed for effectiveness in 2022. Results showed stunted growth directly underneath the matting, but edge areas showed no reduction.
4. Repaired exclusion fencing around wetland planting blocks (five total) adjacent to recently restored wetlands.
5. Re-seeded disturbed area around the 2020 bridge replacement site.
6. Assisted with seed collection and seeding for the Bummer Flats Pollinator Meadow Restoration Project
7. Assessed/repared approximately two kilometers of fencing
8. Property infrastructure and habitat features with inventoried into *NTBC Field Maps* application
9. Removed ~100m of downed barbed wire fence.
10. Assessed new bridge site for erosion from creek
11. Installed ~17 boundary signs
12. Assisted with Purple loosestrife weed pull on man-made canals (~3ha).
13. Conducted aerial assessment and monitored beaver dams on cherry creek.
14. Installed and monitored a game camera set up on active game trail.

Carroll Creek Conservation Property (NTBC)

1. Repaired two kilometers of fenceline to protect from cattle trespass, fixing two breaks and removing three large diameter trees.
2. Access roads required for property maintenance or emergency access were brushed/cleared
3. Beaver activity and impact on water flow was assessed
4. Property infrastructure and habitat features were inventoried on NTBC's *Field Maps* app
5. The crew conducted a fenceline survey on the western property boundary to assess what needs replacement in coming years.

Columbia Lake Eastside Conservation Complex (NTBC)

1. Property was assessed for future management priorities
2. Crew conducted a road inventory on property.

Columbia Lake Westside Conservation Complex (NTBC)

1. Boundary fenceline assessment/repair (5km) in the northeast corner and cattle guard.
2. Installed/monitored a trail camera on an active game trail.
3. Assessed campsites around Spur Lake and cleaned up garbage.
4. Removed old dock from Spur Lake and hauled to dump.

5. Property infrastructure and habitat features were inventoried on NTBC's *Field Maps* app
6. Crew helped assist with a beaver release into Sun Creek wetlands

Columbia River Wetlands - Castledale (NTBC)

1. Installation of boundary signage (there were no signs on this property until 2021)
2. Mapping of Spotted knapweed infestations
3. Property infrastructure and habitat features were inventoried on NTBC's *Field Maps* app

Columbia River Wetlands - Edgewater (NTBC)

2. Rail fencing around the parking lot was re-stained (60m)
3. Parking lot was whipper snipped and brush sawed
4. Assessed/repared 0.5km of fenceline along the eastern boundary where cattle had entered the property installed, and installed six new T-posts.
5. Two wildlife cameras were monitored in cooperation with The Lake Windermere District Rod and Gun Club. Focus was on recently installed badger culverts and heavily used game trails.
6. Property infrastructure and habitat features were inventoried on NTBC's *Field Maps* app
7. Crew reseeded disturbed areas where structures were removed.
8. Irrigation intake was maintained and repaired, and access road was cleared.
9. Removed top strand of page wire running along highway to ease wildlife access.
10. Crew took part in an annual bat count at one of the structures on the property.
11. Installed ~10 property boundary signs along banks of the Columbia River.

Columbia River Wetlands - Habart (NTBC)

1. Installations of boundary signage (there were no signs on this property until 2021)
2. Mapping of spotted knapweed infestations
3. Property infrastructure and habitat features were inventoried on NTBC's *Field Maps* app

Columbia River Wetlands – RCMP Flats (NTBC)

1. The crew installed four property boundary signs

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

1. Boundary fencelines were inspected/repared (2.0km), while removing eight trees off the line.
2. Property infrastructure and habitat features were inventoried on NTBC's *Field Maps* app
3. Removed garbage from property left behind by people camping adjacent to the property.

