

2024 PROJECT SUMMARY

LOWER COLUMBIA RARE SPECIES ECOSYSTEM ENHANCEMENT PROJECT (LCRSEEP)



Waterloo Eddy Regional Park

About the Project:

- Funded by the Columbia Basin Trust
- A 5 year multi-site project
- Led by the Okanagan Nation Alliance (ONA), with support from Trail Wildlife Association, and the BC Ministry of Forests
- In collaboration with multiple partners and supporting funders (See page 12)
- Supports rare and threatened ecosystems and wildlife species in the Lower Columbia Basin
- Protects and enhances habitat
- Focused on riparian, dry forest, and brushland ecosystems
- Incorporates Syilx Traditional Ecological Knowledge (TEK) for ecological resiliency
- Provides community outreach and education

Contents

About the Project	1
2024 Highlights	2
Waterloo Eddy Regional Park Restoration	2
Riparian Restoration Sites	4
Dove Hill Native Plants	5
Smallwood Bat Roosts	6
Riparian Nest Boxes	7
Fort Shepherd Restoration	7
Dove Hill Ecosystem	8
Beaver Armour	8
Bank Swallows	9
Supporting Projects	10
Collaborators	12



The 2nd Annual ONA-CKISS-Robson Scouts Community Weed Pull Day took place at the Norns riparian site in June 2024. The event focuses on removing Himalayan blackberry and other invasive species to protect native riparian plants, including black cottonwood cuttings planted in 2023.



Syilx elders cewelna (Leon Louis) and Stella Snow with ONA staff



Riparian restoration project at Waterloo Eddy Regional Park

2024 Highlights

2024 was Year 4 for the project. The ONA team and our collaborators worked on several initiatives.

- Over 600 riparian plants and shrubs planted and protected at Waterloo Eddy Regional Park
- Thinning of 1 hectare of dry, upland forest at Waterloo Eddy Regional Park
- 10 new nest boxes added; 10 monitored, one with nesting western screech owl
- 102 native plants at Dove Hill Native Plant demonstration garden
- Over 78,000 square meters treated for invasive plants



ONA technicians preparing students from Twin Rivers elementary school to help with planting at Waterloo Eddy Regional Park. October, 2024.

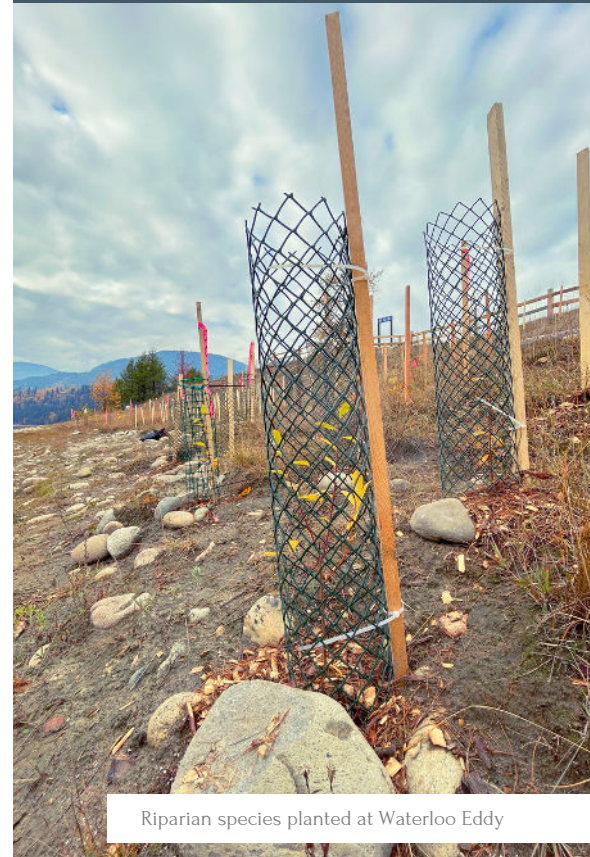
Waterloo Eddy Regional Park: Planting

In October 2024, the Regional District of Central Kootenay (RDCK) and Okanagan Nation Alliance (ONA) Natural Resources Department began work at Waterloo Eddy Regional Park to enhance rare ecosystems that support species-at-risk and restore habitat resiliency.

