



FWCP
Fish & Wildlife
COMPENSATION PROGRAM

NEWS

2019 Annual Newsletter

fwcp.ca



Project results from our
Columbia, Coastal, and
Peace Regions

\$9.2 million for 97 fish and
wildlife projects in 2019–2020

The projects we're funding are
restoring habitat, conserving
ecosystems, and supporting
species at risk

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Fisheries and Oceans
Canada

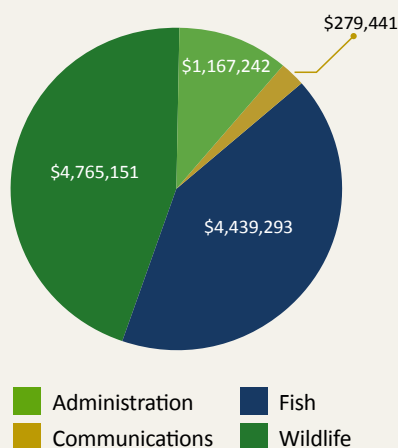
Pêches et Océans
Canada





Trevor Oussoren, FWCP Program Manager

In fiscal year 2018–2019, 86% of the FWCP's total annual budget of approximately \$10.6 million went towards fish and wildlife projects. Read our annual reports at fwcp.ca.



Manager's message

It's been nearly three years since I took on the focused role of Program Manager for the FWCP. Since then I've been working with our small team to continue the good work that started in 1988, when the first compensation program was launched in our Peace Region. We've changed a lot since then, but our focus on conserving and enhancing fish and wildlife in watersheds impacted by BC Hydro dams has not.

We're continually strengthening and improving our approach, so the projects we fund will move us towards our vision of thriving fish and wildlife populations in watersheds that are functioning and sustainable.

Since 2016, we've:

- Completed strategic project reviews in our Coastal and Columbia Regions.
- Initiated a strategic project review in our Peace Region.
- Completed an update to 14 watershed Action Plans in our Coastal Region.
- Initiated the updating of our Columbia Region Action Plans (to be completed by August 2019).
- Implemented recommendations from a 2015 third-party review.
- Initiated an evaluation and financial audit in alignment with our governance manual.
- Hosted two tri-region meetings with Board members from all regions.
- Developed and launched an online grant management system.
- Strengthened our sharing of results through fwcp.ca and our annual reports.

We've done all of this while approving and delivering \$37.3 million for 433 projects across our Coastal, Columbia, and Peace Regions.

And we're not done. We're continuing to evolve our approach to conservation in the face of climate change and other complex challenges. We're committed to growing and strengthening our relationship with First Nations. And later this year, we'll review and implement outcomes of the evaluation and audit that started in winter 2019. Looks like the next three years will be just as busy.

Trevor Oussoren
Program Manager

Our regional Boards

First Nations, BC Hydro, the Province of B.C., Fisheries and Oceans Canada, and Public Stakeholders are represented on our regional boards. See fwcp.ca/our-story for more on how we operate and how we're structured.

Front cover: Conserving wetland habitat, and species that depend on them like the Great Blue Heron, are among the priorities for the FWCP. Photo: iStock, P. Gauthier



Our three regional Boards meet every two years.

12,000 m² of salmon habitat restored at Second Island

Campbell River Watershed

To help Chinook, Steelhead, Coho, and Chum populations, A-Tlegay Fisheries Society, in partnership with Fisheries and Oceans Canada and BC Parks, have restored a side channel in Campbell River.

By removing a gravel plug at the entrance to the channel, along with modifying three rock weirs, the project re-established surface water flows in the Second Island side channel. The weirs were contributing to excess gravel accumulation that eliminated spawning habitat and stranded juvenile salmonids.

Now that the gravel has been removed, approximately 8,000 m² of habitat has been restored within the side channel. In addition, the gravel was re-used in the mainstem to improve 4,000 m² of Chinook spawning habitat.

It is anticipated that, over the long term, the work will allow gravel to move more freely through the system during high flow events and the natural channel function will be restored.



Looking upstream along Second Island from one of the weir sites in Aug. 2017 (left) and 11 months later. Photos: C. McGregor

Restoration project benefits toads, turtles, owls, and bats near Stave River

Stave River Watershed

Athene Ecological is helping priority species and enhancing biodiversity near Mission.

This work includes community engagement, habitat restoration, mitigation measures, and monitoring to support toads, turtles, owls, bats, and other species.

