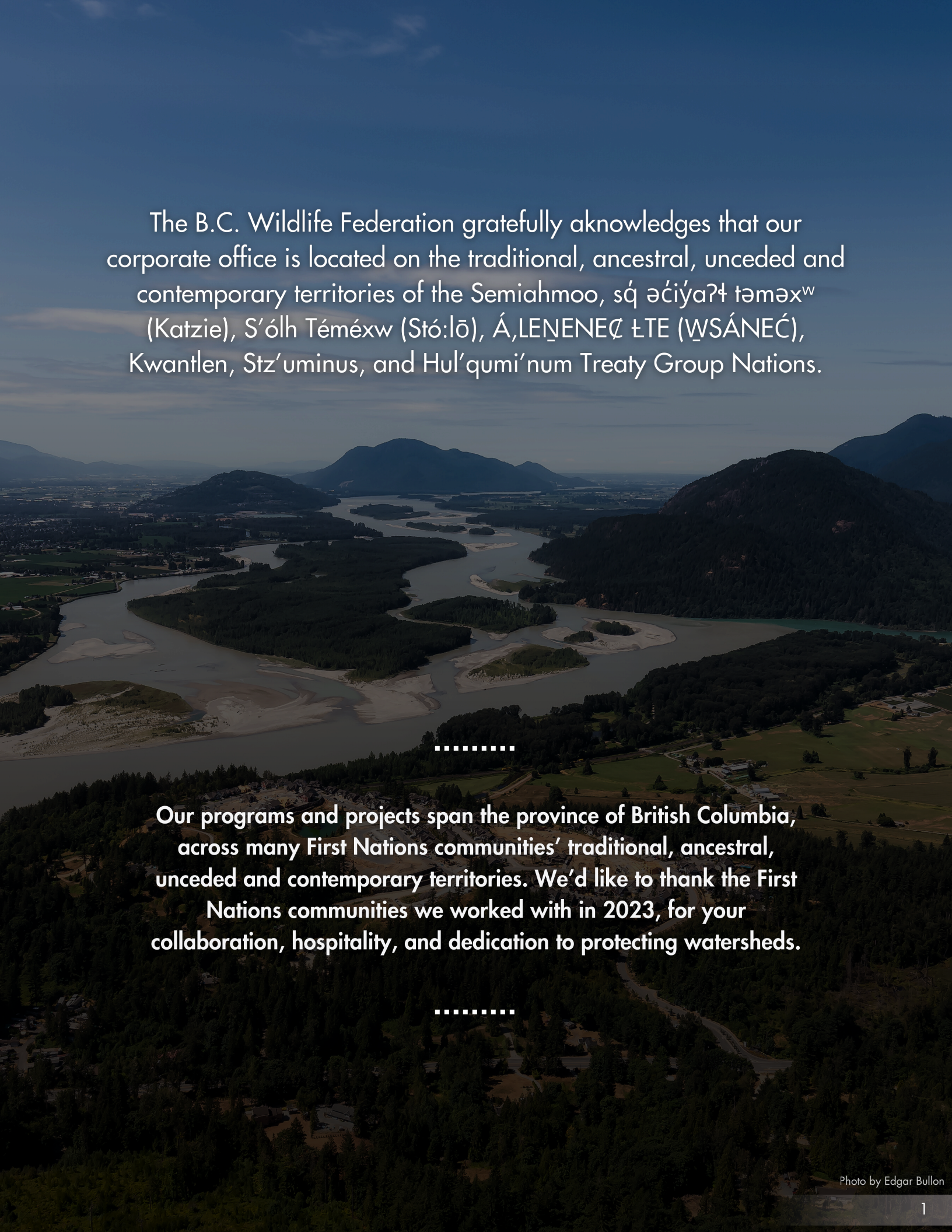


Presented by
the B.C. Wildlife Federation's
Conservation Stewardship Department

B.C. WILDLIFE FEDERATION

WATERSHED REPORT

2023



The B.C. Wildlife Federation gratefully aknowledges that our corporate office is located on the traditional, ancestral, unceded and contemporary territories of the Semiahmoo, sḵ ə́ćiy̓aʔɬ təməxʷ (Katzie), S'ólh Téméxw (Stó:lō), Á,LEN̲ENEȻ ŁTE (W̲SÁNEĆ), Kwantlen, Stz'uminus, and Hul'qumi'num Treaty Group Nations.

.....

Our programs and projects span the province of British Columbia, across many First Nations communities' traditional, ancestral, unceded and contemporary territories. We'd like to thank the First Nations communities we worked with in 2023, for your collaboration, hospitality, and dedication to protecting watersheds.

.....

Photo by Edgar Bullon

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LEGEND

- Cloud
- Mountain
- Butterfly
- Water
- Star



The illustrations found throughout this report were created by Chenoa Gao, a member of the Muskeg Lake Cree Nation. Gao worked as a Conservation Illustrator with the B.C. Wildlife Federation from 2021 to 2023. Alongside developing her graphic novel, 'We Are of Water,' which aimed to connect people with the voices and knowledge of Indigenous Elders, youth, and community members involved in various Watershed projects, her contributions were crucial in developing several educational and training materials for the BCWF's fieldwork.

THE B.C. WILDLIFE FEDERATION'S WATERSHED TEAM

The BCWF's Watershed Team, also known as the Conservation Stewardship Department aims to enhance watershed security throughout the province. This team encompasses key education programs including the Wetlands Education Program (WEP) and the Fish Habitat Restoration and Education Program (FHREP). Alongside these educational initiatives, the department also undertakes various restoration projects and develops conservation tools to enhance their ability to effectively manage and protect vital fish and wildlife habitat and watershed ecosystems.

Wetlands Education Program (WEP)

Every year, the Wetlands Education Program (WEP) team works to conserve wetlands across our beautiful province. Through the offering of educational courses, attending outreach events, and supporting wetland restoration projects in communities throughout B.C., the WEP provides members of the public with the knowledge and tools needed to be wetland stewards in their own backyard.

Fish Habitat Restoration and Education Program (FHREP)

The BCWF's FHREP initiatives work towards a future in which freshwater ecosystems are healthy, sustainable, and valued by local communities. Fish Habitat Restoration and Education workshops and initiatives raise awareness about the importance of protecting and conserving freshwater fish and riparian habitats across B.C., while building community capacity to care for these valued areas through restoration and community engagement.

Restoration Projects

The BCWF's Watershed Team focuses on restoration projects, including wetland restoration, beaver-based restoration, and stream (fish habitat) restoration. This work is often conducted with a variety of partners, with the BCWF sometimes taking the lead and at other times, a secondary role. These projects can span many years and typically include maintenance and monitoring to ensure long-term success well beyond the completion of the initial restoration.

Conservation Tools

The BCWF's Watershed team is involved in the development and use of various conservation tools through partnerships with several organizations. These include:

- Wetlands Ecosystem Services Protocol (WESP): Led by the BCWF in partnership with the Province of BC, this model is a standardized method for assessing the function and value of the services provided by wetlands.
- Canadian National Wetlands Inventory (CNWI): A federal government project supported by the BCWF, featuring a comprehensive, publicly available national geodatabase on Canadian wetlands. This initiative aims to collect and compile the best available data on wetland habitats, organizing it into a national geodatabase and making it accessible to the public in a standardized format.
- Forest Range Evaluation Program (FREP): The BCWF assists the Province of BC by training practitioners to assess the value of wetlands in relation to forestry activities.
- Wetland Plants of BC: A field guide to indicator species for wetland classification. This digital resource is a BCWF-led project, funded by the province and partnered with EcoLogic Consultants Ltd.

WATER IS LIFE.

The B.C. Wildlife Federation (BCWF) has long been committed to the conservation of water and watersheds, which is central to its mission to protect, restore, and enhance the fish, wildlife, and habitats of British Columbia. Over the years, the BCWF's Watershed Team has established strong relationships with First Nations communities across BC, partnering to address the challenges of climate change through the restoration and protection of wetlands and watersheds.

For more than two decades, the BCWF's Wetlands Education Program has played a vital role in educating and inspiring British Columbians. The program engages communities through workshops, training, and restoration projects, emphasizing the importance of viewing wetlands and watersheds as essential ecological landscapes, rather than wastelands.

As the BCWF's commitment to water and watershed conservation grew, so did its Watershed Team.

In 2021, the BCWF received a significant boost with a one-year grant from the Healthy Watersheds Initiative, supported by the Province of British Columbia. This funding led to the creation of the Wetlands Workforce, Canada's largest collaborative wetland initiative, which has significantly advanced the enhancement, maintenance, and restoration of wetlands and riparian zones across the province. A subsequent investment from the Province towards Watershed Security solidified the foundation for the BCWF's ongoing and enhanced conservation efforts through 2022 and into 2023.

The BCWF Watershed Team actively participates in multiple wetland and stream restoration projects annually and launched a new beaver-based restoration initiative in 2023, known as '10,000 Wetlands'. Additionally, the team is leading the use of innovative conservation tools in BC aimed at providing an advanced approach to wetland decision-making in British Columbia.

Looking ahead, the BCWF's Watershed Team is committed to driving impactful change by educating the public about the critical importance of wetland conservation, enhancing expertise through targeted training on cutting-edge conservation tools, and spearheading comprehensive, collaborative restoration projects that sustain and revitalize British Columbia's wetlands and streams every year.

Photo by Jamie Long

Director's Message

BCWF Director of Conservation Stewardship

It gives me great pleasure to share with you the 2023 BCWF Watershed Report. The year 2023 was difficult, as BC was hit for the first time by a province-wide drought and saw devastating wildfires. The impacts are not trivial, and directly affected members of our own staff as well as our partners and communities we work in – in some cases displacing homes and livelihoods, making the climate crisis that much more visceral. With dwindling fish and wildlife populations, degraded habitats, and ever-precarious climate extremes, improving watershed security is something we need now more than ever.

Thanks to your contributions, we're working towards creating a better future. We continue to coordinate volunteers, train staff, and offer educational programming to communities to support the next generation of watershed practitioners and foster a watershed sector. We have been working hard to move beyond organizational silos and become better allies, as we believe collaboration is central to the success of watershed health. In the following report, you'll see highlights of some of our collaborative watershed work, including our educational programming; our on-the-ground conservation projects; and our enhancement of conservation tools. It's an impressive range of projects only made possible from the contributions of many dedicated people.

In 2023, among other initiatives, we improved access to numerous lakes as part of our dock accessibility project that will connect more people to nature; we ran dozens of watershed workshops in numerous communities; we enhanced over 300 hectares of habitat, and we launched our 10,000 wetlands initiative that will open the door for processed-based restoration for watershed groups across BC, and play an important role in watershed recovery.

We're honored to work among so many brilliant people, communities, and organizations who are willing to roll up their sleeves and tackle watershed health head-on. We continue to be grateful and honored to work alongside the many indigenous communities whose knowledge, generosity, and dedication to conservation have been inspirational and critical to healing the land. Our members and volunteers have also helped set the groundwork for so much of our conservation work. The task ahead is daunting. To improve the health of our watersheds and reverse the trend, we require long term commitments, and we need unprecedented coordination among all of us. The task at hand will require us all to be ambitious, strategic, and foster alliances to work towards a shared vision of healthy watersheds. Thank you to all who've so far been part of this journey.

Sincerely,

Neil Fletcher

Neil Fletcher
Director of Conservation Stewardship
B.C. Wildlife Federation



2 ILLUSTRATED BY ᐊᐧᐱᐢᑭ ᒥᒣᐢ (CHENOA GAO)



BCWF WATERSHED TEAM

YEAR IN REFLECTION

Photo by Jamie Long

WATERSHED TEAM METRICS 2023

Area Impacted by Wetland and Fish Habitat Restoration Work	**344.59 ha (3,445,926 m^2)** **321 ha of this is attributed to the Fraser River Tidal Marsh Clean-up Project.* **+** **3 km in-stream habitat restored**
Workshops and Training Events	**38 workshops and training events held with a total of 501 attendees**
Indigneous Elders Days and Collaborations	**Four Elders Days:** Focused on knowledge exchange and involving Elders in conservation initiatives **17 First Nations Collaborations (WESP):** Emphasizing joint training and application of the Wetland Ecosystem Services Protocol *This metric is also included in the 'Workshops and Training Events' section* **30 Indigenous Collaborations (Restoration & Pre-restoration):** Including several BDA assessments with First Nations, focusing on restoration and preparatory stages.
School Events	**Seven public school events held with a total of 785 student participants**
Outreach Events	**Over 15 outreach events attended with a total of 2,969 individuals reached**

BCWF
BC WILDLIFE FEDERATION



INDIGENOUS PARTNERSHIPS

Photo by Jamie Long

Partnerships For Watershed Reslience

In partnership with Indigenous communities across the province, the BCWF's Watershed Team has been advancing conservation work throughout British Columbia for several years. As part of the BCWF's commitment to reconciliation, which aims to further understand and promote the value of Indigenous Knowledge, a key focus of the Watershed Team today is to place engagement with First Nations and Indigenous-led organizations at the forefront of our programs and projects. In our work with First Nations, often on unceded and Traditional Territories, we advocate for First Nations and Indigenous groups to take the lead on collective projects whenever possible. With the help of the Team's Indigenous Liaisons, our partnerships have allowed us to further enhance watershed and ecosystem resilience across the province.

In 2023, the BCWF worked alongside over 35 First Nations and connected with more than 40 Indigenous communities, supporting First Nations-led watershed planning and holding BCWF-led conservation workshops.

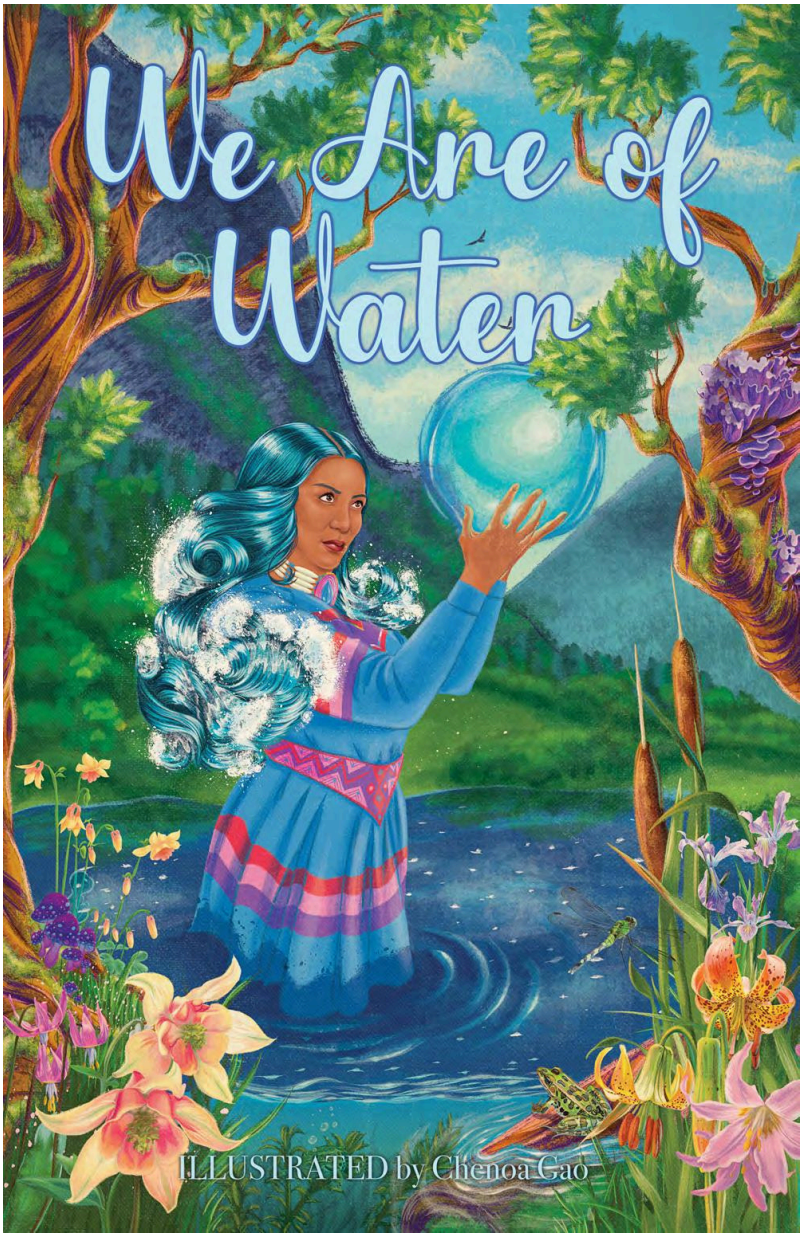
Much of our work with these communities focused on providing joint training on both the Wetland Ecosystems Services Protocol (WESP) and the Canadian National Wetland Inventory (CNWI)—these tools offer a way to measure wetland functions and the benefits they provide, creating a robust process for making decisions about wetlands in British Columbia.