With help from the grade 4/5 French Immersion class from Twin Rivers Elementary School, 600 native plants were added to enhance the riparian ecosystem. mulx (black cottonwood), k^wrk^wə^rʔa[?]ti[?]fa[?]p (sitka willow), stəktəkcx^wl[?]tp (red-osier dogwood), and other native species cuttings were harvested along the Columbia River, to be reunited with their 'family' at the Waterloo Eddy site. These native species were grown by ONA Natural Resources team under the Native Plant Propagation Project funded by Fish & Wildlife Compensation Program (FWCP).

Waterloo Eddy Regional Park

Situated on the ntx^witk^w (Columbia River below Arrow Lakes) downstream of sn[?]ux^wqnm (Castlegar), Waterloo Eddy Regional Park represents an important riparian (near-water) ecosystem with connections to upland forest habitat for wildlife.



Riparian species planted at Waterloo Eddy



Waterloo Eddy Regional Park: Dry Forest Thinning

In November 2024, Wildfire Forestry crews completed a thinning treatment at the north end of Waterloo Eddy Regional Park. This work included the removal of small diameter qʷəqʷliʔt (lodgepole pine) in poor health to reduce tree density and to protect and enhance understory species, including culturally important plants such as skʷl̥siʔm̥l̥x (kinnikinnick), and pun̥p (Rocky Mountain juniper). In spring 2025, ONA technicians will plant with site-appropriate native species to increase stand diversity and structure.

Fifteen long, straight lodgepole pine posts were harvested and donated to Circle of Indigenous Nations Society (COINS) in Castlegar to be used as tipi poles. Firewood was salvaged from the project and brought to Pass Creek Regional Park to be used as locally sourced firewood for future campers.



Above: Wildfire Forestry crew preparing tipi poles for delivery to the Circle of Indigenous Nations Society (COINS)

Right: Wildlife Forestry crews removing ladder fuels near a nest box in Waterloo Eddy Regional Park

Thinning Treatments

Thinning Treatments are used to improve forest health and structure by mimicking the effects of the frequent low intensity fires that historically maintained these ecosystems before fire exclusion.



Nest Boxes in Waterloo Eddy Regional Park



Riparian species plug stock grown from local cuttings for local restoration work

Riparian Restoration: snłuxwqnm (Castlegar)

For the past four years, students from Selkirk College's School of Environment and Geomatics (SEG) and other community-based groups have supported work on riparian restoration sites at Kinnaird and the Norns Creek confluence. This year work continued with:

- Planting of over 300 live-stakes of black cottonwood, red-osier dogwood and willow at the Kinnaird restoration site with Selkirk College students
- Central Kootenay Invasive Species Society (CKISS) and Robson Scout Community Weed Pull targeting Himalayan blackberry with 24 volunteers and staff
- Waterloo Eddy Regional Park was added as a riparian restoration site and a BC Rivers Day event was held there in September with Fortis BC and CKISS to remove invasive plants with 16 volunteers



Robson Scouts and Venturers



Invasive blackberry ready for landfill



Above: ONA technician with Selkirk Recreation Fish and Wildlife (RFW) students, Kinnaird site
Right: Live stake cottonwoods and bank stabilization at Kinnaird site

mulx (Cottonwood)

Riparian mulx (Cottonwood) Forests are critical ecosystems that have been highly impacted and fragmented by altered water cycles, urban encroachment, recreational activities and the spread of invasive plant species.



Kinnaird site



Planting in progress at Dove Hill

Dove Hill Native Plant Project

The Dove Hill Trail is a 5.7 km trail through a mosaic of shrub land and open forest that overlooks the Columbia and Kootenay Rivers. The trail is a popular area for local recreationists and therefore presents an opportunity to bring community awareness to an important ecosystem in our landscape.