Grand Forks / Gilpin Conservation Property (NTBC)

1. Wetland range exclosure fencing was assessed and repaired.
2. Invasive plant inventory was conducted adjacent to the two main access roads.
3. Property infrastructure and habitat features were inventoried on NTBC's *Field Maps* app

Hoodoos 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 completed in the North East corner of the property (~2.6km) where unauthorized motor vehicle access in an ongoing issue.
4. 300m of rail fencing around parking areas was repaired and re-stained. This included installing six new posts.
5. Access management signage related to seasonal road closures was installed in areas where trespass has been an issue.
6. Old boundary signage was replaced with newly branded NTBC signage.
7. Property infrastructure and habitat features were inventoried into *NTBC Field Maps* application
8. Access gates for seasonal road closures were assessed and locked in accordance with regulations.
9. Assessed damage done to main parking lot kiosks.
10. Repaired pedestrian walkthrough to stop bike access
11. Conducted an in-depth access road inventory on the property.
12. Removed trailer load of dumped garbage on east side of the property.

Kidd Creek Conservation Property (NTBC)

1. Property infrastructure and habitat features with inventoried into *NTBC Field Maps* application
2. Crew assessed damage to gates and kiosk

Lardeau - Duncan Flats Conservation Complex (NTBC)

1. Hand thinned 0.25ha of Scotch broom around homesteads on the Von Unruh property
2. Property infrastructure and habitat features were inventoried into *NTBC Field Maps* application
3. Installed rail fence section on lot 881 off highway.
4. Installed new gate and culvert on access road to lot 881
5. Cleared a grown-in road on the Von Unruh property and conducted road inventories.
6. Installed a photo monitoring post.

Marsden Face (NTBC)

1. A property inspection was conducted.
2. Litter was collected from several parts of the property.
3. Wildlife trees (14) were identified and signed along the main road to discourage firewood cutting.
4. Crew participated in an invasive weed pull within the native Camas meadows.

Redfish Creek Conservation Property (NTBC)

1. Completed invasive plant removal from parking areas (0.2ha) and other vector sites.
2. Two conservation complex boundary signage were installed.
3. Two unauthorized structures were removed.
4. Assessed and removed blowdown resulting from a recent windstorm.

Rixen Creek (NTBC)

1. Took part in the “start-up” activities for this property, as it was acquired in late 2020.
2. Access trail was brushed out and large logs were bucked/ removed.
3. Two game cameras were installed/monitored on the property.
4. Property infrastructure and habitat features were inventoried into *NTBC Field Maps* application

Sheep Mountain Conservation Property Complex (NTBC/FLNRORD)

1. Assessed/repared approximately five kilometers of fenceline.
2. Removed old posts and took to RDEK landfill (4.5 trailer loads)
3. Property infrastructure and habitat features were inventoried into *NTBC Field Maps* application
4. Installed five property complex boundary signs.

Shore Acres Beach (NTBC)

1. Completed a property inspection and danger tree assessment.
2. Invasive plant infestations were investigated, recorded, and mapped. Information was entered into IAPP.
3. Spotted knapweed (~0.1ha) and Rush skeletonweed (~0.01ha) infestations were mechanically treated.
4. Litter was collected from several parts of the property.
5. A 50m rail fence and gate was repaired and re-stained on the property.
6. Property infrastructure and habitat features were inventoried into *NTBC Field Maps* application

Slocan Lake Conservation Property (NTBC)

1. A 4'x4' Kiosk was installed along the Galena Rail Trail.
2. Property infrastructure and habitat features were inventoried on NTBC's *Field Maps* app

Slocan River Island

1. The island was assess for access in 2022 and it was determined that access was both unsafe (due to swift water and in-stream hazards), and unnecessary, as the island is extremely difficult to access and showed no sign of public use. Staff determined that the island is best left as a wildlife refuge, rather than drawing attention to it with NTBC branded signage at this time.

Waldie Island (NTBC)

1. The property was assessed with staff from the Okanagan Nation Alliance (ONA) for interest in a partnered restoration project.
2. The ONA and NTBC developed a list of priority restoration goals with associated costs
3. Live stake collection and seed propagation has begun with support from the ONA, in preparation for planting in 2023.
4. Great blue heron nesting and usage surveys have been conducted over the winter of 2022-23 and planned until May of 2023. This is in partnership with the ONA and Selkirk College.

Walter Clough (NTBC)

1. Replaced an old property information sign with an updated sign and posts.
2. Removed browse protectors from replanting sites that have matured enough and no longer need the added protection.