In addition to these trainings, the BCWF's Watershed Team saw Indigenous partnerships in the majority of our field assessments for future beaver dam analogue (BDA) projects; multiple on-the-ground restoration projects; and education programming.

These partnerships enhance all activities of the BCWF's Watershed Team, embodying our belief in strength through unity. Eager to further our collective work towards enhanced watershed resilience, we remain committed to forging and deepening our partnerships with Indigenous groups across the province.

By building relationships with local First Nations, listening to their Elders, and weaving Indigenous knowledge into restoration projects, the Watershed Team has created projects that echo the ancient voices of this land.

GRAPHIC NOVEL PUBLISHED: WE ARE OF WATER



We Are of Water is a joint project made possible with funding from the Healthy Watersheds Initiative and the Real Estate Foundation of B.C.

Rivers of Wisdom: Illustrations of Indigenous Voices and Watershed Conservation

In June of 2023, Conservation Illustrator Chenoa Gao published her graphic novel, We Are of Water.

We Are of Water provides visuals that connect to the voices and knowledge shared by Indigenous Elders, youth, and community members involved in our various Watershed Team's projects. The novel highlights the importance of watersheds and water to Indigenous communities across B.C.

Chenoa Gao was brought onto the team to collect and share the stories and narratives of First Nations Elders, youth, and community members through a series of graphics, to celebrate and reflect the communities that supported wetland restoration work and to encourage and support reconciliation. Chenoa is Gao a member of the Muskeg Lake Cree Nation and is of Metis descent.

Education and Reconciliation in Action

In the fall of 2023, Chenoa Gao presented her graphic novel, We Are of Water, to students in three B.C. elementary schools in observance of National Truth and Reconciliation Day. Additionally, she engaged in discussions with teachers about integrating We Are of Water into the curriculum at various schools across the Lower Mainland.

Notably, Chenoa's presentations made the front page of the Vancouver Sun!

Download a free digital copy of We Are of Water here!

APPLIED LEARNING & SKILL DEVELOPMENT

Training was organized/provided for select staff members and partners to empower career development in the watershed security economy

Wetland & Watershed Conservation Workshops

- **Hydrometric Monitoring Workshop**
  Okanagan Falls, BC | Training led by Fisheries and Oceans Canada
- **Working with Beaver Symposium**
  Edmonton, AB | Training led by Cows and Fish Alberta
- **Beaver-based Restoration Workshop**
  Washington, USA | Training led by the Methow Beaver Restoration Project
- **Wetland Build Mentorship**
  Galiano Island, BC | Training led by Rewilding Water and Earth
- **Wetlands Delineation Training**
  Kelowna, BC | Training led by UBC Okanagan

Amphibian Training

- **Amphibian Surveys and Trapping Training 1**
  Salt Spring Island, BC | Training led by Elke Wind
- **Amphibian Surveys and Trapping Training 2**
  Thompson/Okanagan, BC | Training led by Elke Wind

Additional Training

- **Deer Trails Program Training**
  Clearwater, BC | Training led by The Land Conservancy
- **Bear Spray Training**
  Prince George, BC | Training led by VR Safety Training Solutions
- **BC Marsh Bird Monitoring Program**
  Kootenay Region & Lower Mainland Region | Training led by Birds Canada

Through our Watershed Security Funding, the BC Wildlife Federation provided a subsidy to UBCO, enabling other environmental NGOs and Indigenous communities to participate in the Wetlands Delineation Training in 2023 and 2024.

Amphibian egg mass photo by Birch Matkowski

APPLIED LEARNING & SKILL DEVELOPMENT FOR STAFF ON-SITE TRAINING FOR BETTER WATERSHED SECURITY

In the spring of 2023, herpetology biologist Elke Wind provided our team with hands-on training in live trapping and amphibian monitoring at the Night Owl and Maslovat wetland restoration sites on Salt Spring Island. At this training, our team was able to identify breeding red-legged frogs (*Rana aurora*). This was especially exciting as the red-legged frog is one of our target species for this site.



Red-legged frog photo by Molly Dubé

TRAINING, EDUCATION, AND ENGAGEMENT

WESP, CNWI, & Road Impact Assessment Training

- WESP Training
  With K'ómoks First Nation
- WESP Training
  With Nak'azdli First Nation
- WESP Training
  With Shuswap First Nation
- WESP Training
  With Tla'amin Nation
- WESP Training
  With Wei Wai Kai & Wei Wai Kum First Nations
- WESP & CNWI Training
  With Blueberry River First Nation
- WESP & CNWI Training
  With Doig River First Nation
- WESP & CNWI Training
  With Fort Nelson First Nation
- WESP & CNWI Training
  With Prophet River First Nation
- WESP & CNWI Training
  With Saulteau First Nation
- WESP & Road Impact Assessment Training
  With the McLeod Lake Indian Band
- WESP & Road Impact Assessment Training
  With Stqeeye' Learning Society

Youth Engagements

- School Engagement
  Enderby, BC | At the Shihiya Splatsin school with the Gardom Lake Stewardship Society
- School Engagement
  Cawston, BC | At Ginty's Pond with the Similkameen Elementary Secondary School
- School Engagement
  Kelowna, BC | With the KLO Middle School
- Youth Conservation Camp
  With the Shuswap First Nation
- Planting Event
  Quadra Island, BC | With the Quadra Island Elementary School

Additional Indigenous Engagements and Collaborations

- Riparian Health Assessment Training
  With Nooaitch Indian Band & Lower Nicola Indian Band
- Invasive Species Removal Workday
  Salt Spring Island, BC | With Stqeeye' Learning Society
- Elder Engagement Day
  With the Williams Lake First Nation
- Elder Engagement Day
  With Fort Nelson First Nation
- Elder Engagement Day
  With Nooaitch Indian Band & Lower Nicola Indian Band
- Elder Engagement Day
  With the Adams Lake Indian Band

Wetland Monitoring and Inventory Assessments

- 126 WESP assessments conducted
- 122 CNWI rapid plots assessed
- 41 CNWI detailed plots assessed
- 21 Road Intersect Restoration Assessments
- 61 Beaver Dam Analogue (BDA) sites assessed

Wetlands Education Program (WEP)

- Wetlandkeepers
  Houston, BC | With A Rocha Canada
- Map our Marshes
  Maple Ridge, BC | With the Alouette River Management Society
- Map our Marshes
  Whistler, BC | With the Whistler Naturalist Society
- Virtual Map our Marshes
- Wetlands Insitute
  Thompson/Nicola region | With a variety of partners (see pg. 49)
- Wetlands Institute Virtual Speaker Series
- Youth Wetlands Training
  Peachland, BC | With BCWF's Fish Habitat Restoration and Education Program and Youth Education Program

Fish Habitat Education and Restoration Program (FHREP)

- Fish Habitat and Riparian Stewardship Workshop
  In Delta, Invermere, Langley, Maple Ridge | With a variety of partners (see pg. 43)
- Youth Fish Habitat and Riparian Stewardship Workshop
  Peachland, BC | With BCWF's Wetlands Education Program and Youth Education Program

Details on specific training, education, and engagements events can be found throughout this report.



DOCK ACCESSIBILITY PROJECT, 2023

Accessible dock at Edith Lake in Kamloops, BC

Photo by Haiden MacDonald

In alignment with BCWF's overarching dedication to outdoor access, the Watershed Team's Outdoor Access Improvement Project was completed in 2023. This initiative successfully enhanced the accessibility of over 15 lakes and outdoor spaces, making them wheelchair-accessible in total.

The two-year Outdoor Access Improvement Project aimed to improve accessibility for all community members, including seniors and those with disabilities. It was done with the financial support of the Freshwater Fisheries Society of BC (FFSBC) and local contractors in communities where the work took place.



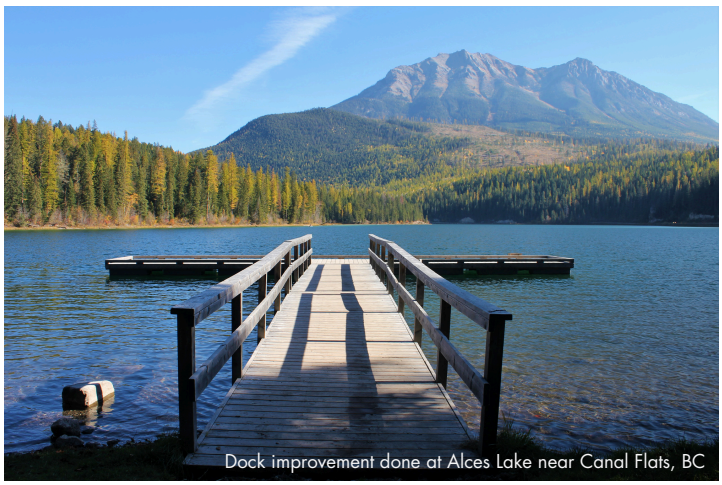
Active construction at Cottonwood Lake near Nelson, BC

Program History

In 2021, the B.C. Wildlife Federation (BCWF)'s Fish Habitat Restoration and Education Program was awarded over $600,000 in funding by the Province of British Columbia, as part of the Community Economic Recovery Infrastructure Program (CERIP), and the Columbia Basin Trust (CBT) to improve the accessibility of 23 lakes throughout B.C



Accessible dock access at Isobel Lake near Kamloops, BC



Dock improvement done at Alces Lake near Canal Flats, BC



Dock improvement at Idlewood Lake near Cranbrook, BC

WETLAND PLANTS OF BRITISH COLUMBIA V2 PUBLISHED

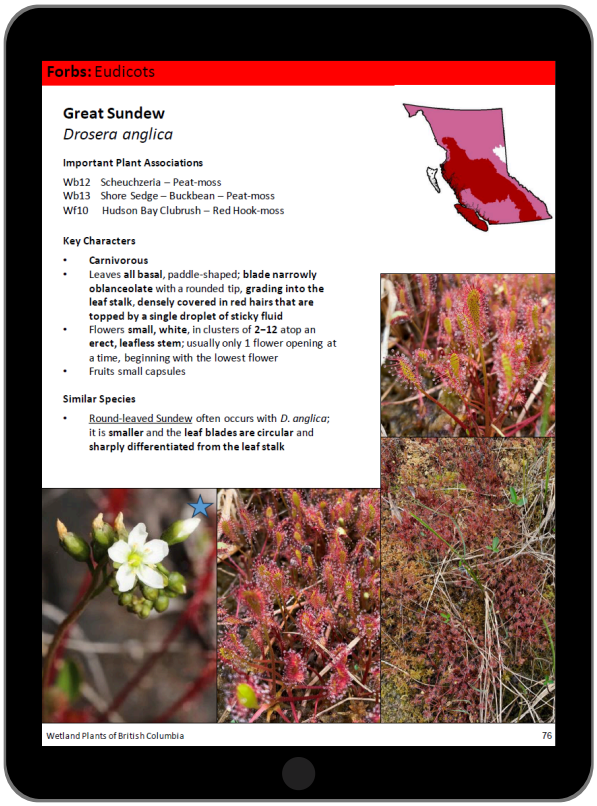


A Field Guide to British Columbia's Wetlands

In 2023, the BCWF's Watershed team contributed significantly to the second edition of "Wetlands Plants of British Columbia", a detailed field guide focusing on indicator species for wetland classification.

As part of our "Plant Bingo" initiative, we collected photos of wetland plants across the province throughout the field season. Our overall aim was to continue improving the plant identification skills of those exploring, maintaining, monitoring, and working to restore the diverse wetland ecosystems of British Columbia.

This book includes photos, illustrations, and descriptions of all wetlands found in B.C., including marshes, bogs, and fens, making this guide an invaluable tool for both enthusiasts and professionals.



Download the book for free at www.bcwfwatershedteam.ca



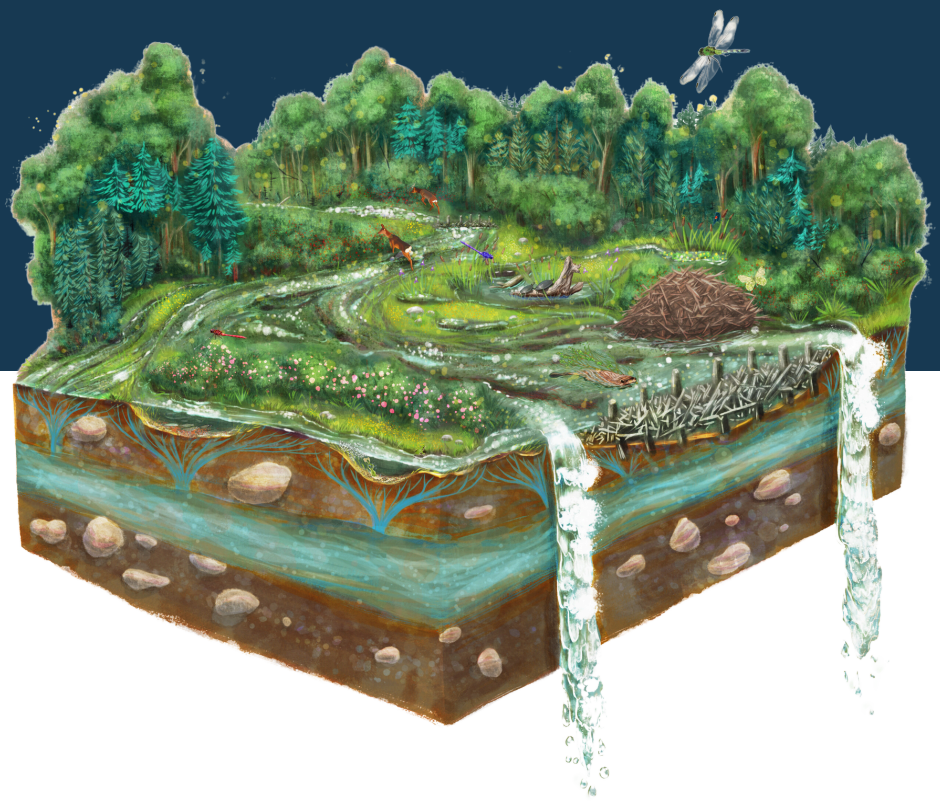
WETLAND WORK

RESTORATION | MAINTENANCE | MONITORING

Photo by Allie Olsen

10,000 WETLANDS

USING BEAVER-BASED RESTORATION TO ENHANCE WATERSHED RESILIENCE



In early 2023, the BCWF launched 10,000 Wetlands, an ambitious project focused on beaver-based restoration. The 10,000 Wetlands project is designed to confront environmental challenges of drought, fire recovery, and watershed health through the installation of 100 Beaver Dam Analogues (BDAs) across the province, which aims to instigate a movement towards a long term vision of 10,000 or more wetlands and floodplains being restored and enhanced province-wide. As part of this initiative we are advancing science, policy, and communication of the importance of process-based restoration. The BCWF's 10,000 Wetlands project is a significant step forward in the federation's overall efforts to restore and enhance wetland ecosystems, promote biodiversity, and improve watershed resilience through nature-based solutions.