In 2024, ONA and partners:

- Manually removed invasive plants in 14,000 square meters adjacent to trails
- Planted 102 locally sourced and propagated native plant seedlings to create a sustainable seed-source population for future restoration work
- Installed split-rail cedar fencing to protect the restoration site
- Increased community awareness of the ecological and cultural importance of native plants through signage and outreach



Split rail cedar fence installed at Dove Hill native plant restoration site, November 2024.



Silver leaf phacelia
Phacelia hastata



Shrubby penstemon
Penstemon fruticosus



Round-leaved alumroot
Heuchera cylindrica



Largeflower tritelia
Triteleia grandiflora



sk'alsimelx
Kinnikinnick
Arctostaphylos uva-ursi



st'yl? Bluebunch
wheatgrass
Pseudoroegneria spicata



q'acq'acwix'ups
Yarrow
Achillea millefolium



q'iq'iqn'lmix
Silky lupine
Lupinus sericeus



ONA tmiwxTM technician waters plants at Dove Hill



Silver-Haired Bat

Smallwood Artificial Bat Roost Monitoring

The Smallwood study area near Kíamitp (Nelson) is home to the Queen Victoria Mine, where bats roost over winter, as well as diverse ecosystems including old-growth ponderosa pines and natural wildlife trees which provide critical bat habitat.

In 2021, ONA installed nine BrandenBark™ artificial bat roost structures and created nine wildlife trees at three nearby sites to mitigate habitat loss and provide places for bats to roost.

In 2024, ONA monitored these structures. Bioacoustic roost loggers were used to record bat calls which identified nine different bat species around the structures. Bat guano (feces) were collected to screen for the fungus that causes white-nose syndrome (WNS), unfortunately there was not enough for a conclusive test. Guano samples were also sent to a lab for species identification. Results are not yet available.

This project was supported by additional funding from BC Hydro's Fish and Wildlife Compensation Program (FWCP).



ONA technicians installing new guano traps under artificial bat roosts at the Smallwood bat monitoring site. August 2024.

t̓nt̓an̓wíya? (Bat)

Some of these bat species are considered “at risk” due to a variety of factors including habitat loss, wind turbines, restricted distribution, and susceptibility to white-nose syndrome (WNS). WNS is a deadly disease caused by an introduced fungus that is decimating bat populations.



Townsend's Big-Eared Bat



A northern flicker checks out a nestbox at China Creek

Riparian Nest Box Monitoring

Many species of birds rely on cavities in older trees for nesting, but in disturbed ecosystems there often aren't enough to go around. Trail Wildlife Association built nest boxes to meet the nesting preferences of three species: western screech owl, Lewis' woodpecker, and wood duck. Ten of these were installed at 4 riparian sites around Castlegar in late 2022 and early 2023, which are being monitored for signs of use. In 2024 Selkirk College students installed 7 more boxes at the College's Rialto Wetland restoration site near Hugh Keenleyside Dam, and ONA technicians installed 3 at Waterloo Eddy Regional Park.



Syilx Knowledge Keeper and ONA Cultural Lead sk̓w̓k̓w̓jal (Elliott Tonasket) addresses crews at ak̓t̓p̓s̓as (Fort Shepherd), October 2023.



ONA technician installing a nest box at Waterloo Eddy Regional Park.

ak̓t̓p̓s̓as (Fort Shepherd Conservancy Area) EcoCultural Restoration Project

In 2024 ONA began monitoring the results of restoration work that was completed in the fall of 2023 in ak̓t̓p̓s̓as (Fort Shepherd Conservancy Area - FSCA) which integrated Syilx TEK and forestry principles to mimic the effects of the frequent low-intensity fires that historically maintained the area's ecosystems.