A new nesting area will increase hatchling survival for Western Painted Turtles. To increase survival of young Western Toads, temporary fencing was installed to keep toadlets off busy roads. While it is not a long-term solution, discussions are underway with the provincial government to install toad-friendly culvert crossings.

Netting and monitoring of bats, such as the Little Brown and Yuma Myotis, south of the Ruskin Dam is providing valuable information to inform future conservation planning. Partnering with bat specialist Dr. Cori Lausen, the results provide baseline data, as work continues, to develop a prophylactic probiotic that introduces living microbial agents to combat White Nose Syndrome.

During this work, funded by FWCP, biologists recorded a rare find — a new Western Screech-owl territory. Only three territories have been previously observed in the Stave River Watershed. Work will continue to conserve the owl's sensitive habitat.



New nesting habitat was created for Western Painted Turtles. Photo: FWCP

Floodplain restoration improves salmon spawning and rearing habitat

Stave River Watershed

The lower Stave River, between the Ruskin Dam and the Fraser River, is important salmon spawning and rearing habitat that has recreational, economic, environmental, and cultural importance. It lies within the traditional and reserve lands of the Kwantlen First Nation.

Due to fluctuating water levels and changes in the movement of gravel below the dam, parts of the Stave River became dry, stranding adult Chum and desiccating redds. There has also been some riverbank erosion causing damage to culturally important artifacts.

Recent restoration work, with FWCP funding, was undertaken to re-water the dried channels and protect the culturally sensitive sites from further erosion and damage. With the use of heavy machinery and excavators, the riverbed gravels were regraded. Large intertwined boulder and wood structures were installed to stabilize the streambank from further erosion and create refuge areas for juvenile salmon. Other activities included extensive replanting of native species and monitoring with support from the community.

Up to 30 community volunteers helped replant riparian areas and aquatic benches with 4,333 native plants, including roses, Sweet Gale, Red Osier Dogwood, willows, and Black Cottonwoods. These, together with 25 aquatic sedge mats, help reduce future encroachment by non-native species, and provide rearing habitat for young salmonids. The work will benefit Coho, Chinook, Chum, Pink, Sockeye, and Cutthroat Trout.

In 2018, the partners restored more than 500 m² of salmon spawning habitat, stabilized 50 m of eroding river bank, planted vegetation over 1,720 m², and helped the local community better understand the floodplain ecosystem.

The work is being led by the Fraser Valley Watersheds Coalition, in partnership with Fisheries and Oceans Canada, Kwantlen First Nation, and the Stave Valley Salmonid Enhancement Society. It helps to address priority actions outlined in our FWCP Coastal Region Stave River Watershed Action Plan.



Large wood and boulder structures were engineered to protect the shoreline and culturally significant sites from erosion. Photo: N. Cox

Restoration work helps species at risk on Vancouver Island

Campbell River Watershed

In 2015, the FWCP helped purchase 67 hectares of conservation land to complement the existing 104 hectares of the Salmon River Estuary Conservation Area. The land, near Sayward, is owned by The Nature Trust of BC (NTBC).

Fast forward to 2018 and work continues to improve habitat on the conservation lands that

have previously been impacted by logging and gravel extraction. Since 2015, five hectares of invasive Scotch Broom have been removed, several small wetlands enhanced, and, with the help of the Guardian Watchmen from the K'ómoks First Nation, approximately 1.5 hectares of Red Alder forest have been thinned that will help support songbirds.



Trail cam footage shows the enhanced wetlands have become "party central" for wildlife. Photo: NTBC

Lax Kw'alaams First Nation fills Eulachon information gaps



Knowing more about Eulachon is a key step towards habitat restoration and conservation. Photo: iStock - M. Cornelius

Falls River Watershed

Biologists with the Lax Kw'alaams Fisheries Department are assessing Eulachon population status and habitat conditions in the Ecstall and Lower Falls rivers, near Prince Rupert. These are important spawning areas for the species, which has been in decline for 70 years. More information is required to know if restoration and conservation efforts could help the species.

Getting that information involves interviews to gather local traditional knowledge, in addition to implementing various assessments and surveys. These include aquatic plant surveys, sediment and

water testing, assessing the condition of adult spawners, and using a sediment grabber to dig up egg samples.

Data collection and analysis will improve understanding about river productivity, as well as help identify critical spawning and larval habitats. It will also help shape both a robust monitoring framework and a habitat restoration plan.