Wasa Slough Conservation Complex (NTBC and FLNRORD)

1. Assessed a rail fence installed along a levee to restrict livestock access from the west shore Cameron pond, private land, and the highway.
2. Checked new barbed wire fence line ~1km
3. Installed six property boundary signs
4. Property infrastructure and habitat features were inventoried into *NTBC Field Maps* application
5. Over 32 hectares of forested habitat was prioritized for restoration prescription development. This area is now under contract for a habitat enhancement prescription, with a focus on improving ungulate winter range and travel corridor habitat.

Wigwam Flats Conservation Complex (NTBC/ FLNRORD)

1. Re-seeded bare ground areas with a native seed mix.
2. Removed old metal and wire from the property (truck load)
3. Property infrastructure and habitat features were inventoried into *NTBC Field Maps* application

Wycliffe Wildlife Corridor Conservation Complex (NTBC/ FLNRORD)

1. Disturbed areas related to fencing contracts were re-seeded with a native seed blend
2. A game camera was installed/monitored to document wildlife use associated with the newly built fenceline

Elizabeth Lake (FLNRORD)

1. Crew assisted in building a new rail fence (50m) around the main parking lot, and replaced the main access gate.

Newgate/Barr 40 (FLNRORD)

1. Assessed and repaired 1.4km of boundary fence, removed three large trees, and added eight T-posts.
2. Added coarse woody debris to new wetland sites to increase biodiversity.

Premier Ridge Conservation Complex (FLNRORD)

1. Mechanically treated Canada thistle (0.5ha) and Spotted knapweed (0.5ha) around wetland sites on the Wolf Creek property

Training & Professional Development

The 2022-23 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. Training and professional development in 2022 included:

TRAINING

Swiftwater Rescue Technician – Level 1

- This course was taught by Raven Rescue in the Slocan River. This course taught staff the lessons and potential consequences of working in moving water, along with self and team rescue techniques. This helps staff when working on NTBC islands within river systems (i.e. Walter Clough, Slocan River Island, Waldie Island, RCMP Flats, Edgewater, Habart, Brisco, etc.)

Wilderness First Aid

- This course was taught by the College of The Rockies in Ferine. The Field Operations Technician attended in the spring of 2022.

Wildlife Tree Monitoring

- This was a field-based session organized by the FWCP section to help train land manager and field staff in the monitoring and effectiveness assessment of wildlife tree creation/ inoculation treatments. This session was taught by Todd Manning and overviewed both the data entry (FieldMaps) and physical characteristics of wildlife trees for assessment. The Field Operations Technician attended this course in the spring of 2022.

Workplace Violence and Harassment Training

- This course was complete online through the Worsitesafety.com. All crew members took this course in 2022.

Workplace Hazardous Materials information System (WHMIS):

- The course was completed online through Worsitesaftey.com. A special focus was on materials commonly carried by the field crew

Defensive Driver Training

- This was an online course put on through Worksitesafety.com. This course provided crew members with real life examples and scenarios related to road hazards and the importance of awareness and confidence when driving.

Bear Aware Training:

- This course was completed online through Worksitesafety.com. 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 a half online, half field based event. The course focused on regionally noxious and important species of concern, and followed up with identification in the field.

Occupational First Aid – Level 1

- This course was put on by Strategic Fire Control and Training in Cranbrook BC. The course provided basic first aid knowledge to all field staff

S100/185 Fire Suppression and Fire Behavior

- This course was put on by Strategic Fire Control and Training in Cranbrook BC. The course

provided crew member with fire suppression knowledge, and identified the fire suppression equipment required to be with field crews. The crew member had hands-on practice with water pumps, hoses, hand tools, etc.

Basic Chainsaw Operation and Maintenance

- This course was put on by Timberwolf Training and Consulting. This was a two-day course that provided uncertified crew members with the experience required to safely operate chainsaws within WorkSafeBC guidelines. Field training took place on NTBC's Bull River Grassland Corridor property

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 fieldwork. 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 (SafeteyLine)
 - 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...