The 10,000 Wetlands Project was financially supported in 2023 by the Province of BC's Watershed Security Fund; Department of Fisheries and Oceans' British Columbia Salmon Habitat Investment Fund; and Habitat Conservation Trust Foundation.

Artwork by Chenoa Gao

THE BENEFITS OF PARTNERING WITH BEAVERS

Harnessing the natural water-retention capabilities of beaver dams offers an economical approach to wetland restoration and watershed resilience. By encouraging beavers to take over and improve upon BDAs, their expertise in dam building is utilized to enhance water retention. Beavers, known for their dam-building skills, effectively help to hold back water.

The presence of beaver colonies in a stream system aids in retaining more water on land throughout the year, augments summer stream flows, and enhances resilience to drought, flood, and fire.

Partnering with beavers for watershed management reduces the need for municipal, regional, and provincial services. Beaver-based restoration proves to be more efficient, cost-effective, and sustainable than traditional built infrastructure.



Artwork by Chenoa Gao

BEAVER-BASED RESTORATION IN 2023

Laying the Groundwork for Beaver-based Restoration

Our project began in May 2023 under the leadership of the BCWF's Beaver Restoration Assessment Lead, Jennifer Rogers. Throughout the 2023 field season, extensive site assessments were conducted with key focus areas in the Thompson-Okanagan, Kootenay, and Cariboo regions. The purpose of these site assessments was to identify potential sites where BDAs could be built to mimic the ecological functions of natural beaver dams.

In total, 61 potential sites were evaluated for BDA implementation. This work was done in collaboration with 11 First Nations communities and 9 other organizations, including nonprofits, academic institutions, and government entities.

Upon evaluation, a total of 8 sites have been selected as priorities for our 10,000 Wetlands project. With planning underway, the anticipated start date for BDA implementation is set for early-to-mid 2024. We aim to continue this momentum into 2024, by building up to 77 BDAs at priority sites and conducting field assessments to identify opportunities for 2025.

BCWF's 2023 Efforts in BDA Permitting and Monitoring

In addition to conducting site assessments, the BCWF also spent much of 2023 engaging in dialogues with provincial regulators to navigate the complexities of permitting for this innovative restoration technique. In collaboration with experts, the BCWF developed monitoring protocols to assess the effectiveness of BDAs, aiming to refine the science and understand -ing of beaver-based restoration under various environmental conditions.

This collaborative effort seeks to enhance future projects and expand the applicability of BDAs across British Columbia.



Artwork by Chenoa Gao

THE INAUGURAL BEAVER DAM ANALOGUE

The BCWF Leads a Collaborative BDA Training in Logan Lake, B.C.

In partnership with the British Columbia Institute of Technology's (BCIT) Masters of Ecological Restoration program, the B.C. Wildlife Federation built the first BDA of the 100 planned.

The BDA build was conducted as part of BCIT's annual Wetland Restoration training in Logan Lake, where the BCWF conducted an innovative low-tech process-based restoration (LTPBR) training session.

Jen Rogers, the BCWF's Beaver Restoration Assessment Lead, directed this BDA build, which involved BCIT students, BCWF technicians, and land guardians from adjacent First Nations communities.

At the workshop, Rogers discussed the benefits of beaver-based restoration for wetland rehabilitation, emphasizing both the practical and ecological advantages of BDA construction.

The hands-on component of this experience allowed students to actively participate in building a BDA, which immersed them in LTPBR techniques and methodologies.



BCIT students constructing a BDA for educational purposes during the BCWF's LTPBR training session in Logan Lake, B.C.

Photo by Jamie Long

What is Low-tech Process-based Restoration?

Low-tech process-based restoration is an approach that utilizes simple, cost-effective methods to emulate natural ecological processes, aiming to enhance ecosystem resilience and functionality with minimal technological intervention. Valued for its simplicity and economic efficiency, LTPBR plays a crucial role in leveraging natural processes to strengthen ecosystem health.



BEAVER DAM ANALOGUES AND POST-ASSISTED LOG STRUCTURES

The Benefits of Beaver Dam Analogues

Beaver Dam Analogues (BDAs) are a cost-effective strategy for wetland restoration and habitat enhancement. Mimicking the structure and ecological function of natural beaver dams, BDAs are designed to restore natural wetlands and their processes.

By enhancing water retention on land, BDAs are an effective tool for sustaining biodiversity, improving water quality, and bolstering resilience against droughts, floods, and wildfires.

Furthermore, when conditions allow, BDAs can attract beavers, who act as natural bioengineers, further supporting healthy wetland ecosystems.

BDA Construction Techniques

Typically, BDAs are built with locally sourced materials like sticks, rocks, and mud.

Multiple BDAs, referred to as a complex, are usually constructed within a project site to reflect how beavers naturally build dams and to increase overall resilience.

In selected areas where building a BDA builds may experience material or condition constraints, a Post-Assisted Log Structure (PALS) can be used. A common BDA design that utilizes PALS involves pounding untreated wooden posts into the streambed, weaving woody vegetation through the posts, and packing the dam with vegetation, sediment, and cobbles.

Artwork by Chenoa Gao

A BRIEF HISTORY OF THE BEAVER

Before European colonization, beavers occupied most rivers in North America. Early explorers wrote tales detailing their difficulties travelling through the dam-laden river systems.

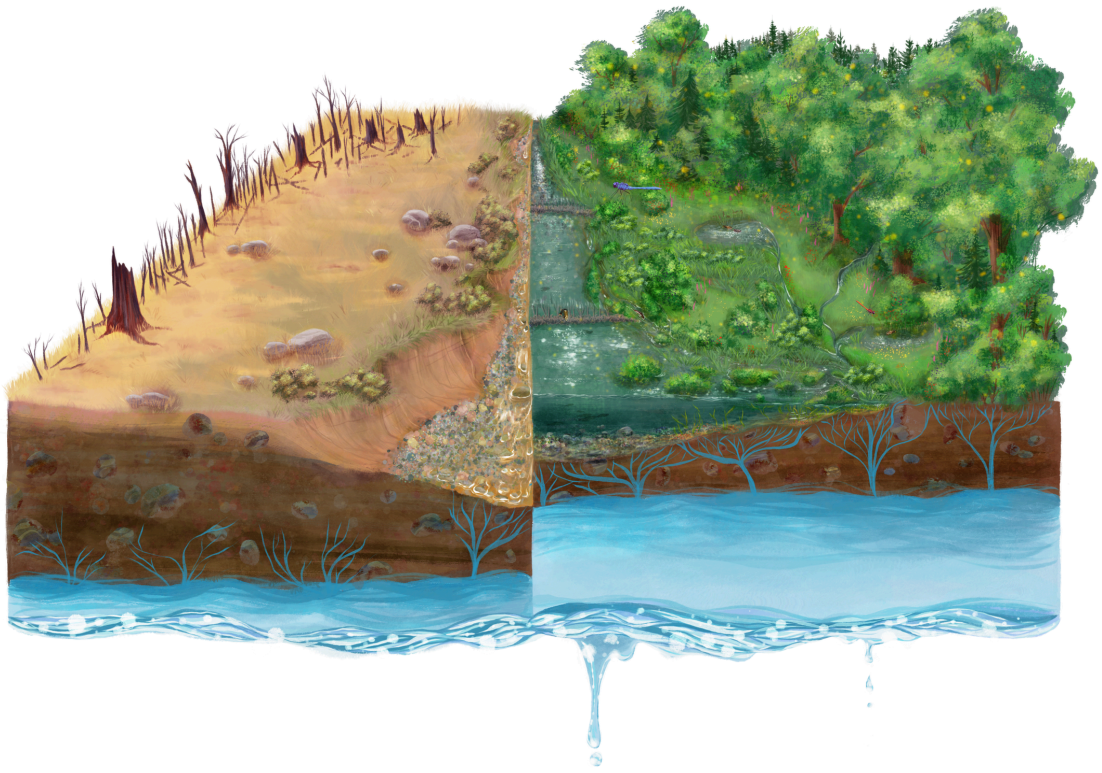
The fur trade in the 18th and 19th century prompted the persecution of beavers and led to their drastic decline in population.

By the 20th century beavers were extinct in many areas of their range.

This rapid loss of beavers from valley-bottoms was coupled with the expansion and development of human settlements within those highly productive floodplain areas.

Man-made dams and berms were constructed to control water courses, but this human manipulation of river systems and lack of beaver influence threw the natural ecosystem equilibrium off balance and led to more degraded habitats less resilient to disturbances.

Streams became disconnected from their floodplains, landscapes were not able to retain as much water, leading to heightened flood, drought, and erosion events.



A comparison of a landscape without beaver dam and/or beaver presence vs. a landscape with beaver dam and/or beaver presence.

Artwork by Chenoa Gao

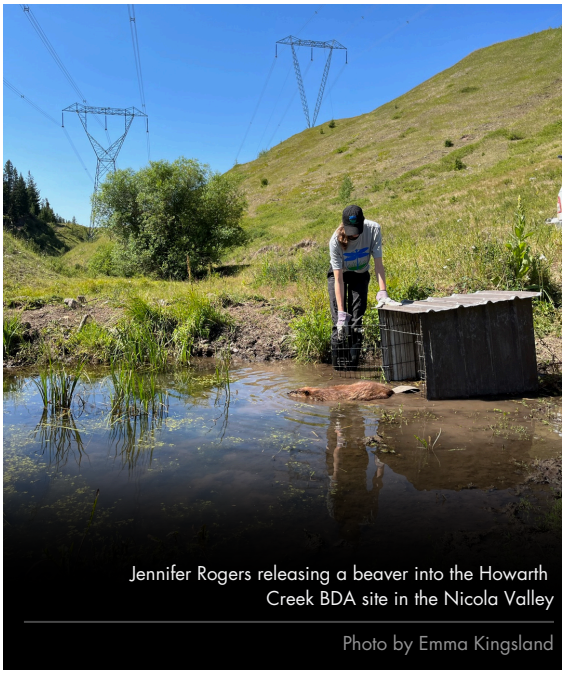
BRINGING BEAVERS BACK TO THE LANDSCAPE

Beavers Return to Nicola Valley

Throughout 2023, the BCWF was actively involved in the rehabilitation and release of beavers at a restored site in the Nicola Valley.

This effort focused on a BDA site, Howarth Creek, near Kamloops, where 10 BDAs had been previously constructed in 2021 by Tom Willms, the Nicola Valley Institute of Technology and the Nooaitch Indian Band.

Integral to this project were several "nuisance" beavers, which, under different circumstances, might have faced lethal trapping. Instead, these beavers were relocated to the Interior Wildlife Rehabilitation Society, where they were nurtured back to health. This careful preparation ensured they were ready for a successful release back into the wild at the BDA site.



Jennifer Rogers releasing a beaver into the Howarth Creek BDA site in the Nicola Valley

Photo by Emma Kingsland

Maggie Gets a Second Chance

One specific beaver whose rehabilitation we assisted with in 2023 was Maggie. After being found injured and deemed a nuisance by nearby landowners, Maggie underwent months of rehabilitation at the Interior Wildlife Rehabilitation Society (IWRS). We visited her at the IWRS before transporting her to her new home in the Nicola Valley.

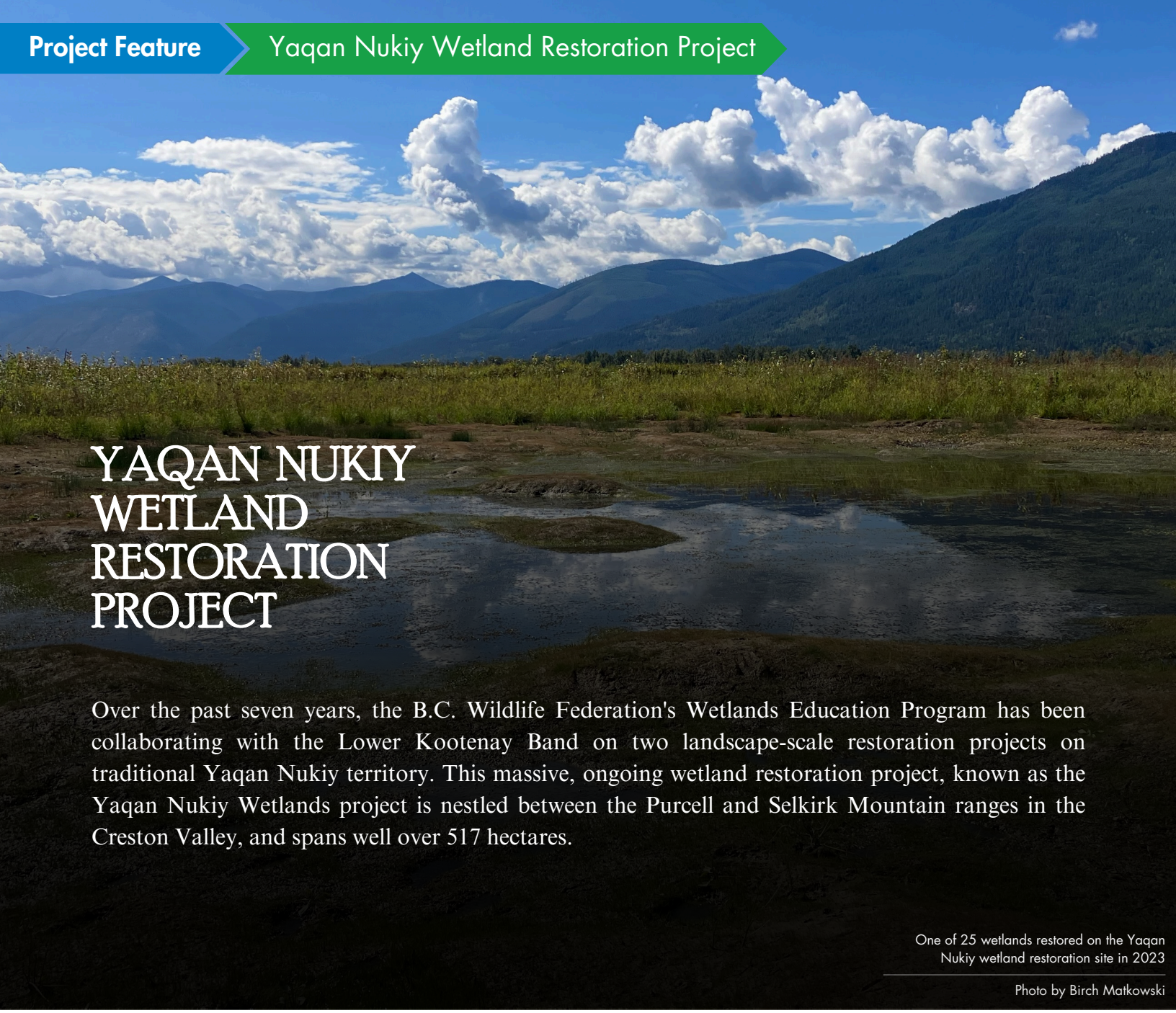
Maggie's journey was unique, as she was rehabilitated alone, contrary to the usual practice of rehabilitating beavers in pairs or within existing colonies. After recovery, Maggie was transported to Howarth Creek, near Merritt, where she was released into a habitat enhanced by human-made Beaver Dam Analogs (BDAs), with the hope that she would build on and improve the human-built BDAs, along with the other beavers in her new colony.