Eulachon are anadromous, using freshwater for only 5% of their lifecycle, during their spawning, egg, and larval stages. They spawn only once, around February, at three years of age. Eulachon larvae typically hatch within two to four weeks and are washed downstream to estuarine waters, where they remain for several weeks before moving to the ocean.

They are a prized food, medicine, and ceremonial fish for Lax Kw'alaams First Nation, and a species of interest in the FWCP's Coastal Region Falls River Watershed Action Plan.

Habitat mapping planned for Mule Deer



Mule Deer. Photo: L. Halverson

Shuswap River Watershed

Mule Deer numbers are declining and determining their winter range to guide habitat enhancement decisions is a priority action in FWCP's Shuswap River Watershed Action Plan. To find out more about the use of migration routes and ranges, biologists with the Province of B.C., Splatins Nation, and UBC Okanagan Campus joined forces to collar and track Mule Deer over two years.

This year, the partners are aiming to have up to 18 Mule Deer collared. GPS data from the collars will be combined with ground observations to help predict habitat use by Mule Deer. The habitat analysis, to be completed in 2020, will help biologists identify potential habitat enhancement sites. This project aligns with FWCP's strategic objective to maintain or improve opportunities for sustainable use.



A Northern Goshawk nest is located high above the ground in what is now a Wildlife Habitat Area. Photo: H. Davis

Research leads to new WHA for Northern Goshawks

Clayton Falls Watershed

An FWCP-funded Northern Goshawk survey has contributed to a new 182.5-hectare Wildlife Habitat Area (WHA) west of Bella Coola. The original survey, led by Artemis Wildlife Consultants and Kingbird Biological Consultants, found a family of Northern Goshawks in the Clayton Falls Watershed. Shortly after, the nest site was located, and the biologists recommended the establishment of a Northern Goshawk WHA.

The Northern Goshawk *laingi* subspecies, found in B.C.'s coastal area, is a conservation concern due to its habitat requirements, which are impacted by human actions, including forestry and other development. The use of WHAs, which limit human activities, are part of a broader Implementation Plan for the Recovery of Northern Goshawks, led by the Province of B.C.

Following additional work by the Province of B.C. and the BC Conservation Foundation, the new Goshawk WHA was established in November 2018. It would not have been possible without the support of the Bella Coola Community Forest that provided key information in the WHA proposals.

The new WHA in the Clayton Falls Watershed is one of seven recently established for Northern Goshawks on the West Coast of B.C., covering a total of 1,365 hectares. They are the first new Northern Goshawk WHAs in the region for more than a decade.

Fish passage improved on Salmon River

Campbell River Watershed

After nearly 50 years of operation, the Salmon River Diversion Dam, located between Campbell River and Sayward, was fully decommissioned in summer 2017. This work was a partnership between BC Hydro, We Wai Kai, Wei Wai Kum, and K'ómoks First Nations to restore the river bed, and provide unhindered passage for fish, including Coho, Chinook, and Steelhead.



Salmon River Diversion Dam prior to decommissioning in 2017. Photo: BC Hydro

Recent monitoring of passage for Coho by the A-Tlegay Fisheries Society and Fisheries and Oceans Canada, confirms that it has improved since the dam was removed.

Results show significant densities of Coho fry upstream of the former dam site, and helicopter surveys also found a varied distribution of spawning Coho. Most importantly, close to 30% of all Coho adults observed in the Salmon River in fall 2018 were upstream of the decommissioned dam.

The FWCP is also funding fish passage feasibility studies in the Alouette and Coquitlam river watersheds in alignment with BC Hydro's Fish Passage Decision Framework. The fish passage plan for Wilsey Dam was endorsed by our Coastal Board in June 2018.

Restoring wetland habitat along the Slocan River

West Kootenay

The Slocan River Streamkeepers is anticipating another successful wetland restoration project. This one, again with FWCP and Columbia Basin Trust funding, will focus on the Goulden-Thurston site, five kilometres north of Winlaw.

Low elevation wetlands have been significantly affected by reservoir creation, and our Columbia Board continues to identify wetland restoration and conservation projects, like this one, as a regional priority.

There are many other pressures on wetlands and the Goulden-Thurston site has been historically impacted by clearing, ditching, filling, and grazing by livestock. The site has also become infested with invasive Reed Canary Grass.