PROFESSIONAL DEVELOPMENT

Partner Work Events

- Bummers Flats Pollinator Meadow Restoration: The crew helped KinSeed Ecologies to re-vegetate and pollinator meadow on the Bummers Flats Conservation Property, through seed collection, invasive plant removal, and planting.
- Central Kootenay Invasive Species Society - Invasive Riparian Plant Management Project: The crew assisted CKISS for two days to help remove Purple loosestrife and Yellow flag Iris from the shoreline of Kootenay Lake and the Kootenay River in 2022-23
- BC Annual Bat Count: The crew conducted an annual bat count at NTBC's Columbia River – Edgewater conservation area in 2022-23, and submitted the results to the BCBats program.
- East Kootenay Invasive Species Council – Purple loosestrife weed pull: This is an annual event where the NTBC CFC assists the EKISC crew in the removal of purple loosestrife from a modified wetland in the Bummers Flats Conservation Area.

Province of BC - Wildlife Work

- Two of the crew members went on to work for the Ministry of Forests - Wildlife Branch, under contract in the winter of 2022-23, assisting on Whitetail deer and elk monitoring studies. This has been a great partnership, which has led to retention of valuable staff in region.

Special Projects:

- Big Ranch Ecosystem Enhancement Project – Wetland Restoration Project: The NTBC crew, along with the Wildsight Youth Climate Corps (YCC) crew assisted staff and contractors to create/enhance four wetland basins on the Big Ranch Conservation Area.
- Sun Creek – Wetland Enhancement/Beaver Reintroduction/ Indigenous Re-naming Ceremony: The crew assisted staff and contractors in the enhancement of a wetland complex along Sun Creek, within NTBC's Columbia Lake Westside Conservation Area. The crew also helped regional wildlife staff introduce a beaver to the new wetland area. This area was soon after renamed through an indigenous re-naming ceremony.

Recommendations:

2022-23 was another successful field season for the NTBC CFC, there are always things that can be improved upon. Below are some recommendations

- A) Continue supplying the crew with Wilderness First Aid, s100/185, and Chainsaw training.
- B) It is recommended that the Field Operations Technician get certified as a Pesticide Applicator, in order to chemically treat smaller invasive plant infestations, and potentially supervise crew members with Assistant pesticide applicators certification.
- C) Consider purchasing a snowmobile for winter field work. Field staff were restricted in what they could accomplish this winter due to snow conditions.
- D) Consider purchasing an unregulated drone (<250g) to allow for inspections, photo plots, aerial imagery etc. in areas that restrict regulated drone operations (i.e. proximity to airports). **Complete**
- E) Continue to integrate the crew with Provincial government staff and their projects, as the crew had highlighted that as one of the best parts of their employment.
- F) Continue to visit the West Kootenays 2-3 times annually to ensure there is an NTBC presence on these sites.
- G) Continue to upgrade some of the tools and supplies to help to efficiently and safely deliver our work plan.
- H) Continue to hire a year-round technician to allow for field work to continue well into the fall/winter, enhanced project coordination, and a stronger presence on West Kootenay properties. **Complete**
- I) Integration of more wildlife-focused projects (i.e. game camera monitoring) was recommended by the crew again this season.

Acknowledgements:

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 2022-23 Conservation Field Crew in the Kootenay Region. They included: the Canada Nature Smart Climate Solutions, the Habitat Conservation Trust Foundation, and Wheaton Precious Metals.

Conservation Youth Crew Photos:



Figure 2: Swift Water Rescue Technician training course

Figure 3: Assessing a Wood duck box at the Wasa Slough



Figure 4: Crew members during a native pollinator seed collection workshop – with KinSeed Ecologies