Within only a few weeks of her release, it was observed that Maggie had indeed been a busy beaver, packing the BDA with mud and sticks, thereby helping it hold back even more water. As a result, the water level in the pond rose by almost half a foot.



Maggie awaiting her transportation to Howarth Creek post-rehabilitation at the IWRS

Photo by Emma Kingsland



YAQAN NUKIY WETLAND RESTORATION PROJECT

Over the past seven years, the B.C. Wildlife Federation's Wetlands Education Program has been collaborating with the Lower Kootenay Band on two landscape-scale restoration projects on traditional Yaqan Nukiy territory. This massive, ongoing wetland restoration project, known as the Yaqan Nukiy Wetlands project is nestled between the Purcell and Selkirk Mountain ranges in the Creston Valley, and spans well over 517 hectares.

One of 25 wetlands restored on the Yaqan Nukiy wetland restoration site in 2023

Photo by Birch Matkowski

Historical Context and Need for Restoration

The North Wetland Unit, spanning 105 hectares along the Kootenay River banks, historically featured a rich mosaic of wetlands, lakes, river channels, and wet meadows, all of which were regularly inundated by the Kootenay and Goat Rivers. The transformation of this landscape began in the early 1900s when parts of it was drained for agriculture.

By 1967, extensive drainage had completely eliminated natural water bodies within the North Unit, facilitated by the construction of a large impoundment. This impoundment, intended to manage water levels and prevent flooding, ultimately failed due to permeable soils beneath and within the dam, allowing water to drain away. This historical context underscores the need for the Yaqan Nukiy Wetland Restoration Project.



One of 25 wetlands restored on the Yaqan Nukiy wetland restoration site in 2023

Photo by Birch Matkowski

Yaqan Nukiy Wetland Restoration Project: 2023 Project Overview

Our 2023 initiatives were designed to enhance habitats for a wide range of species, including burbot, white sturgeon, various waterfowl, and mammals, in the vicinity of Creston, British Columbia. Our restoration efforts aimed at developing ecosystems that are natural, resilient to climate change, require minimal maintenance, and support the reintroduction of native vegetation to increase biodiversity and ecosystem health. We particularly focused on creating diverse wetlands with features that support species at risk and help combat invasive species, such as the American bullfrog.

During 2023, our collaborative efforts led to...

- 2 lakes constructed (4.16 hectares)
- 25 wetlands restored (2.6 hectares)
- One river constructed (1.7 km)

The 2023 segment of this project was a collaborative effort led by the Yaqan Nukiy Lower Kootenay Band, involving the Kootenai Tribe of Idaho, and the B.C. Wildlife Federation, with designs by Thomas R. Biebighauser and Norman Allard Jr. Funding was made possible by the Kootenai Tribe of Idaho, Columbia Basin Trust, the Fish and Wildlife Compensation Program, the Province of British Columbia, and Wildlife Habitat Canada.

Future Potential for Project Continuation

There is great potential for restoring many additional wetlands, lakes, rivers, and streams in the North Unit, Middle Unit, and South Unit of the Yaqan Nukiy Lower Kootenay Band Reserve. The Lower Kootenay Band Reserve's North, Middle, and South Units are dedicated to wetland management. Each large area may be reconnected with floodwaters from the Kootenay River without affecting farmland, roads, or buildings. The wetlands, lakes, rivers, and streams may be restored so they do not require maintenance, without the use of dams, dikes, ditches, diversions, pipes, water control structures, or pumps.



Workers using a laser level to measure the depth of the newly constructed channel at the 2023 Yaqan Nukiy restoration site.

Photo by Birch Matkowski



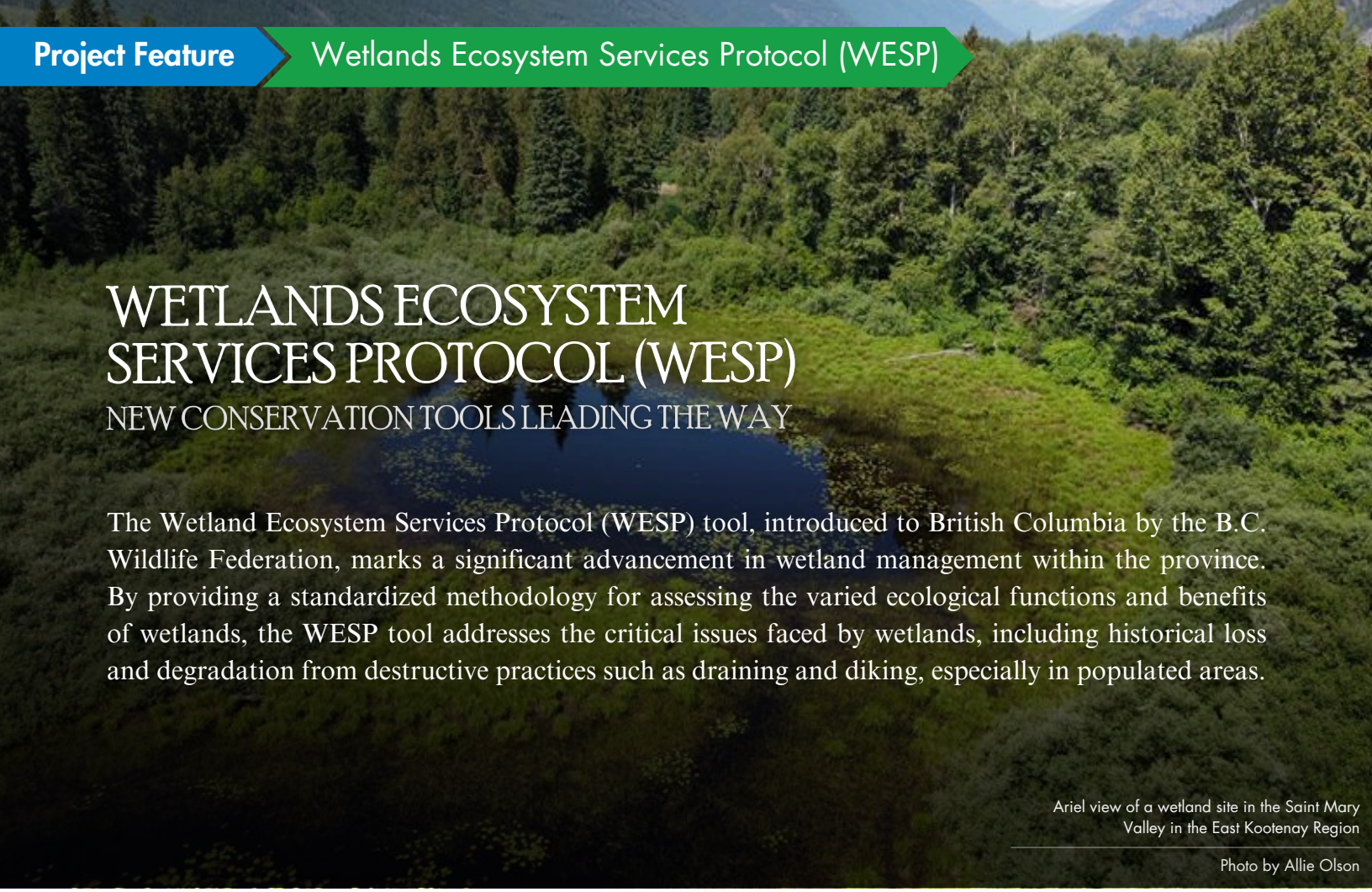
Grizzly tracks spotted in 2023 at the Yaqan Nukiy wetland restoration site

Photo by Birch Matkowski

WETLANDS ECOSYSTEM SERVICES PROTOCOL (WESP)

NEW CONSERVATION TOOLS LEADING THE WAY

The Wetland Ecosystem Services Protocol (WESP) tool, introduced to British Columbia by the B.C. Wildlife Federation, marks a significant advancement in wetland management within the province. By providing a standardized methodology for assessing the varied ecological functions and benefits of wetlands, the WESP tool addresses the critical issues faced by wetlands, including historical loss and degradation from destructive practices such as draining and diking, especially in populated areas.



Ariel view of a wetland site in the Saint Mary Valley in the East Kootenay Region

Photo by Allie Olson

Protecting B.C.'s Wetlands With the Watershed Team

Since 2021, the BCWF's Watershed Team has been working towards building a catalogue of hundreds of wetlands across various eco-provinces to capture the diversity of wetlands functions and characteristics in the region.

The WESP tool provides a key opportunity to enhance to enhance decision-making processes concerning wetlands in British Columbia. It focuses on quantifying the various goods and services that wetlands provide, with the goal of prioritizing the conservation of high-value wetlands. Additionally, it serves as a practical tool for evaluating wetland restoration projects based on the ecosystem goods and services they deliver.

WESP in 2023

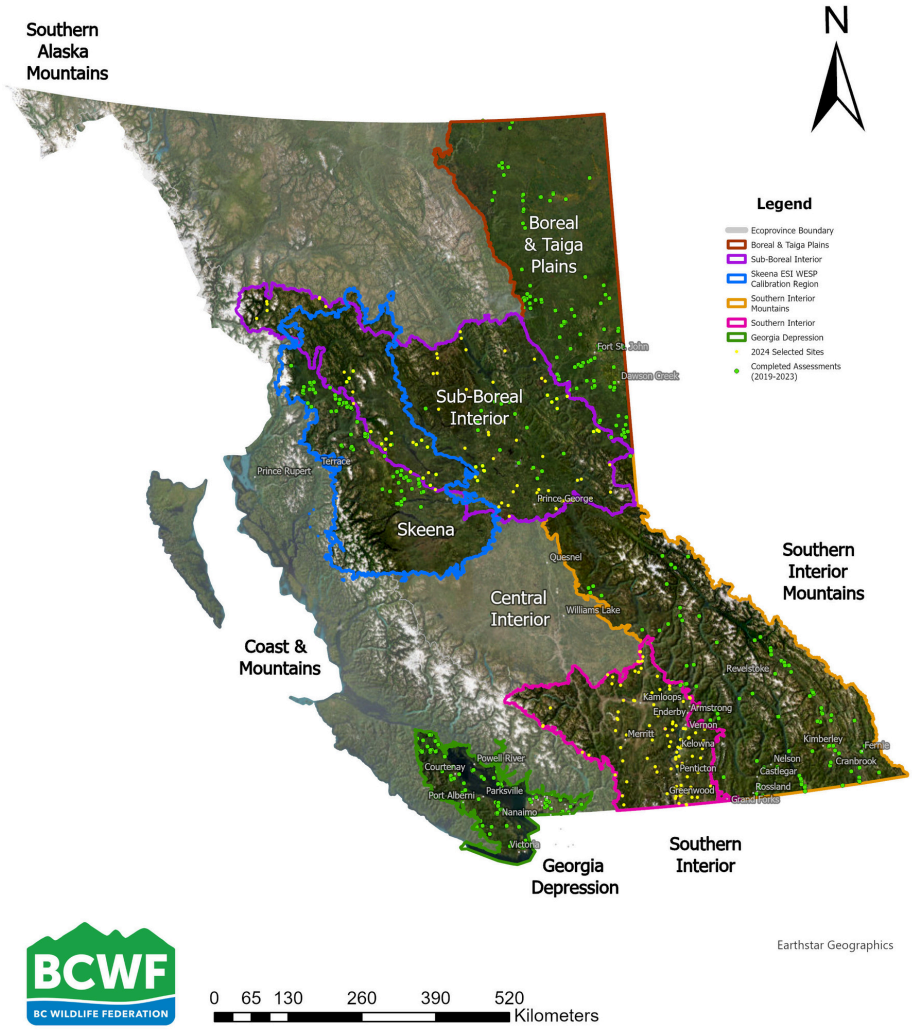
Efforts in 2023 focused on expanding the tool's calibration across three distinct ecoprovinces, areas characterized by similar climates, geological histories, and physiographies. This expansion was achieved by deploying several field crews to collect data from numerous wetlands, aiming to refine the tool's accuracy and utility.

The work involved collaboration with Indigenous groups and government bodies, enhancing the tool's application for conservation efforts and environmental stewardship in British Columbia.

Throughout 2023, 131 wetlands were assessed with the WESP. During this fieldwork plot information was also collected to support the Canadian National Wetland Inventory (CNWI). First Nations were invited to training using the WESP tool and 68 individuals across 16 communities were engaged through this process. Indigenous communities were also invited to recommend sites of interest to the community to be assessed with the WESP tool. Over the last 3 years the calibration process has been refined and allowed for other initiatives to be combined with WESP work including validating predictive mapping models and identifying potential restoration opportunities. Three regions now have the calibration process complete for WESP, with 2 regions identified as a priority for work in 2024/2025 (Southern Interior Ecoprovince and Sub Boreal Interior Ecoprovince). There are 5 regions where the calibration process has not been started. See a comprehensive map of the WESP tool's Ecoprovinces on the following page.

Learn more about the Wetlands Ecosystem Services Protocol

Map of WESP Ecoprovinces of B.C.



The Impact of WESP in B.C.