The project's goal is to restore the wetland habitat and re-vegetate the site to enhance functionality and attract more native species. In January 2019, three shallow wetland areas were excavated, restoring an area equivalent to 0.25 hectares in size. Basking logs were installed and a turtle nesting area was created. Planting is planned for early spring of this year, along with the installation of nesting and roosting boxes.

This project will provide habitat for a diversity of wildlife, including Western Toads, Columbia Spotted Frogs, Western Painted Turtles, bats, and birds. It may also help reduce mosquitos. Sampling in summer 2017 found no mosquito larvae in the wetlands restored by the Society at Crooked Horn Farm. This is because properly functioning wetlands attract mosquito predators, such as amphibians, dragonflies, birds, and bats.



Aquatic dependent species, like the Columbia Spotted Frog, benefit from wetland restoration.
Photo: FWCP



Virginia Rail. Photo: R. Darvill

191 marsh bird surveys lead to conservation action

East Kootenay

Secretive or inconspicuous marsh birds in the Columbia Wetlands near Golden are being surveyed to estimate their populations and identify habitat needs. Goldeneye Ecological Services, with seven volunteers, completed 191 surveys at 65 survey stations, collecting data on 108 bird species.

This information will help inform conservation actions and with FWCP funding, there are plans to install nest boxes, work with landowners, and restore an old mill site. Interim results have already been submitted to influence decisions on local restoration and management plans.

Final results of the three-year project will be available in spring 2020, but already some interesting findings have surfaced. There were high detection rates of Pied-billed Grebe, Sora, Red-winged Blackbird, Yellow Warbler, and Willow Flycatcher. In addition, the Blue-listed American Bittern — a focal species for the FWCP — was detected 10 times at five survey stations near Brisco. Specific habitat types are important for these birds and will be the focus of future habitat conservation actions.

97 FISH AND WILDLIFE PROJECTS

\$9.2 million approved by regional Boards

Our three regional Boards – Coastal, Columbia, and Peace – approved funding for 97 fish and wildlife projects, valued at approximately \$9.2 million for 2019–2020.

Each project went through a three-stage review and evaluation process prior to a final decision by our local Boards. Each project addresses one or more conservation priorities in our Action Plans.

Projects are being led by First Nations, agencies, stewardship groups, and consultants.



Moose. Photo: iStock, B. Bowden

Why does BC Hydro fund FWCP?

The FWCP is funded annually by BC Hydro and directs those funds towards projects that address priority actions across its three regions. BC Hydro has water licence obligations in the Columbia and Peace regions, and has made voluntary commitments to address the impacts of dams in the Coastal Region. BC Hydro fulfills the applicable obligations through the work of the FWCP.

Learn more about our projects and how to apply for a grant

Find out what projects we're funding and how to apply for a grant at fwcp.ca.

All FWCP projects are evaluated for technical merit, feasibility, and the benefit to fish and wildlife.



Subscribe now at fwcp.ca/subscribe.

Northern Goshawk. Photo: iStock-Tobyphotos

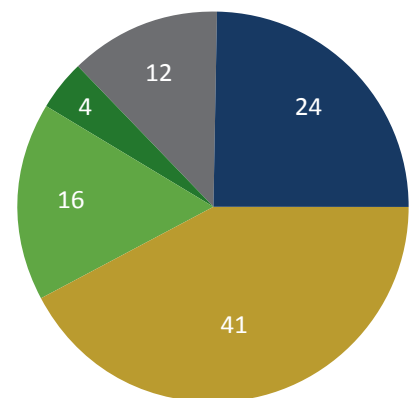
The Fish & Wildlife Compensation Program conserves and enhances fish and wildlife in watersheds impacted by BC Hydro dams.

Project results are online at fwcp.ca

The projects we fund are restoring habitats, conserving ecosystems, and supporting at-risk species. We post final reports for all FWCP-funded projects on provincial databases, so everyone can see the results and outcomes. We also post a searchable spreadsheet to make it easier to find the report you want. Read our annual reports for an overview of projects and outcomes. Learn more at <http://fwcp.ca/results>.

Types of projects we're funding in 2019–2020

The projects we fund support science, monitoring, and on-the-ground actions.