Monitoring of the 19.5 hectare area over time will determine how successful the treatment was in promoting plant vigour and food resources for deer and elk, adding nutrients to the soil, providing habitat for small wildlife, and reducing the risk of catastrophic wildfire.

q̓w̓əlq̓w̓lsina? (Western Screech Owl)

q̓w̓əlq̓w̓lsina? is an at-risk species that relies on cavities in mature cottonwood trees in riparian areas for nesting. Nest boxes provide habitat where suitable trees are in short supply.



q̓w̓əlq̓w̓lsina? nesting in box at Kinnaird



View from Waldie Island Trail

Dove Hill Ecosystem Restoration Project

In addition to the Dove Hill Native Plant Project, ONA continues to work towards a more comprehensive ecosystem restoration project. The Dove Hill brush land is an important mosaic of habitats inhabited by a wide range of wildlife, including many species-at-risk such as qʷayqʷaytʰaps (western skink), aslaiyaʔqnə kʷuxʷkʷuxʷap (rubber boa) and ɣaʔs (common nighthawk). The south facing slopes provide key winter ungulate range, and connectivity to the Kootenay River.

Project development includes; site visits with TEK, planning with stakeholders and project partners, surveying and data collection, and invasive plant management.

Impacted by fire exclusion, invasive species and human encroachment, this brush land ecosystem was red-listed by the British Columbia Conservation Data Centre (BCCDC) in February 2023.

Protecting Trees from Hungry Beavers

In 2023, ONA technicians worked on fixing neglected tree armouring along the Waldie Island Trail on the north shore of ntxʷitkʷ (Columbia River below Arrow Lakes) and in 2024 a further three large cottonwoods were protected.

In 2024, the Lower Columbia project (LCRSEEP) provided materials to Selkirk College for students to armour trees across the river at the “oxbow” adjacent to the campus. Twenty-three trees were protected, most of them cottonwoods.



In April 2024, Selkirk College School of Environment students selected and protected riparian trees from beaver damage.

stunx (Beaver)

stunx are vitally important ecosystem engineers. But in places where there aren't enough older riparian trees, they can have a negative impact on ecosystems. Wire fencing is used to protect essential trees such as large mulx (cottonwoods) from beaver damage. This doesn't affect the beaver's food supply as there are always plenty of younger trees and shrubs available.



Beaver damaged tree on Waldie Island Trail



Bank Swallow in burrow, Photo: Janice Arndt

Bank Swallow Colony Protection

- Primary threats include; habitat loss, changes in availability and timing of prey (flying insects), as well as disturbance by people digging or carving at the friable soils that swallows need for nesting sites.
- Signage was developed and installed to bring awareness to the sensitivity of these breeding areas and limit human disturbance at the nesting sites.
- In 2024 educational signage was installed at Wild Orchard Lane and at Waterloo Eddy Regional Park.



Dove Hill colony with over 450 burrows.



maḡx^wcn, Bank Swallow (*Riparia riparia*)

Sensitive Breeding Habitat
Please do not disturb or enter area

Bank Swallows have declined in number by an estimated 98 % over the last 40 years and are listed as "Threatened" under the federal Species at Risk Act.

Primary threats include habitat loss and changes in availability and timing of prey (flying insects).

Bank Swallows and their nests are protected under the federal Migratory Birds Convention Act, 1994.

It is an offence for anyone to kill, hunt, capture, injure, harass, take or disturb a migratory bird nest or eggs.



Signage posted at Dove Hill to protect Bank Swallows

maḡx^wcn (Bank Swallows)

maḡx^wcn populations have decreased by about 98% in the past 40 years and are classified as "Threatened" under the Species at Risk Act. Major threats include habitat loss, changes in prey availability (flying insects), as well as disturbances caused by people digging or carving at the friable soils that swallows need for nesting sites.



ONA tmx^wulax^w technician installing protection sign



akłpsas (Fort Shepherd Conservancy Area)

Other Projects in the Lower Columbia Supporting At-Risk Species and Ecosystems

Reptiles at-risk: nwiwiłniwt (Western Yellow-bellied Racers)

Funded by: **Teck**

Funded by Teck Resources Limited (Teck) and led by Okanagan Nation Alliance in partnership with Jakob Dulisse Consulting, the Reptiles-at-Risk project was designed to capture and track nwiwiłniwt (racers) in akłpsas (Fort Shepherd Conservancy Area) and the adjacent Teck-owned property. We tracked three racers in the fall of 2024, leading to the identification of two over-wintering hibernacula which can now be protected and considered in land management decisions.