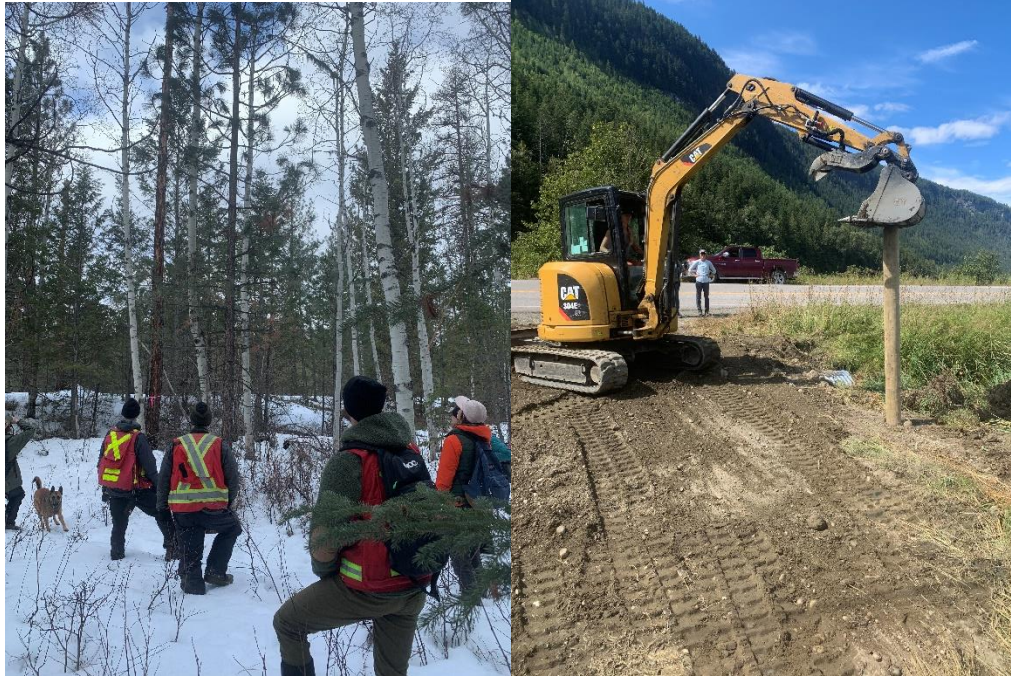


Figure 5: Wildlife tree monitoring workshop facilitated by the FWCP section - Wycliffe

Figure 6: Culvert replacement and gate install at Lot 881 – Duncan - Lardeau



Figure 7: Signage replacement – Walter Clough Wildlife Sanctuary.