- Research and information
- Habitat based
- Species based
- Land securement
- Monitoring and evaluation

FUNDED BY FWCP IN 2019–2020

Coastal Region projects

33 Projects: 20 fish and 13 wildlife
\$1.9 million in 2019-2020

Fish

- Helping rebuild Chinook stocks
- Studying Chinook and Bull Trout
- Assessing spawning channel function
- Restoring habitat and riparian areas
- Improving fish passage
- Studying summer-run Chinook
- Improving salmon spawning habitat
- Enhancing spawning channels
- Improving salmon habitat
- Assessing restoration options for salmonids
- Eco-cultural restoration of Campbell River Estuary
- Improving nutrients for salmonids
- Supporting aquaculture in the Puntledge River Watershed
- Campbell River salmon spawning habitat strategy

Wildlife

- Helping Canada's most endangered owl species
- Assessing White Nose Syndrome mitigation options
- Supporting recovery of endangered marmots
- Supporting recovery of Western Painted Turtles
- Conserving wildlife habitat
- Restoring ecological function
- Supporting Mule Deer and habitat
- Restoring species of conservation concern and cultural value
- Conserving bats and their habitat
- Securing conservation lands
- Restoring natural habitat conditions

Columbia Region projects

38 projects: 10 fish and 28 wildlife
\$5.8 million in 2019-2020

Fish

- Monitoring Bull Trout
- Improving Rainbow Trout habitat
- Restoring and maintaining Rainbow Trout spawning channel
- Improving fish habitat on Joseph Creek
- Restoring nutrients in Arrow Lakes Reservoir and Kootenay Lake
- Supporting Hill Creek and Meadow Creek spawning channel activities
- Supporting sturgeon recovery

Wildlife

- Improving riparian habitat near Revelstoke Dam
- Filling information gaps about marsh birds
- Restoring grassland and open forest habitat
- Restoring wetland and riparian habitat
- Improving Big Horn Sheep habitat by addressing invasives
- Conserving wildlife corridors
- Collecting baseline bat data
- Restoring wildlife habitats with Akisqnuq First Nation
- Controlling invasive plants
- Studying elk migration
- Assessing amphibians
- Assessing and restoring habitat for Harlequin Ducks
- Mapping old-growth forests
- Stewarding conservation lands
- Enhancing habitat for upland and dryland species
- Enhancing habitat for non-game species
- Supporting caribou recovery
- Supporting Northern Leopard Frog recovery
- Restoring and enhancing wetlands
- Securing lands for conservation

Peace Region projects

26 projects: 9 fish and 17 wildlife
\$1.5 million in 2019-2020

Fish

- Studying Lake Trout
- Assessing Bull Trout habitat and spawning
- Studying Arctic Grayling
- Studying Arctic Grayling and Bull Trout interactions
- Improving fish passage
- Monitoring and managing fish enhancement structures
- Studying Kokanee

Wildlife

- Building ecological awareness
- Assessing health of Stone's Sheep
- Restoring habitat to support endangered caribou
- Assessing Chase Caribou Herd
- Improving understanding of furbearers
- Studying endangered bats
- Training forest industry professionals
- Helping UNBC share fish and wildlife knowledge
- Studying Finlay Caribou herd
- Helping restore wetlands
- Improving understanding of wetlands
- Improving understanding of forestry and fire on forage lichens
- Studying threatened Olive-sided Flycatchers
- Supporting Mugaha Marsh bird banding station
- Investigating factors limiting moose

Read our complete project lists at
fwcp.ca/projectlists

Learn more and visit inter-active project
map at fwcp.ca/our-work-in-your-region/