Native Plant Propagation Project

Funded by: **FWCP**

Initiated in 2023, this is a first step in creating a framework of sustainable native seed and plant source that incorporates both Western and Syilx Knowledge. This project supports the Syilx principle of suxwtstem (inherent responsibility as caretakers), and provides guidance to Natural Resource technicians in restoration work through training workshops such as the four held in 2024.

This year, ONA technicians grew over 368 riparian plants from spring cuttings which were later planted at Waterloo Eddy Regional Park. In the fall, seeds from ten native species were collected locally and planted to be used in ecosystem enhancement projects in the coming year.



Collecting and growing riparian native plants for ONA-led restoration projects.

nwiwiłniwt (Racer Snake)

More common south of the border, racers are at the northern edge of their range in Southern BC and are considered a threatened species. These fast-moving snakes eat mostly insects and prefer open shrubland habitat with lots of cover to hide from predators.



Adult nwiwiłniwt (racer) in akłpsas



Waterloo Eddy Regional Park restoration site

sn+ux^wqnm (Castlegar) Cottonwood Riparian Restoration Project

Funded by: Real Estate Foundation
of BC (REFBC)

The primary goal of this project is to bring together Syilx Traditional Ecological Knowledge and western science to facilitate connection in healing of the tmx^wulax^w (land).

With helping hands from FortisBC, CKISS, and Twin Rivers Elementary students, we planted 600 plants at Waterloo Eddy Regional Park last fall. This included riparian plants grown under the ONA-led Native Plant Propagation Project - funded by FWCP, as well as nursery stock provided by Sagebrush Nursery.

Through this project, ONA staff received Syilx Elders' and Traditional Ecological Knowledge Keeper (TEKK)'s guidance and suggestions from Cottonwood Ecologist, and a Plant expert from Sagebrush Nursery, prior to restoration work at Waterloo Eddy Regional Park.



ONA technicians add coarse woody debris at Waterloo Eddy restoration site

Yellow-Breasted Chat Monitoring in the West Kootenays

Funded by:

- Environment and Climate Change Canada (ECCC)
- Canadian Wildlife Services
- Columbia Power Corp.

The West Kootenay population of yellow-breasted chats has remained small over the years. 2024 was the third year of monitoring chats by the ONA along the Pend d'Oreille and Columbia Rivers to better understand the bird's population dynamics.

The program consisted of checking which territories were occupied, re-sighting previously banded birds, banding nestling and unbanded birds, monitoring nests to determine breeding success, and characterizing the shrub and plant communities around the nests. Of the 12 nests monitored in 2024, only 2 were successful. Continued monitoring is needed to better understand the challenges faced by this population.



ONA biologist banding a yellow-breasted chat male with colour-coded band to monitor population



LCRSEEP is led by the Okanagan Nation Alliance in partnership with the Trail Wildlife Association, and the BC Ministry of Forests. LCRSEEP is funded under the Columbia Basin Trust’s Ecosystem Enhancement Program with additional funds and resources provided by Okanagan Nation Alliance, BC Hydro’s Fish and Wildlife Compensation Program, The Regional District of Central Kootenay, and Trail Wildlife Association.

This project would not be successful without the support and dedication of volunteers, students, and staff from organizations that collaborated with us on LCRSEEP initiatives. Our sincerest thanks for all you have done - limləmt:

- Selkirk College's School of Environment and Geomatics students and instructors
- The Land Conservancy of BC
- Castlegar Parks and Trails
- Elk Root Conservation
- City of Castlegar
- Sagebrush Nurseries
- FortisBC
- Syilx Knowledge Keepers caylx (Richard Armstrong), skʷkʷləl (Elliott Tonasket), cewelna (Leon Lewis) and Stella Snow
- Twin Rivers Elementary School
- Castlegar FireSmart Committee
- Robson Scouts
- Central Kootenay Invasive Species Society

limləmt | Thank You



If you or your organization is interested in collaborating with the Lower Columbia Rare Species Ecosystem Enhancement Program, please contact:
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