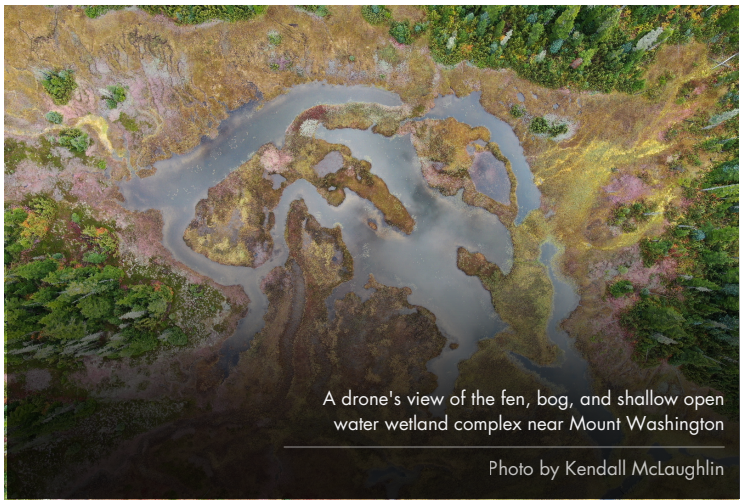
The WESP tool introduces an advanced approach to wetland decision-making in British Columbia, providing a standard measure to approximate the diverse benefits of wetlands, such as habitat for ungulates, water storage, and carbon sequestration. It offers a standardized method for assessing the ecological functions and benefits of wetlands, making it accessible even to those not expert in all 17 functions. WESP will also aid in the rapid assessment of wetland function and the effectiveness of enhancement efforts.

The BCWF's WESP project has benefited significantly from partnerships with many First Nations across the province for community engagement days and field training, along with collaboration with non-government organizations like The Nature Trust of B.C., Nature Conservancy of Canada, and Ducks Unlimited Canada. These partnerships have been integral to the project's success.

Support from the provincial and federal government has been crucial, providing financial and technical backing for the WESP tool and related fieldwork. This support reflects the growing interest in and recognition of the importance of tools like WESP in recent years.

Map by Molly Dubé

WESP PHOTOS FROM THE FIELD



A drone's view of the fen, bog, and shallow open water wetland complex near Mount Washington

Photo by Kendall McLaughlin



The Watershed Team in northern B.C., where 100 wetlands in the region were assessed over three years

Photo by Birch Matkowski



Members of the BCWF's Watershed Team enjoyed a weeklong collaboration with the Tla'amin Nation on Texada Island in August, 2023

Photo by Tla'amin Nation



Tla'amin First Nation Field Technician, Tyson identifying sedges during a WESP assessment on Texada Island

Photo by Jamie Long



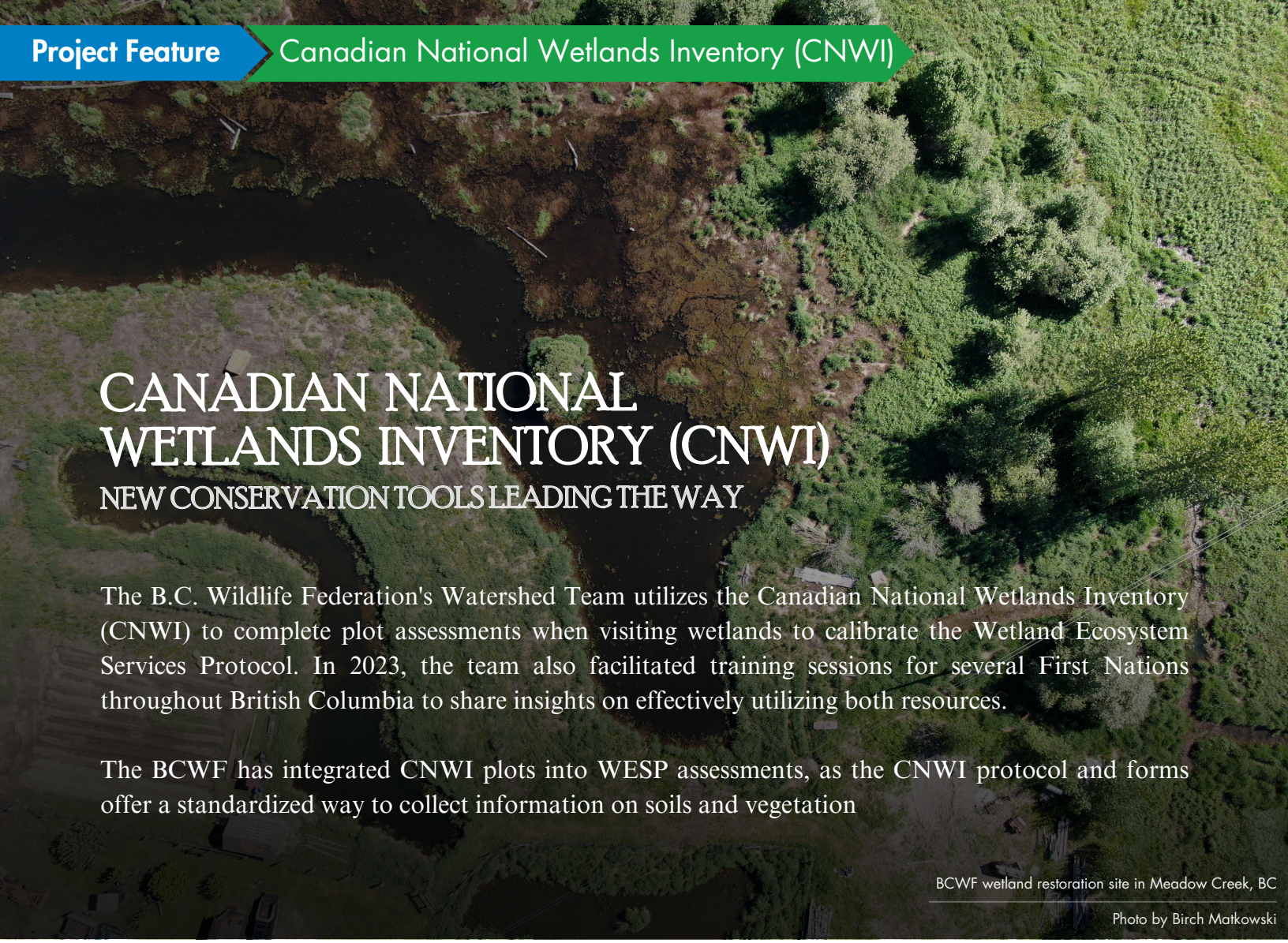
BCWF Field Technicians employ drones for WESP assessments

Photo by Kendall McLaughlini



BCWF staff with the Skwlāx te Secwepemcúlecw First Nation assessing a wetland that was burned historically within the Shuswap territory

Photo by Kendall McLaughlin



CANADIAN NATIONAL WETLANDS INVENTORY (CNWI)

NEW CONSERVATION TOOLS LEADING THE WAY

The B.C. Wildlife Federation's Watershed Team utilizes the Canadian National Wetlands Inventory (CNWI) to complete plot assessments when visiting wetlands to calibrate the Wetland Ecosystem Services Protocol. In 2023, the team also facilitated training sessions for several First Nations throughout British Columbia to share insights on effectively utilizing both resources.

The BCWF has integrated CNWI plots into WESP assessments, as the CNWI protocol and forms offer a standardized way to collect information on soils and vegetation

BCWF wetland restoration site in Meadow Creek, BC

Photo by Birch Matkowski

About the CNWI

The Canadian National Wetlands Inventory (CNWI) is a comprehensive, publicly accessible geodatabase that provides in-depth information on Canada's wetlands. These areas are vital for biodiversity, flood prevention, and environmental sustainability. The goal of the CNWI is to compile and standardize the best available data on wetlands into a national geodatabase, thereby improving knowledge in areas that previously lacked detailed wetland information. Catering to a wide audience, including governments, NGOs, indigenous groups, educational institutions, land managers, and businesses, the CNWI aims to offer an extensive understanding of wetland distribution and features across the nation, and potentially be a tool for machine learning and initiatives to improve predictive wetland models.

The CNWI plays a crucial role in fulfilling Canada's national and international obligations for environmental protection. It contributes to the conservation of species, modeling of carbon storage, and reporting on reductions in greenhouse gas emissions. Moreover, it emphasizes the importance of peatlands and coastal wetlands in carbon capture and as essential habitats for a variety of plants and animals. This initiative also facilitates the development of algorithms for detecting changes in wetlands over time.

Developed by the Canadian Wildlife Service of Environment and Climate Change Canada, the CNWI is a collaborative effort involving federal, provincial, and territorial governments, academia, industry, Indigenous groups, and non-governmental organizations (NGOs).

Environment and Climate Change Canada
Environnement et Changement climatique Canada

All about information derived from:

Environment and Climate Change Canada. (n.d.). Canadian National Wetland Inventory. Retrieved from https://www.canada.ca/en/environment-climate-change/services/wildlife-habitat/canadian-national-wetland-inventory.html

ENVIRONMENTAL STEWARDSHIP WITH THE TLA'AMIN NATION

Participating in the Wetland Ecosystem Services Protocol (WESP) training on Texada Island with the Tla'amin Nation made for an incredibly special memory for our Watershed Team members, Kendall and Becky.

“Our crew felt honored to work alongside the environmental technicians and stewards from the Tla'amin Nation, who welcomed the training with open hearts and kindness,” said Kendall. “Despite the day's challenges, including encounters with hornets, unexpected falls into mud, and the exhausting sun, the adversity we faced only deepened our appreciation for the opportunity to learn and grow together.”

“The day after the ordeal with the hornets, Scott, a member of the Tla'amin Nation, sang us a traditional song to clear the air and bless the day. He also gifted us with freshly caught salmon from a community member, which really enhanced our meals far beyond the simple boxed mac and cheese we had planned for the week.”



Environmental technicians from Tla'amin Nation and the BCWF crew during the Texada Island WESP training.

Photo by Jamie Long

ROAD INTERSECT INITIATIVE

In the northern part of the province, BCWF's Watershed Team has been searching for wetland restoration sites within the Williston Basin watersheds. Land use in this area is unique from the urbanized and agricultural areas where many of the team's past wetland restoration projects have been located, thus new techniques of identifying restoration sites were needed.

Wetland site in St. Mary valley (East Kootenays)

Photo by Allie Olson

Mitigating Road Impacts on Wetlands: Field Assessment and Restoration Efforts

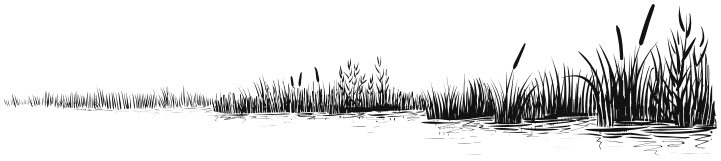
In 2022, the BCWF Watershed Team developed and trialed a field assessment tool for evaluating the impact of forest service roads on wetlands and streams connected to wetlands.

This assessment tool was refined and implemented during the 2023 field season. The assessment was designed to be a rapid tool which would use vegetation, soil, and hydrologic indicators to understand the impact of a road on a nearby wetland. Wetlands and streams were given a rating of level of disturbance based on observed impacts. The tool was initially applied to identify areas where a stream connecting to a wetland experienced increased erosion due to a road crossing, which immediately or imminently threatened the health of the wetland.

At the end of the 2023 field season, sites were reviewed to identify priority restoration areas based on their impact rating, accessibility, as well as benefit and feasibility of restoration.

Twenty-one assessments were conducted by the BCWF team in 2023, resulting in the identification of a great wetland site for future restoration works. The restoration site is a peatland complex made up of bog and fen plant communities, with some areas of swamp. Within the wetland, a small stream originates from groundwater fed ponded areas, and travels downslope to the wetland outlet where it is culverted beneath a gravel road. The stream is eroding into the organic soils of the wetland, getting both deeper and longer. This could cause the wetland to lose more water than it would in a healthy condition, drying out the peat soils and making the wetland more susceptible to wildfire and carbon loss.

The BCWF team intends to take steps to slow the flow of water and address the existing erosion features within the stream, thus reducing the stream's ability to erode into the wetland.



Exploring the Hidden Effects: The Extended Impact on Regional Wetlands

Analysis of the impact assessment results revealed that 70% of the 30 sites visited in 2022 and 2023 were impacted in some way. The majority of observed impacts on wetlands ranged from moderate to severe, while impacts on streams were predominantly minor. Notably, sites with severe impacts visible on satellite imagery were excluded from the assessment process during desktop field planning in 2023 to increase field efficiency. These sites were not visited for assessment during the 2023 field season, as their impact levels were estimated to be beyond the benefit of reasonable restoration activities. Therefore, the impacts of roads on wetlands across the landscape may be more severe than this analysis suggests.



Aerial of a road intersecting a stream.

Photo by Rebekah Ingram



One erosion feature found at the restoration site during assessment, where the stream has cut deeper into its bed. The top of the feature is outlined in yellow.

Photo by Katerina Sofos



Aerial view of a restoration site identified by BCWF staff in 2023 using the road intersect assessment tool, with the eroding stream highlighted in blue.

Photo by Rebekah Ingram



FISH HABITAT RESTORATION PROJECTS

Photo by R Koopman



REVITALIZING JULIET CREEK

Enhancing Fish Habitat and Stream Connectivity

The revitalization of Juliet Creek Side Channel by the B.C. Wildlife Federation, in partnership with the Federal Department of Fisheries and Oceans Canada, Scw'exmx Tribal Council, and Rock Solid Industries, focused on restoring fish passage to the Coldwater River and enhancing habitat for coho salmon among others. This project involved removing an outdated culvert and sediment, reconnecting side channels to the river, and planting over 1,200 trees to improve habitat complexity. The efforts saw immediate success, with coho salmon observed in the new habitat within an hour of completion.

The culvert that channeled water into the historic Juliet Creek side channel before its removal.

Photo by Leanne McDonald



Rock Solid Industries Inc. assisted us with live staking along the right side of the channel after reconnecting the side channel to the river

Photo by Leanne McDonald

Juliet Creek: Before and After Steam Connectivity



Juliet Creek before our side channel restoration



Juliet Creek after our side channel restoration

Stream Connectivity

Reconnecting side channels to cold water streams is crucial for fish populations. Cold water streams provide a habitat with temperatures suitable for the survival, growth, and reproduction of various fish species. Connecting the side channels allows spawning fish to move freely, promoting sustainable and diverse fish populations. Such connections also contribute to the overall health and balance of aquatic ecosystems, supporting a wider range of aquatic life. The above photos showcase the dramatic transformation of the area, with the side channel now successfully reconnected.

Before and after photos by Leanne McDonald

REVITALIZING COUGAR CREEK

A Community-Led Habitat Enhancement Initiative

In a notable partnership between the City of Delta, the B.C. Wildlife Federation, and the Cougar Creek Streamkeepers, a significant environmental stewardship initiative was undertaken with the establishment of a new rain garden at Cory Drive Park. This initiative was part of the September Fish Habitat Stewardship workshop, aimed at addressing urban runoff and its impacts on local salmon habitats. Additionally, under the guidance of the Cougar Creek Streamkeepers' executive members, workshop participants contributed to the habitat enhancement efforts by constructing three in-stream rock weirs (low boulder dams) upstream of Cory Drive Park. These structures are designed to increase habitat complexity and have proven to be beneficial for the salmon populations in the area.

The workshop also provided a platform for meaningful community engagement and education. Michael Kelly-Gabriel from the Kwantlen First Nation led the opening prayer and land acknowledgment, setting a respectful tone for the discussions that followed. Participants, including City of Delta staff and a professional environmental chemist, delved into topics such as pollution, sediment transport, and erosion control within the Cougar Creek environment.

Rain Garden Implementation and Environmental Impact

The rain garden, strategically designed to collect and purify rainwater runoff from urban surfaces such as streets, parking lots, and roofs, serves a critical role in the local ecosystem. By filtering and cooling the rainwater before it seeps into the ground, the garden effectively reduces pollution flow into salmon streams, notably Cougar Creek, and conserves water to support vegetation and stream flow during dry periods.