Making Darkwoods “whole” — an extra 7,900 ha of protected habitat

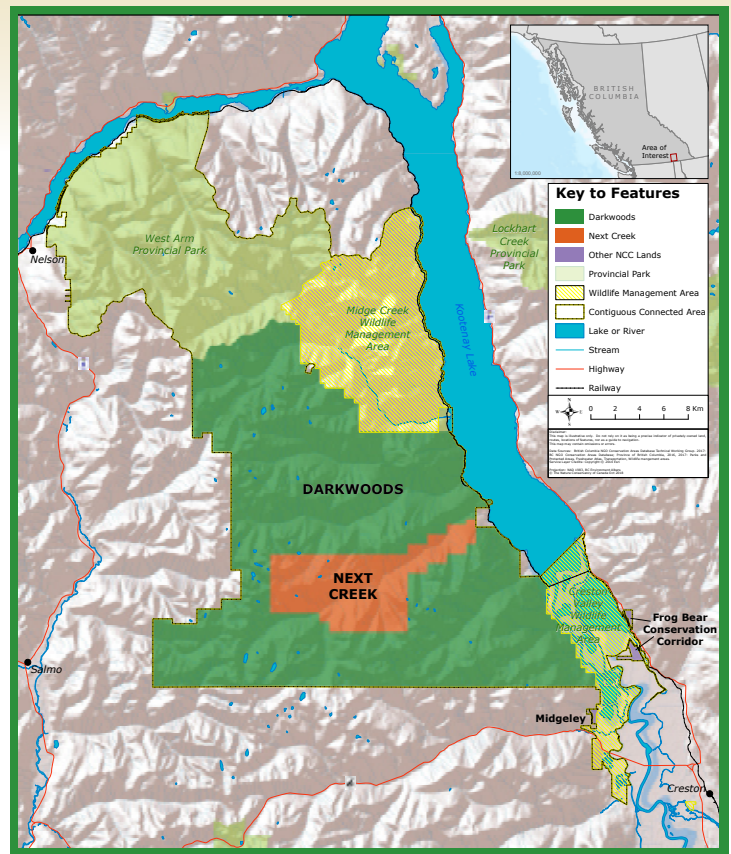
West Kootenay

The FWCP has been a significant contributor to the purchase and ongoing stewardship of the Darkwoods Conservation Area south of Nelson, which is owned and managed by the Nature Conservancy of Canada (NCC). Up until last year, however, there was a 7,900-hectare hole in the Darkwoods conservation map, encompassing most of the Next Creek Watershed.

With support from a number of funders, including the FWCP, NCC was able to acquire the Next Creek property in 2018, and Darkwoods is now a vast 630 km². Since Darkwoods borders West Arm Provincial Park and Midge Creek Wildlife Management Area, this means there is an area spanning over 1,100 km², (equal to about 2,700 of Vancouver’s Stanley Park) of connected habitat.

This habitat includes riparian ecosystems, dry interior cedar-hemlock forest, old-growth and inland temperate rainforest. Some of the key species benefitting from this landscape-level conservation initiative include Grizzly Bear, Wolverine, and Bull Trout.

To learn more about the NCC and the fundraising for the Next Creek Watershed, visit natureconservancy.ca.



Floating loon platforms double nest success on Whatshan Reservoir

West Kootenay



Floating loon platform and eggs.
Photo: M. Kellner



Five floating nesting platforms on Whatshan Reservoir, near Fauquier, are proving successful in enhancing Common Loon productivity. Since 2013, the average nesting success has increased from 29% to 61% of pairs effectively hatching young. Productivity has increased from an average of 0.42 to 0.77 chicks per pair.

The platforms are planted with grasses and shrubs to provide cover and nesting habitat, and were installed with FWCP funding by Kingbird Biological Consultants. Shoreline nest success is thought to be low, primarily due to reservoir operations and fluctuating water levels. Using floating platforms eliminates the risk of nest flooding.

In 2018, three of five nests (60%) hatched successfully — all successful nests were on the floating platforms. One nest on a platform and one on the shore failed, with two unhatched eggs observed. The failure is most likely a result of the exceptionally wet spring weather. Unfortunately, one platform went missing in 2016, and another was vandalized and had its vegetation removed in 2018.

The Common Loon is a focal species under our Species of Interest Action Plan. The project is managed by the Province of B.C., through its long-term agreement with the FWCP to deliver annual and ongoing projects.

Another 20 hectares of grassland and forest treated on Tobacco Plains Indian Reserve

East Kootenay



Rocky Mountain Elk. Photo: iStock, B. Miller

Keefer Ecological Services Ltd. and Tobacco Plains Indian Band are working together to restore grassland and open forest habitat. The area is home to several federal at-risk species, including Spalding's Campion, American Badger, Lewis's Woodpecker, and Long-billed Curlew. It provides important grazing habitat for Mule Deer and Rocky Mountain Elk. Restoring grassland and open forest habitat to help these species is a priority for the FWCP.

Invasive plants pose a significant challenge to restoration activities. For example, Sulphur Cinquefoil is widespread throughout the reserve, dominating over 700 hectares of grassland. It's also found in open forests, past burns, logged areas, and along roadsides. Goat grazing — an alternative to herbicides — is being used, and in 2018, a further 18 hectares of land was successfully treated by goats.

Given the large infestations of spotted knapweed that act as seed sources, management efforts are focused on controlling its spread rather than eradicating it from the reserve. Other plants being treated or monitored include Leafy Spurge, Orange Hawkweed, Canada Thistle, Yellow Toadflax, Scentless Chamomile, and Field Bindweed.