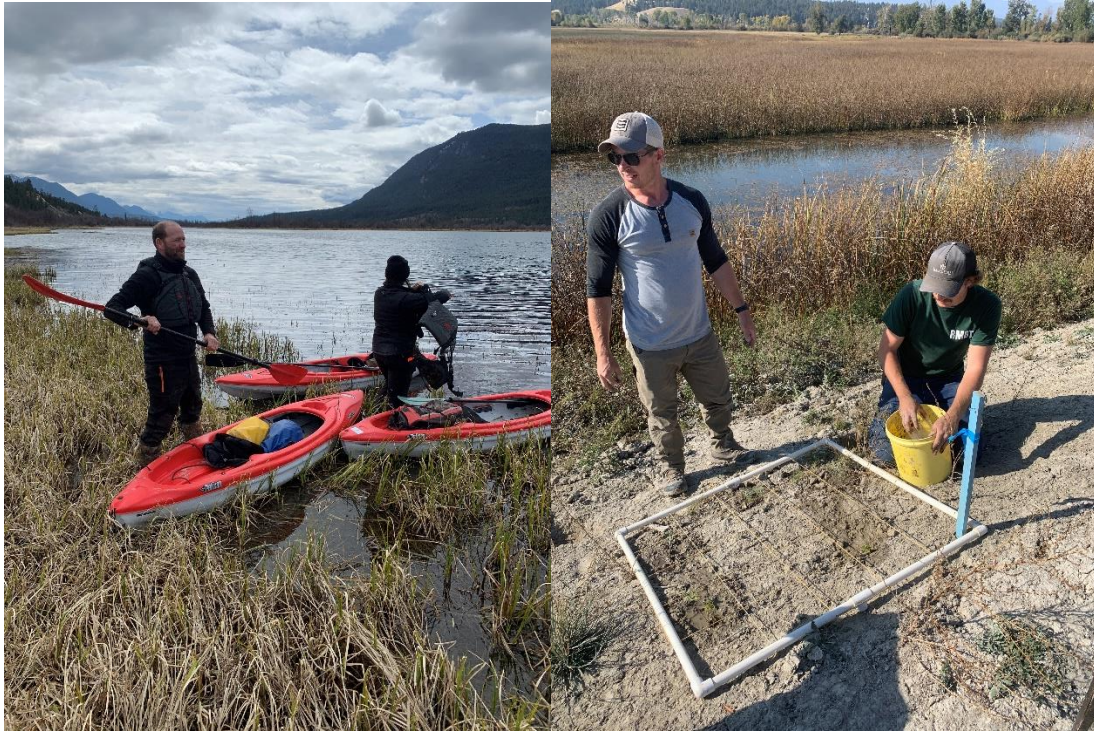


Figure 8: NTBC staff assessing and installing signage on the Columbia River Wetlands - RCMP Flats parcel
 Figure 9: Installing and assessing monitoring plots for the Bummers Flats Pollinator Meadow Restoration Project.



Figure 10: Lunch break during the annual work party with the BC Back Country Hunters and Anglers (Bull River Grassland Corridor)



Figure 11: Drone photograph of Columbia River Wetlands – RCMP Flats.



Figure 12: Crew assisted with re-vegetation efforts after a riparian bank repair project at Redfish Creek
 Figure 13: Kootenay Conservation Land Manager discussing Conservation land acquisition with the crew – Hoodoos Wetlands parcel.



Figure 14: Sun Creek wetland enhancement and beaver relocation project.



Figure 15: Access road assessment and removal of trash from the Hoodoos property



Figure 16: 2022 Chainsaw Operation and Maintenance course – Bull River Grassland Corridor



Figure 17: Crew helping lay a fish-grade pond liner for the Big Ranch wetland enhancement project.



Figure 18: NTBC Field Maps Application showing the access road inventory completed at the Hoodoos Conservation Area in 2022-23.

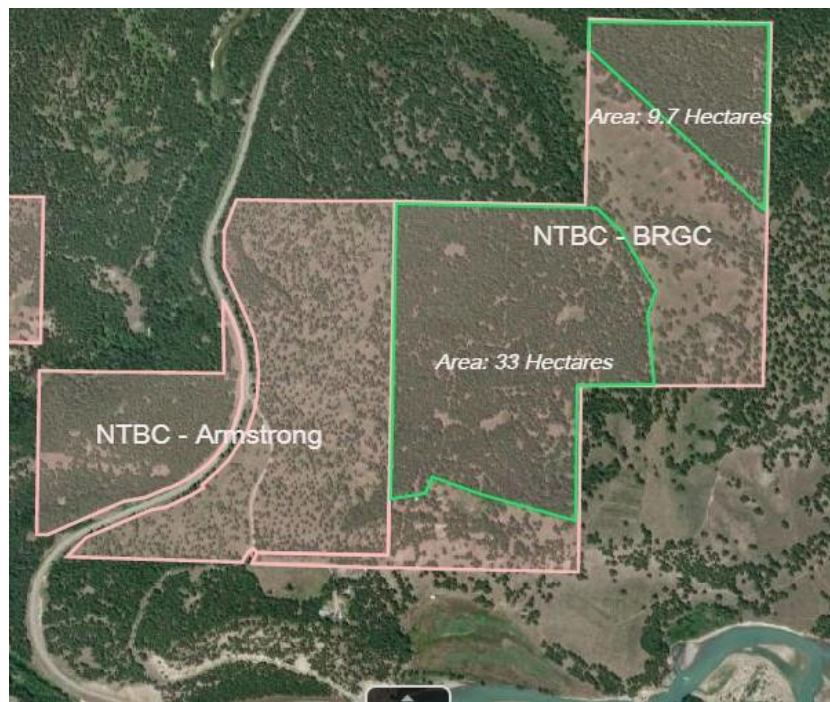


Figure 19: NTBC Field Maps Application showing the area prioritized for a Habitat Enhancement Prescription at the Bull River Grassland Corridor (area is outlined in green). The HEP will aim to improve Rocky Mountain bighorn sheep habitat and ungulate winter range.