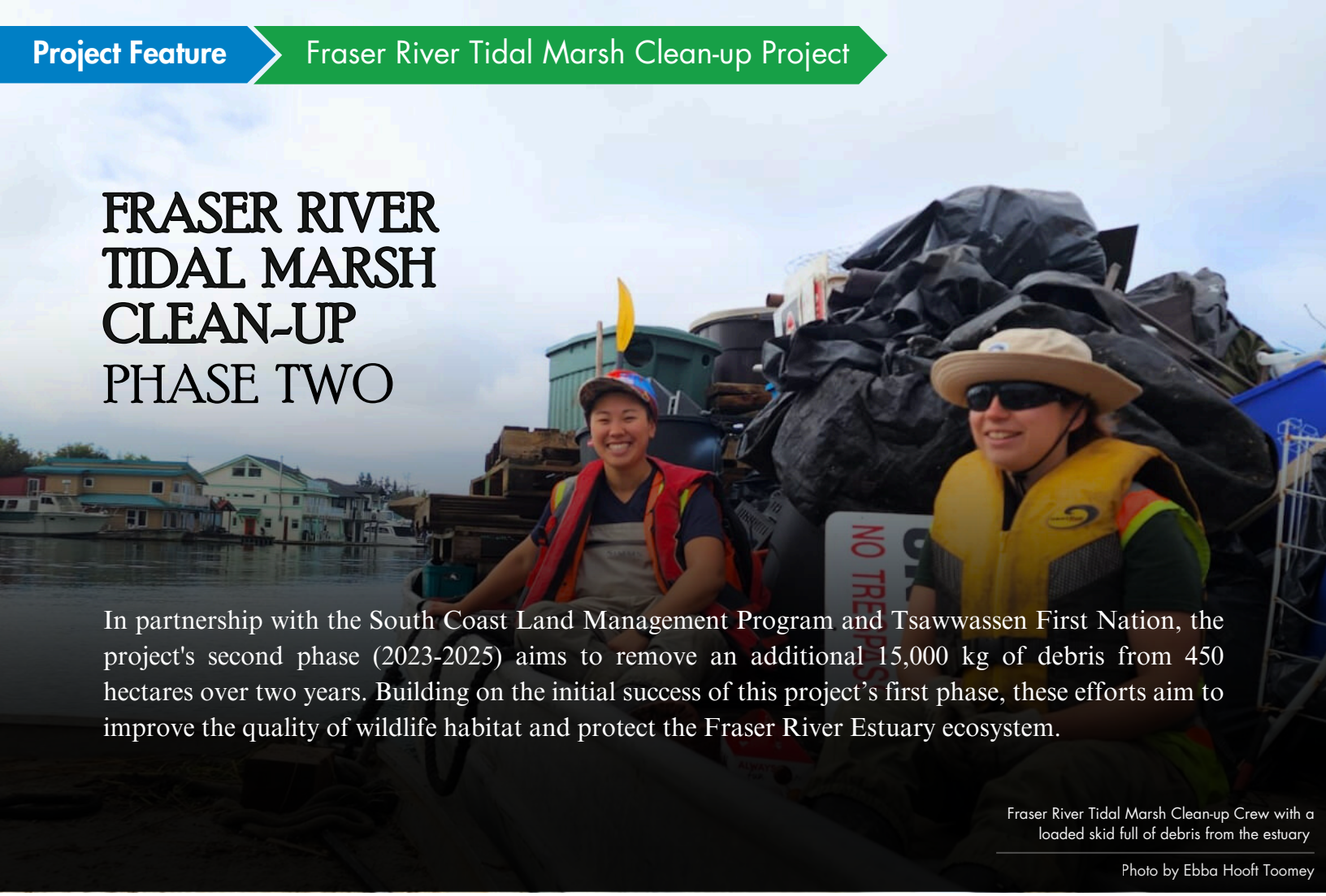
Record-Breaking Success and Observational Highlights

The environmental stewardship activities at Cougar Creek demonstrated their effectiveness with a record-breaking return of 328 wild coho salmon, as evidenced by spawners actively digging their redds at the newly installed weirs. Streamkeeper Deb Jones highlighted this success, particularly noting the impact of the three spawning weirs introduced during the annual hands-on workshop with the BC Wildlife Federation in September. These efforts, she remarked, were particularly effective and serve as a testament to the significant strides made in improving urban salmon habitats.



Coho salmon spawning photo by ML Haring

FRASER RIVER TIDAL MARSH CLEAN-UP PHASE TWO



In partnership with the South Coast Land Management Program and Tsawwassen First Nation, the project's second phase (2023-2025) aims to remove an additional 15,000 kg of debris from 450 hectares over two years. Building on the initial success of this project's first phase, these efforts aim to improve the quality of wildlife habitat and protect the Fraser River Estuary ecosystem.

Fraser River Tidal Marsh Clean-up Crew with a loaded skid full of debris from the estuary

Photo by Ebba Hooft Toomey

Historical Context and Need for Restoration

The Fraser River Estuary is an internationally recognized biodiversity hub that supports over 102 at-risk species, serves as a crucial habitat for Pacific salmon, hosts 1.7 million birds annually, and has sustained over 30 First Nations for millennia. However, development, agriculture, dredging, climate change, and pollution have significantly impacted its ecosystem. This makes restoration efforts vital for its future health.

An estimated 70-90% of wetland habitats around the Fraser River estuary have been lost, and the remaining areas are degrading due to human disturbance. Human-made structures have eliminated about 1727 km of salmon habitat. This has led to historically low salmon populations. A report by COSEWIC indicates that 76% of southern B.C. Chinook salmon are at risk. This situation exacerbates the survival crisis of endangered southern resident killer whales. Projections indicate a grim future for two-thirds of at-risk species in the estuary without immediate intervention.

Heavy debris in the Fraser River estuary disrupts essential ecosystem services such as nutrient cycling, erosion prevention, and habitat provision. It compacts sediment and alters soil biochemistry, which hampers vegetation's role and favors invasive species over native ones. Plastic debris smothers vegetation, affecting primary productivity and nutrient exchange. It also contributes to the accumulation of microplastics, whose long-term effects are unclear. Furthermore, this debris poses significant risks to fish and wildlife, including entrapment and ingestion. These issues can lead to mortality and disruptions in vital biological functions.

Given these challenges, urgent action is needed to reverse the current trajectories and ensure the Fraser River estuary's long-term health and sustainability. Evidence suggests that the removal of debris will have a significant positive impact on marsh habitat quality. Tidal marsh vegetation is resilient and may recover relatively quickly following debris removal.


Fraser River Tidal Marsh Clean-up Crew removing tires from the estuary, 2021

Phase One Recap

Launched in 2021, Phase One of the Fraser River Tidal Marsh Clean-up was supported by local volunteers and the Tsawwassen First Nation. In phase one, more than 9,530 kg of debris were successfully cleared from the estuary.

Fraser River Cleanup Makes Remarkable Early Phase Two Achievements

Alongside the Tswwassen First Nation and the South Coast Land Management Program the BCWF's 2023 phase of the Fraser River Tidal Marsh Clean-up Crew made remarkable strides in cleaning and preserving key areas of the Fraser River estuary.

From September to December 2023, the team collected over 12 tonnes of debris, including plastic trash, crabbing and fishing gear, and boat parts. This effort significantly exceeded their initial goals, nearly reaching their two-year target in just three months.


Crew member, Ebba with a big piece of floating Styrofoam in the estuary


Fraser River Tidal Marsh Clean-up Crew awaiting the skid from one of the islands


Intern, Michael loading the skid with debris from the day

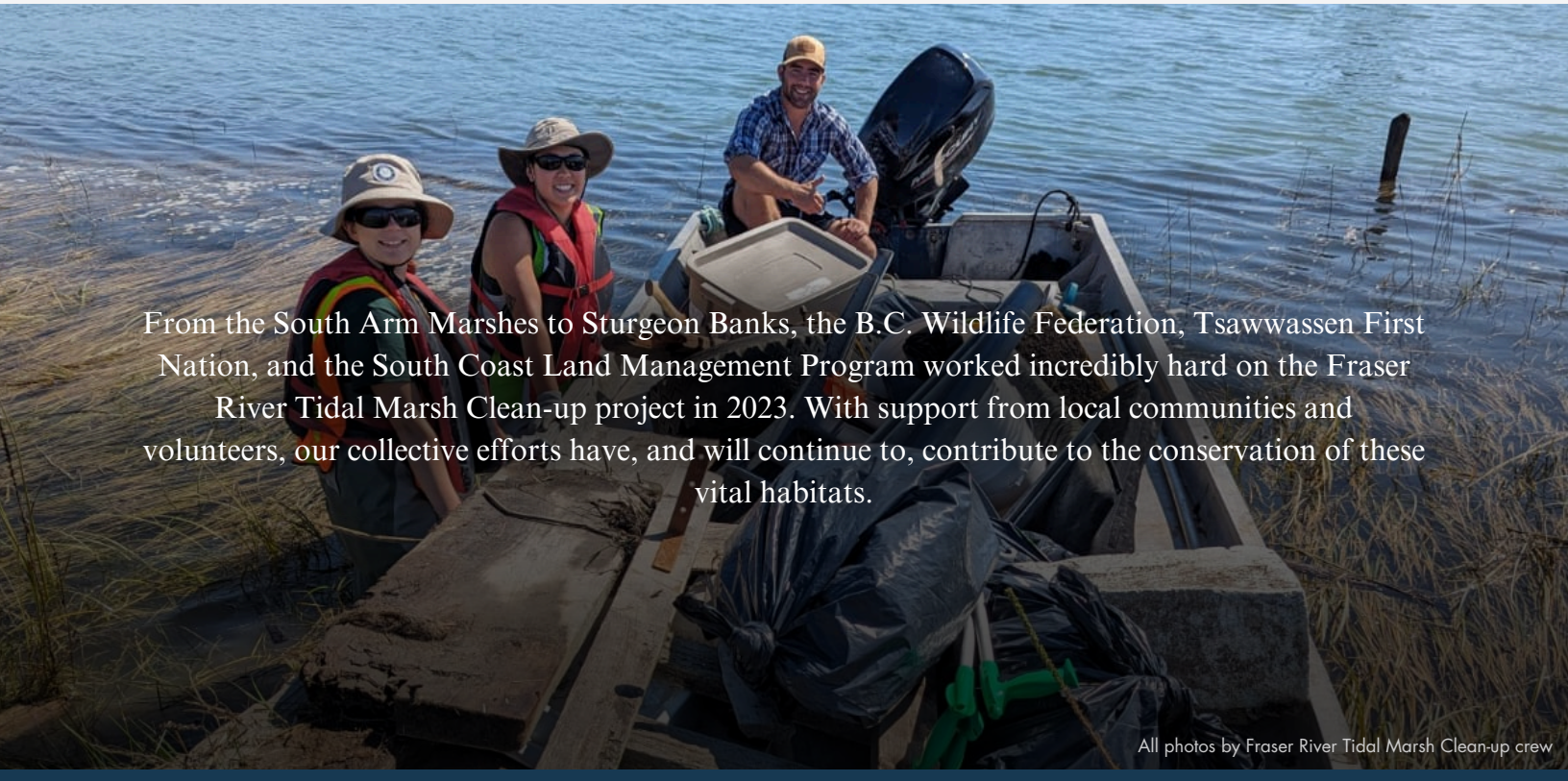
All photos by Fraser River Tidal Marsh Clean-up crew





Conservation Contributions: Mad Props Marine and Two Guys Disposal

A big thank you from the B.C. Wildlife Federation to Mad Props Marine and Two Guys Disposal for their commitment to environmental stewardship. Jeremy and Kaileb from Mad Props Marine supplied crucial equipment essential for the Fraser River Estuary Clean-up project, while Two Guys Disposal ensured efficient debris management throughout our cleanup operations. Their invaluable support significantly streamlined our efforts, enabling us to concentrate on vital conservation work.



From the South Arm Marshes to Sturgeon Banks, the B.C. Wildlife Federation, Tsawwassen First Nation, and the South Coast Land Management Program worked incredibly hard on the Fraser River Tidal Marsh Clean-up project in 2023. With support from local communities and volunteers, our collective efforts have, and will continue to, contribute to the conservation of these vital habitats.

All photos by Fraser River Tidal Marsh Clean-up crew

BONAPARTE SIDE CHANNEL REVITALIZATION

Historical Context and Need for Restoration

In 2021, the channel experienced flooding that caused significant damage, including the destruction of landowner's crossings, cattle fencing, and the infilling of the channel itself. In response, several remedial actions were undertaken to restore and enhance the channel's resilience against future flooding events. These actions aimed to repair the immediate damage and implement long-term improvements to benefit the local ecosystem, particularly the habitat for coho salmon.






The restoration process and work done on the Bonaparte side channel

Photos by Bonaparte First Nation

Bonaparte Channel Restoration: A Win for Coho

In early 2023, the revitalization of a groundwater channel adjacent to the Bonaparte River was conducted in partnership with the B.C. Wildlife Federation, Federal Department of Fisheries and Oceans Canada (DFO), the Bonaparte First Nations Natural Resources Department, and the private landowners in which the groundwater channel is located.

The remedial measures included:

- Re-excavating the channel to restore its original depth and flow.
- Reconstructing the three stream crossings damaged during the flood.
- Removing agronomic grasses and replacing them with a dryland mix more suited to the channel's natural environment.
- Relocating a berm adjacent to the river to provide more room during high flow periods.
- Repairing and enhancing fencing, including the installation of three kilometers of new fencing to protect the riparian area from livestock.
- Adding over 4,000 new willow cuttings, woody debris, and boulders.

Overall, these measures are designed to ensure better management of future floodwaters, make the infrastructure more robust against elevated flow events, reduce erosion downstream, mitigate flooding concerns upstream, enhance the ecological balance, and recreate a conducive habitat for coho salmon. Funders for this project included the Province of British Columbia and the BC Conservation and Biodiversity Award.



CONSERVATION EDUCATION & TRAINING

Photo by Jamie Long



FHREP Coordinator, Haiden looking at juvenile fish in a fish viewer with workshop participants

Photo by Jamie Long

FISH HABITAT & RIPARIAN STEWARDSHIP WORKSHOPS

The Fish Habitat & Riparian Stewardship workshop is a two-day event conducted by the Fish Habitat Restoration and Education Program (FHREP), where participants learn various approaches to restoring and conserving fish habitat.

The FHREP team brings these workshops to local communities to teach stream health sampling, stream mapping, stream monitoring, plant and aquatic species identification, riparian planting, and other stream stewardship skills. Each workshop incorporates methods that suit the unique needs of the area, providing a mix of hands-on fieldwork and presentations. This approach ensures participants gain the practical and theoretical experience needed to help steward their local streams.

In 2023, FHREP held 6 workshops throughout Delta, Langley, Maple Ridge, Peachland, and Invermere, BC, hosting 128 participants. The program also attended 3 public outreach events, engaging over 700 people.