Forest encroachment is another factor that threatens open grassland habitat. In 2018, an eco-mulcher was used, in addition to manual thinning, to manage forest encroachment on about two hectares within Tobacco Plains Indian Reserve. The project was funded through the Upper Kootenay Ecosystem Enhancement Plan — a partnership between the Columbia Basin Trust and FWCP.

Murphy Creek side channel helps Rainbow Trout

West Kootenay

Members of the Trail Wildlife Association (TWA) worked with biologists from the Okanagan Nation Alliance and other volunteers to give Murphy Creek Spawning Channel a makeover in 2018.

Murphy Creek, north of Trail, flows into the Columbia River and is important for Rainbow Trout spawning and juvenile rearing. In the early 1990s, a side channel was added to the mainstem to provide better spawning and rearing habitat. In recent years, under the management of TWA's Rob Frew and Al Mallette, with numerous partners, there have been many changes at the channel. Results are positive, with as many as 74 spawning Rainbow Trout recorded along the 200-metre channel of cascading pools, at one count.

In 2018, the channel intake was given temporary armour to withstand the next freshet. The settling pond at the top of the channel was dredged of accumulated sediment, and the border of the pond was re-contoured to improve safety and access. The spawning channel was raked to remove silt and small woody debris, and a load of river-run gravel is being placed in spring 2019. In addition, 84 native trees — including Trembling Aspen, Douglas Fir, Western Redcedar, and Dogwood — were planted to suppress the further invasion of Black Locust.

More work is planned, including permanent improvements to the channel's intake and the development of a long-term management plan.



Rainbow Trout. Photo: iStock, Tab1962

Tug and barges used to add nutrients to Kootenay Lake

West Kootenay

The Nutrient Restoration Program on Kootenay Lake is coordinated by the Ministry of Forests, Lands, Natural Resources Operations and Rural Development. Nutrients are added to Kootenay Lake between spring and early fall to restore the food web impacted by the construction of dams and creation of reservoirs.

In 2018, nutrient dispensing changed in Kootenay Lake's North and South Arms when new contractor Graham Marine Construction started. Instead of using the Balfour Ferry, nutrients are now dispensed from barges, pushed by a tug boat.

"The areas and amount of nutrients added to Kootenay Lake remain the same," says Kristen Peck, Ministry fish restoration biologist. "The new barge operation will continue to benefit the whole ecosystem in and around the lake. We'd like to thank BC Parks and the communities of Boswell and Balfour for their support and use of barge-loading sites."

The Nutrient Restoration Program to restore the food web impacted by the construction of dams started in the 1990s. The FWCP and BC Hydro fund the program in the North Arm of Kootenay Lake, and the Kootenai Tribe of Idaho funds it in the South Arm.



Adding nutrients to Kootenay Lake with a tug and barge.
Photo: Graham Marine

Plans underway to improve fish passage and restore Joseph Creek

East Kootenay

Plans are underway for the restoration of Joseph Creek, with the goals of improving fish passage, restoring natural flows, and increasing the availability of rearing habitat critical to juvenile fish. The creek, which flows through Cranbrook, has experienced declining numbers of Westslope Cutthroat Trout due to degraded habitat conditions and availability, in addition to competition from introduced Brook Trout.

An FWCP Seed Grant, under the Upper Kootenay Ecosystem Enhancement Plan, provided funding to VAST Resource Solutions to take the first step. VAST compiled all relevant fish and habitat data in a baseline report. Information gaps were identified and field checks were completed to identify any new fish barriers, or other changes in the creek that may be impacting Westslope Cutthroat Trout and Bull Trout populations. The next step is to implement the restoration work.

Part of the work involves establishing an ongoing monitoring program, with the assistance of the Columbia Outdoor School. The school will also be involved in future restoration activities.

"A collaborative approach from multiple stakeholders and user groups will be required to ensure the survival of Westslope Cutthroat Trout in the Joseph Creek drainage," says Ben Meunier from VAST. "We're working together to develop scientific-based solutions that support environmental stewardship of Joseph Creek and its native trout, and look forward to the restoration work to come."