FISH HABITAT & RIPARIAN STEWARDSHIP WORKSHOP PHOTOS



Workshop participants collecting juvenile fish, macroinvertebrates, and other aquatic samples at the Maple Ridge FHREP workshop

Photo by James Clare



Workshop participant with a fish viewer at the Maple Ridge FHREP workshop

Photo by James Clare



Workshop participant looking at a Juvenile fish at the Langley FHREP workshop

Photo by Jamie Long



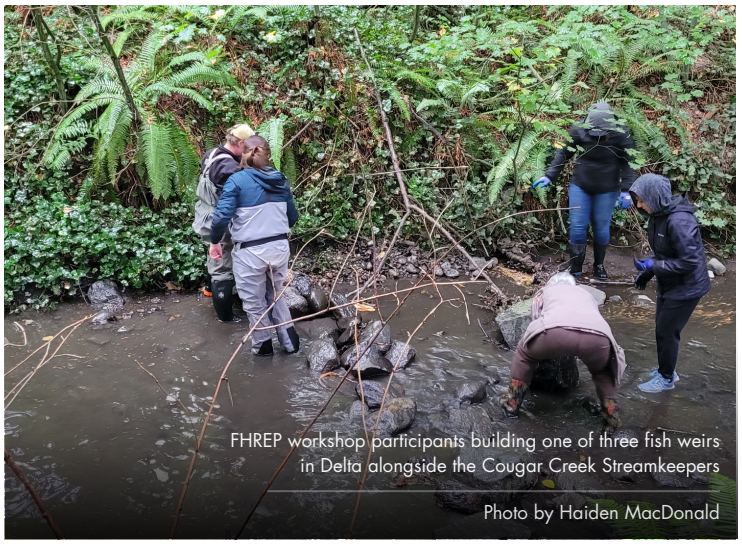
Workshop participants walking to Abel Creek during the FHREP workshop in Invermere

Photo by Haiden MacDonald



FHREP Coordinator, Haiden collecting minnows, smolts, and juvenile fish for identification purposes

Photo by Jamie Long



FHREP workshop participants building one of three fish weirs in Delta alongside the Cougar Creek Streamkeepers

Photo by Haiden MacDonald

PEACHLAND GO WILD YOUTH CAMP

BCWF's Conservation Stewardship Team Provides Education at Youth Summer Camp

The BCWF's Watershed Team and the Fish Habitat Restoration and Education Program attended the Youth Program's overnight summer camp, Go Wild, in July 2023. The teams covered topics such as the importance and value of wetlands, wetland restoration and conservation techniques (including a segment about bringing beavers back to the landscape!). Additionally, the team led a water health assessment session and a macroinvertebrate identification session.

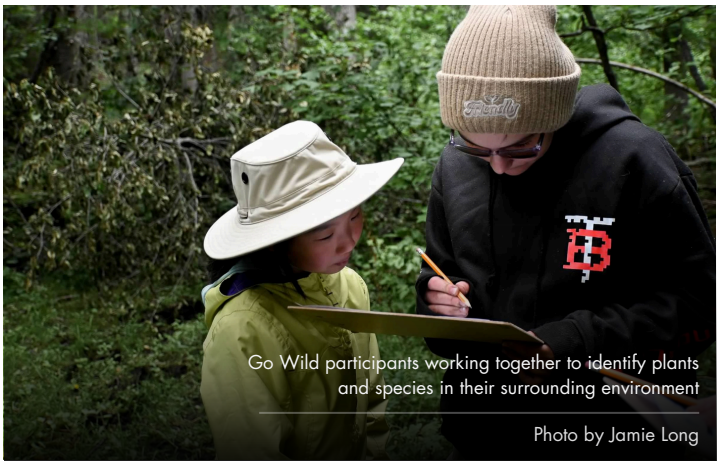
What is Go Wild?

Go Wild is a nine-day overnight summer camp that transforms youth aged 12-17 into conservation leaders. The program gives campers hands-on opportunities to develop outdoor and leadership skills they will use throughout their lives. Throughout Go Wild, youth are introduced to industry and field experts to enrich their learning experience. By the end of camp, participants will have a comprehensive toolbox of skills & techniques to enable them to lead conservation initiatives in their communities and beyond.



Go Wild participant engaging in a soil analysis led by the BCWF's Watershed team staff

Photo by Jamie Long



Go Wild participants working together to identify plants and species in their surrounding environment

Photo by Jamie Long



BCWF's FHREP Coordinator, Haiden, instructing Go Wild participants on how to capture and identify invertebrates

Photo by Jamie Long



SHUSWAP YOUTH CONSERVATION CAMP,

Shuswap youth campers playing and learning in a wetland

Photo by Molly Dubé

In the spring of 2023, the BCWF's Wetlands Education Program and Youth Education Program held a four-day environmental and outdoor training workshop for 16 youth members of Shuswap First Nation, and five adult chaperones.

Participants learned about wetlands, fish and fish habitat, and water quality. Additionally, participants engaged in lessons on archery, archaeology, and flint knapping. Members of the Shuswap Nation also held campfire sessions with traditional storytelling, songs, and language lessons. This training combined modern conservation practices with deep-rooted cultural traditions.



A camper looking for frogs and aquatic invertebrates



Chris, Operations, Education, and Engagement Director, teaching a camper how to tie a tackle



Campers learning how to test the water quality of the lake with Living Lakes Canada educator



Campers participating in a drumming at a campfire-session at the Shuswap Youth Conservation Camp, 2023



Hand-painted details on the traditional hand drum of Suzie, the Shuswap drum leader



BCWF's Wetland Restoration Coordinator, Alyssa, demonstrating how to use a soil auger

Since the workshop, the Shuswap Nation has expressed that they found the event very valuable and is interested in formally establishing a conservation education program for youth within their Nation.

All photos by Molly Dubé



WETLANDKEEPERS, 2023

2023 Wetlandkeepers in Houston, B.C.

Photo by James Clare

BCWF's Wetlandkeepers courses are two and a half day workshops that educate participants about wetland conservation, stewardship and restoration, providing communities with hands-on experiences, tools, and resources needed to steward their wetlands.

From July 27th to 29th, A Rocha Canada and the Wetlands Education Program (WEP) hosted the Houston Wetlandkeepers course in the Bulkley-Nechako Region. The event began on Thursday with Audrey Faber discussing invasive plant species and prevention programs.

On Friday, Kyla Rushton, introduced Rapid Riparian Health Assessments to evaluate wetland health at a site near the Yellowhead Highway, to show and evaluate the effects of environmental disturbances.

Saturday started with Ian Sharpe's insights into restoration techniques, focusing on Beaver Dam Analogues and tree planting. The final day continued at Dungate Meadows, where soil studies provided deeper understanding of wetland classification. Participants used Munsell Soil Color Charts for detailed soil analysis and practiced GPS mapping to identify vegetation changes, human disturbances, and key features, equipping them with essential skills for advocating wetland health and protection.



Photo by James Clare

Digging soil cores, Houston Wetlandkeepers, 2023



Photo by James Clare

Fibrous organic soil, Houston Wetlandkeepers, 2023



Photo by Alana Higginson

During the workshop, we were fortunate to encounter local Western Toads, a species listed under SARA (Species at Risk Act) in Canada, along with several hundred of their young.

Protecting breeding sites from development, invasive species, and pollution is crucial as local populations of Western Toads return to the same spots annually for reproduction. With wetlands, making up only 7% of B.C.'s terrestrial landscape, these ecosystems are vital for the Western Toad and many other species of concern in B.C.

"This workshop helped me obtain new skills...I feel a lot more confident about wetland classification, soil analysis, plant ID, and how to collect data in a way that could affect decision makers."

– Wetlandkeepers participant, 2023



MAP OUR MARSHES, 2023

2023 Map our Marshes participants, Whistler, B.C.

Photo by Jamie Long

The BCWF's Map Our Marshes is a 1.5 day workshop that focuses on entry-level field skills for mapping smaller wetlands using free software, GPS, and your smartphone! In 2023, sessions were held in Maple Ridge and Whistler, with an additional workshop held virtually.

Maple Ridge Map Our Marshes

On June 2nd and 3rd, our team collaborated with the Alouette River Management Society (ARMS) to conduct a Map Our Marshes workshop in Maple Ridge. The first day featured a classroom session where participants explored the classes, values, and losses of British Columbia's wetlands, emphasizing their crucial roles and the urgent need for their protection. Blake Danis from WildResearch and Simon Fraser University provided expert insights on amphibian biodiversity and conservation, particularly focusing on species at risk in British Columbia.

The following day involved practical fieldwork at Blaney Bog, where participants applied their identification skills to analyze local vegetation and wetland soil types. Through hands-on activities, including the use of soil augers and field guides, we examined the characteristics of wetland and upland soils, contributing to a comprehensive understanding of wetland classification and conservation strategies.



Photo by James Clare

Assessing soils in the field, Maple Ridge Map Our Marshes, 2023.

Whistler Map Our Marshes

On August 19th and 20th, the Whistler Naturalists and the Wetlands Education Program held a Map Our Marshes workshop in Whistler.

The session started with an overview of wetland functions and how to identify a wetland. The field day began at Emerald Wetlands with a guided tour by local naturalist Bob Brett, focusing on beaver habitat preservation, and how beneficial these animals are to wetland ecosystems. Participants navigated beaver-channels, experienced the "Bog Bounce," and engaged in vegetation identification, discovering diverse species including sundews, bog cranberries, and Labrador tea.

The workshop concluded at Wedge Park with an exploration of a Skunk Cabbage swamp, where participants learned about using handheld GPS units for mapping and conserving sensitive ecosystems.



Photo by Jamie Long

Learning how to map smaller wetlands using free software, GPS, and a smartphone! Whistler Map Our Marshes, 2023.

Our 2023 Map Our Marshes Partners

ALOUETTE RIVER MANAGEMENT SOCIETY

WHISTLER Naturalists



WETLANDS INSTITUTE, 2023

Neil Fletcher and WI participants in a wetland section of the Lac du Bois Grasslands Protected Area

Photo by Jamie Long

For over two decades, the B.C. Wildlife Federation's Wetlands Institute (WI) has been essential in empowering participants with the skills necessary to lead wetland-focused projects across British Columbia. The year 2023 marked the 21st annual Wetlands Institute.

Held on the traditional and unceded territories of the Secwépemc people in Barrière, Kamloops, and surrounding areas, the 2023 Institute was centered on crucial wetland restoration and stewardship aspects including classification, mapping, health assessments, maintenance, and monitoring. Attracting a diverse group of professionals, ranging from consultants and biologists to landowners and government staff, the 2023 WI had a unique environment where shared dedication to environmental restoration flourished.

Although the overall focus of the Wetlands Institute is on restoration techniques affecting various multi-phase and continual wetland projects across the province, the 2023 Institute stood out for its dynamic and interactive expertise exchange, which significantly enhanced the collaborative learning experience for all participants.

Highlights of the 2023 Wetlands Institute included:

- Skills training in wetland classification, mapping, and health assessments.
- Emphasis on collaboration among industry professionals, government staff, and First Nations.
- Knowledge exchange on restoration techniques and grant writing.
- Showcasing of various projects for habitat protection and environmental solutions.
- Educational sessions on wetland health, project management, and mapping tools.
- Hands-on activities like planting and species identification.

"The power of education should never be underestimated. Individuals who understand the value of wetlands share it with others, which encourages future conservation efforts."

– Wetlands Institute participant, 2023



Photo by Jamie Long

WI participants utilizing the Rapid Wetland Health Assessment tool



Photo by Jamie Long

WI participant planting native species at a wetland restoration site after a solarization technique ran its multi-year course for invasive species treatment.



Photo by Jamie Long

WI participants work together to identify a wetland site in Barrière, B.C.

2023 Wetlands Institute Highlights & Guest Speakers



Protecting Wetlands and Wildlife in the Clearwater River Valley

With Trevor Goward and The Land Conservancy

On the first day of the Wetlands Institute, Trevor Goward and The Land Conservancy (TLC) presented their Clearwater River Valley initiative at the Edgewood Blue property, targeting wildlife corridors, habitat protection, and research in Wells Gray Provincial Park. After the tour, participants learned to identify five wetland types—bog, fen, marsh, swamp, and shallow water—present at Edgewood Blue and in the surrounding TLC-protected areas.



Community Wetlands Through an Indigenous Lens

With Don Bowser, Elder and Knowledge Keeper from Simpcw First Nation

On day two of the Institute, participants received a guided tour of the Simpcw First Nation's newly restored "Boardwalk Wetland." On the tour, Don Bowser shared Indigenous Knowledge on plant uses and beaver stories, underscoring the wetland's significance for food, medicine, and as a space for knowledge exchange between Elders and youth.

The Institute Also Featured Informative Sessions Led by Experts in Their Fields



Kyla Rushton (BCWF Wetland Assessment and Field Coordinator) introduced participants to the Rapid Wetland Health Assessment tool.



Erin Roberts from the Canadian Wildlife Service showcased the Canadian National Wetland Inventory (CNWI) tool– a tool which will improve mapping available for wetlands in B.C., which is key in conserving and protecting these invaluable ecosystems.



Kasey McKenzie from Ducks Unlimited Canada shared the journey of a significant wetland project, offering perspectives on its challenges and milestones.

All photos by Jamie Long

2023 Wetlands Institute Highlights & Guest Speakers Cont'd



Indigenous Knowledge Meets Western Restoration Efforts

With Norm Allard Community Planner, Lower Kootenay Band

Norm Allard joined us for days 3 to 5 of the 2023 Wetlands Institute, where he shared his technical skills with participants and also emphasized the importance of weaving Indigenous and Western perspectives into restoration efforts. He highlighted his work on the Yaqan Nukiy Wetland Restoration project near Creston, B.C., as an example—a project where the B.C. Wildlife Federation (BCWF) has collaborated with Norm for over five years.



Expertise and Guidance in Conservation Stewardship

With Neil Fletcher, BCWF Director of Conservation Stewardship

Neil Fletcher, BCWF Director of Conservation Stewardship, also significantly contributed to the 2023 WI by sharing his expertise in restoration techniques and offering valuable grant writing guidance, vital for non-profit wetland projects. His involvement not only enhanced practical learning but also provided participants with opportunities for detailed discussions on their projects during evening sessions.



Exploring Restoration Strategies in Lac du Bois Grasslands

With Stephanie Russell and Melany Leontowich with B.C. Parks

Adding to this local insight, Stephanie Russell and Melany Leontowich with B.C. Parks, conducted a tour of the Lac du Bois Grasslands Protected Area, offering a deeper understanding of the region's environmental challenges, primarily drought and wildfires. In this discussion, WI participants explored potential solutions, including restoring spawning channels, adding BDAs, and restoring ephemeral or shallow wetland basins to mitigate drought and maintain moisture in the wetland areas of the protected region.



Managing Invasive Species: Innovative Approaches

With Dr. Catherine Tarasoff from Agrowest Consulting

Additionally, at the Tranquille Wetland site in Kamloops, Dr. Catherine Tarasoff stressed the importance of knowledge-based strategies and understanding plant biology for proper species management. Collaborating with the Kamloops Naturalist Club, Tarasoff implemented an experimental benthic barrier to smother and potentially control the spread of the invasive reed canary grass. WI participants actively engaged in the soil-sampling process to test the efficacy of the benthic barrier.



Additional Hands-on Learning

From Planting to Pond Dipping

Participants also took part in hands-on activities such as a planting project that showcased using solarization for invasive species management, guided by BCWF's Watershed Team. Moreover, pond dipping at the Dufferin Wetlands provided a practical look at macroinvertebrates, highlighting their importance in the ecosystem, their role in controlling mosquito populations, and their utility as indicators of wetland health.

All photos by Jamie Long



VIRTUAL TRAINING EVENTS

Wetlands of British Columbia book at a BCWF wetland site in the Kootenay region of BC

Photo by Birch Matkowski

Virtual Map Our Marshes Workshop

The BC Wildlife Federation's Wetlands Education Program successfully held its annual "Map our Marshes" workshop, a free virtual event designed to highlight the indispensable ecological roles of wetlands, including water filtration, flood mitigation, and providing vital habitats for a wide range of species. Addressing the urgent issue of wetland disappearance, the workshop emphasized the need for stronger conservation efforts.

This introductory course offered a hands-on learning experience on the conservation strategies and varied types of wetlands, utilizing free software and smartphones. Through an interactive session delivered via Zoom and other digital platforms, the Wetlands Education Team guided participants through wetland ecosystems and mapping techniques, involving them in practical activities.

Wetlands Institute: Virtual Speaker Series

In November, the B.C. Wildlife Federation's Wetlands Education Program proudly hosted the Wetlands Institute: Virtual Speaker Series. This year's theme, "Secret Wonders of Wetlands," captivated an audience of 117 participants. The series shone a spotlight on the marvels of wetland ecosystems, offering insights into the hidden world of the elusive beaver, the omnipresent bryophytes, and the nocturnal mysteries of bats. This engaging event significantly enhanced our understanding and appreciation of these vital natural habitats and their inhabitants.

> "A great balance of technical knowledge, real world examples, knowledge testing and also delivered in a very engaging way with appropriate breaks in the BCWFs virtual Map Our Marshes workshop. The day flew by."
>
> *— Virtual Map our Marshes Participant, 2023*



COMMUNITY ENGAGEMENT & OUTREACH

Photo by Katarina Sofos

Wetlands Education Program Outreach

In 2023, the Wetlands Education Program participated in a wide range of outreach activities aimed at promoting wetland conservation. By collaborating with industry experts and connecting with the public, we endeavor to increase awareness and encourage community involvement in protecting local wetland ecosystems through our outreach events.

Vancouver Giants Game Outreach, Vancouver B.C.



The BCWF's Communications Coordinator, Jennifer, educates attendees about the BCWF Wetlands Education Program's work at the Vancouver Giants game.

Night Quest Outreach, Pacific Spirit Regional Park



The BCWF's WEP Program Coordinator, Alana, engages with kids at the annual Night Quest event, delivered by Metro Vancouver Regional Park Interpreters and the Pacific Spirit Park Society.

Community Conservation Corner, Squamish B.C.



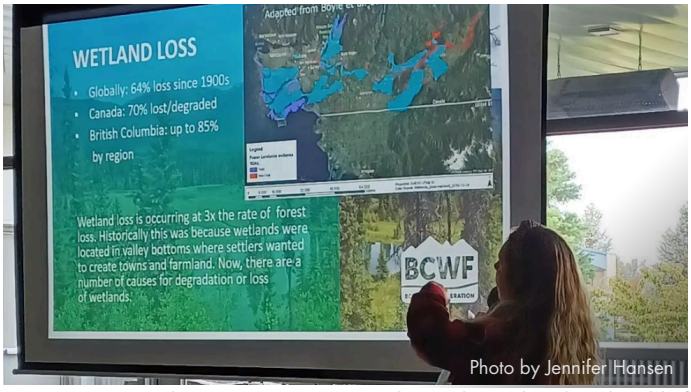
WEP team members join the Community Conservation Corner outreach event in Squamish B.C., hosted by the Squamish River Watershed Society.

Day at The Farm, Delta B.C.



The BCWF's Wetlands Education Program joined the Delta Farmland and Wildlife Trust's Day at the Farm to discuss wetland care and engagement in stewardship.

Probus Club Presentation, Chilliwack B.C.



The BCWF's WEP Program Coordinator, Alana spoke to the Probus Club of Chilliwack B.C. about issues impacting wildlife in B.C., and what BCWF is doing about them.

Ginty's Pond Outreach, B.C.



The BCWF's WEP joined forces with the Watershed Team for a community outreach event at Ginty's Pond in Cawston B.C.

Additional Wetlands Education Program Outreach Events in 2023 included:

- Annual River's Day with Alouette River Management Society (ARMS)
- Houston, B.C. Wetlands Outreach
- Port Moody Fingerling Festival
- UBCO's Wetlands Delineation Training (Presentation)
- Youth Conservation Scholarship Program Conference



The BCWF's FHREP Program Coordinator, Haiden, shows how to tie a tackle at the Lafarge Lake Family Fishing Day in Coquitlam

Fish Habitat Outreach Events

In 2023, the Fish Habitat Restoration and Education Program attended two major outreach events: Party for the Planet hosted by the City of Surrey at the Surrey Civic Center on April 29th, and the Lafarge Family Fishing Day during Festival Coquitlam at Lafarge Lake on June 18th.

Over 500 people were engaged between these two events. FHREP Program Coordinator, Haiden, and the FHREP Assistant, Emily, ran outreach and educational programming from their booth.



Elders attending the WESP and CNWI training during the Doig River Training

Elders Days & Environmental Monitor Training

Over the course of the year, there were 4 Elder's Days and 14 training sessions hosted for environmental monitors of the First Nations communities the BCWF collaborated with.

The Elder's Days are events where the Elders of one the communities we work with are invited to join us for a day. It is an opportunity to focus on knowledge exchange and involving Elders in conservation initiatives.

The BCWF hosted Elders Days in Fort Nelson, Chase (Neskonlith — Skwlāx te Secwepemcúlecw — Adams Lake), Williams Lake, and Merritt with Nooaitch and Lower Nicola.

14 WESP & CNWI training days were hosted with First Nations, which totaled 70 full days of training over the course of 2023 for 43 indigenous environmental monitors.

Get Involved with the BCWF

Volunteer

By becoming a BCWF volunteer, you can contribute to conservation efforts in your community and make an impact that will benefit everyone, now and in the future.

BCWF volunteers work in a variety of different capacities. They work to assist our various programs and services, with youth and accomplishing hands-on-conservation work. They also assist in our Surrey office, helping with fundraising, advocacy, education, administrative support, special events and so much more.

Advocate

Now is the time to invest, conserve, protect and restore our landscapes and wildlife to stabilize and restore what makes British Columbia special. This requires a commitment from the Province to re-establish British Columbia as a world leader in fish, wildlife and habitat management.

As passionate conservationists, hunters, anglers and outdoor enthusiasts, it is important to voice your concerns to your elected officials on government decisions effecting fish, wildlife and their habitat.

Collaborate

Collaborate
Every year, the Wetlands Education Program team works to restore, enhance, and conserve wetlands across our beautiful province. We collaborate with BCWF clubs and members, non-governmental organizations, naturalist clubs, First Nations communities, and more to create unique and inclusive educational workshops in communities throughout the province. We aim to provide the knowledge and tools for participants to be wetland stewards in their own communities.

Have an idea for a workshop in your community? Reach out to us!

BCWF Membership

Supported by the B.C. Wildlife Federation's members, the BCWF Watershed Team works to restore, enhance, and conserve wetlands and watersheds.

By becoming a BCWF member, you support us in ensuring the sound, long-term management of British Columbia's fish, wildlife, parks, and outdoor recreational resources for the best interests of all British Columbians.

Learn more about how our members fund on-the-ground habitat restoration projects at www.bcwf.bc.ca/membership. →



A participant from our Wetlandkeepers workshop in Houston.

Donate

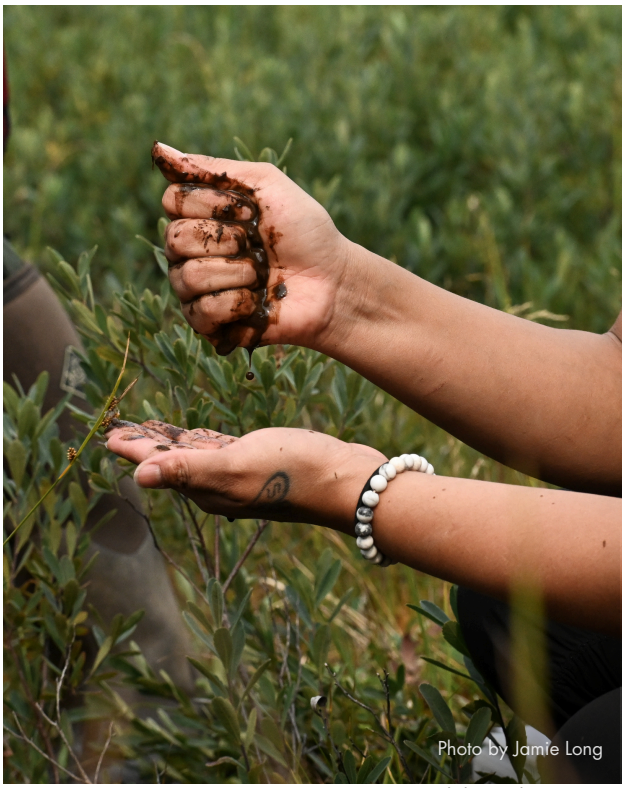
Make a One-time Donation

By donating to the B.C. Wildlife Federation, you support conservation programs and initiatives across the province, including the initiatives of our Watershed Team. Your contribution aids in conserving and protecting B.C.'s fish, wildlife, and habitat for present and future generations.

Become a Monthly Donor

A monthly gift is one of the most significant ways you can make an impact. Your monthly contribution provides a ready and reliable source of funding to support the B.C. Wildlife Federation's important programs and initiatives, while reducing fundraising and administrative costs. Easily increase, decrease, pause or stop your monthly gift at any time.

Discover how you can support BCWF by exploring donation options at www.bcwf.bc.ca/donate. →



A participant tests soil during the Map Our Marshes workshop in Whistler



PARTNERS IN WATERSHED CONSERVATION

First Nations and Indigenous Groups

- Adams Lake Indian Band
- ʔakisq̓nuk (Akisqnuk) First Nation
- ʔaq̓am (Aqam)
- Blueberry River First Nation
- Bonparte Indian Band
- Tsááʔ ché ne dane (Doig River First Nation)
- Fort Nelson First Nation
- q̓ićəy̓ (Katzie First Nation)
- K'ómoks First Nation
- Kenpesq't (Shuswap Band)
- Kootenai Tribe of Idaho
- Ktunaxa Nation Council
- q'ʷa:ńƛ'əń (Kwantlen First Nation)
- Nłeʔkepmxc (Lower Nicola Indian Band)
- Ńiʔxʷíńaʔ (Lower Similkameen Indian Band)
- Tse'Khene (McLeod Lake Indian Band)
- Nak'azdli Whut'en (Nak'azdli Band Council)
- Sk'Emtsin (Neskonlith Indian Band)
- Nooaitch Indian Band
- Ntityix Resources LP
- Dene Tsaa Tse K'Nai (Prophet River) First Nation
- Saulteau First Nation
- Sinixt Nation
- Skeetchestn Indian Band
- Skwlāx te Secwepemcúĺecw (Little Shuswap Lake Band)
- Snuneymuxw First Nation
- Splatsin (Spallumcheen) Band
- Syilx (Okanagan Nation Alliance)
- T'exelc (Williams Lake) First Nation
- Tkemlups te Secwepemc
- Tla'amin Nation
- Yaq̓it ʔa·knuqƚi 'it (Tobacco Plains) First Nation
- sc̓əwaθən məsteyəxʷ (Tsawassen) First Nation
- Upper Nicola Indian Band
- Wei Wai Kai Nation
- Wei Wai Kum Nation
- Yaqan nuʔkiy (Lower Kootenay Band)

In recent years, the BCWF Watershed team has significantly advanced conservation efforts throughout British Columbia. The work we do would not be possible without our project partners.

Artwork by Chenoa Gao

Environmental Non-Governmental Organizations

- A Rocha Canada
- Alouette River Management Society
- Armstrong Wetlands Association
- Birds Canada
- Canadian Wetland Round Table
- Central Kootenay Invasive Species Society
- Columbia Wetland Stewardship Partners
- Cougar Creek Streamkeepers
- Ducks Unlimited Canada
- Friends of Kootenay Lake
- Gardom Lake Stewardship Society
- Grasslands Conservation Council of BC
- Interior Wildlife Rehabilitation Society
- Methow Beaver Project
- Nechacko Environmental Water Stewardship Society
- Nicomekl Enhancement Society
- North Okanagan Naturalist Club
- North Shore Streamkeepers
- Quadra Island Climate Action Network
- Salmo Watershed Streamkeepers Society
- Secwepemcùl'ecw Restoration and Stewardship Society
- Salmo Watershed Streamkeepers Society
- Slocan River Streamkeepers Society
- South Coast Conservation Program
- Southern Interior Land Trust
- Stqeeye' Learning Society
- Swift Water Designs
- The Land Conservancy of BC
- The Nature Trust of BC
- Whistler Naturalists
- Wild Research

Governmental Organizations

- BC Ministry of Forests
- BC Ministry of Water, Land & Resource Stewardship
- Environment and Climate Change Canada
- Fisheries and Oceans Canada

Schools

- BC Institute of Technology
- Nicola Valley Institute of Technology
- School District 72 (Quadra Island Elementary School)
- Thompson Rivers University
- University of British Columbia Okanagan

Contractors & Consultants

- Adamus Resource Assessment, Inc.
- Agrowest Consulting
- Associated Environmental
- Cirque Ecological
- Cows and Fish Alberta
- E. Wind Consulting
- Ebbwater Consultants
- Erickson Environmental
- Geomorphic Consulting Ltd.
- Humane Solutions
- International Remote Sensing Surveys Ltd.
- Jo-Anne Hales (Consultant)
- Pearson Ecological
- Rewilding Water & Earth Inc.
- Simpcw Resources Group Ltd

Through collaboration with First Nations communities, environmental non-governmental organizations (ENGOs), contractors, consultants, and educational institutions, the team has significantly advanced the restoration, preservation, maintenance, monitoring, and education concerning wetland, watershed, and fish habitat ecosystems in BC.

BCWF
BC WILDLIFE FEDERATION

Thank you to the funders who make what we do possible:

BRITISH COLUMBIA

Environment and Climate Change Canada
Environnement et Changement climatique Canada

Canada

BC INTERIOR COMMUNITY FOUNDATION

FWCP Fish & Wildlife COMPENSATION PROGRAM

WILDLIFE HABITAT CANADA
HABITAT FAUNIQUE

HABITAT CONSERVATION TRUST FOUNDATION

COLUMBIA VALLEY COMMUNITY FOUNDATION

PAN AMERICAN SILVER

Gulf & Fraser

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Freshwater Fisheries Society of BC

eco canada

The McLean Foundation

Regional District of East Kootenay

Columbia Basin trust

PACIFIC SALMON FOUNDATION

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Cover Photo by:

Molly Dube, BCWF Communications and Technology Specialist

Design and Content:

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Editing:

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Presented by the B.C. Wildlife Federation's Conservation Stewardship Department

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