Bull Trout. Photo: B. Meunier

Dual effort to help Arctic Grayling



Arctic Grayling. Photo: M. Tilson

Parsnip Sub-region

Two projects will fill important data gaps concerning Arctic Grayling in the Parsnip River and its major tributaries. One will be a snapshot in time to monitor population abundance and critical habitats, while the second is over a longer timespan to determine migrations, distribution, and thermal habitat use.

Filling these data gaps is a priority for the FWCP, as outlined in the 2017 Arctic Grayling Synthesis Report. Arctic Grayling is an important species for First Nations and anglers. Creation of the Williston and Dinosaur Reservoirs flooded much of the river and stream habitats the species depends on, reducing their abundance in the watershed. They're also impacted by logging, and potentially growing angling pressure. Because this is the southernmost Arctic Grayling population in the province, they are impacted by climate change.

A team of biologists led by the Ministry of Forests, Lands, Natural Resource Operations and Rural Development are determining Arctic Grayling population abundance through snorkel surveys in the Anzac, Table, and Missinka rivers. Preliminary results for 2018, from six index reaches, show abundance at approximately 80% above the 1995-2007 long-term average. Ministry biologists are using the same method to assess critical habitats and help identify sites for conservation and enhancement actions.

The University of Northern British Columbia is leading a project to determine Arctic Grayling migrations, spatial-temporal distribution and thermal habitat use, and overlap in distribution with Bull Trout. The results will inform future enhancement and conservation actions.

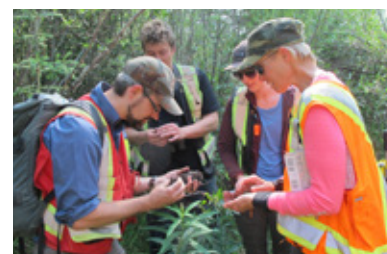
Fifty-four Arctic Grayling and 13 Bull Trout were tagged and fitted with acoustic transmitters. Each fish is fitted with an "anchor tag" for anglers to report the location of re-captures. One angler has already reported catching a Bull Trout at the mouth of the Parsnip River that was tagged in the Anzac River, approximately 75 kilometres away.

50 wetland stewards get free training with BCWF

Basin-Wide

Fifty people took part in two-day wetland workshops funded by the FWCP and delivered by the BC Wildlife Federation in Fort St. James, Moberly Lake, Mackenzie, and Tsay Keh Dene.

These hands-on workshops are much more than just about education. Important inventory work is done, partnerships developed, and potential wetland restoration sites were identified. BC Wildlife Federation already has FWCP funding for a small wetland restoration project at Morfee Elementary School in Mackenzie in 2019.



Neil Fletcher (bottom left) has been leading wetland workshops in our Peace Region.
Photos: BCWF

Caribou habitat: 12,000 trees planted and access restricted

Peace Sub-region

Access trails and roads to high-elevation habitat can be bad for caribou. It's not the vehicles that are the biggest problem, but rather the hardpacked winter snow and clear trails that allow predators to easily prey on caribou, specifically calves.

For these reasons, the Nîkanêse Wah tzee Stewardship Society has been leading a project west of Chetwynd to deactivate a 2.3-km section of forest service road on Mount Bickford. The most recent work included planting 12,000 seedling trees — hybrid Spruce, Sub-alpine Fir, and Alder — on the restored site.

Woodland Caribou are a species at risk and are identified in the FWCP's Peace Region Species of Interest Action Plan. In particular, the Klinse-Za/Scott East Woodland Caribou herd has gone through steep population declines in the last few decades, with only 36 animals counted in 2013. Since then, emergency recovery actions, including maternity penning and predator control, have helped the local caribou population climb back to approximately 81 in 2019.



Woodland Caribou. Photo: FWCP

The Nîkanêse Wah tzee Stewardship Society is a not-for-profit organization established by the West Moberly and Saulteau First Nations to recover declining caribou populations within the territory of Treaty No. 8.

The recent road deactivation work will further increase the herd's chances of survival but it was, however, far from straightforward. Upon initial completion in 2017, a bulldozer was illegally used to partially open the access road, but the Society was quick to respond and re-do the road deactivation.

Wildlife Infometrics Inc. is responsible for project management, and has been monitoring the project's effectiveness. Trail cam footage has shown that, following the deactivation work, vehicle access was completely eliminated during snow-free periods. Only one group of snowmobiles ignored the signage and went through the restoration area during the winter 2017-2018.

Monitoring will continue along the restoration area to determine predator presence and abundance.

Working Group strengthens First Nations participation in FWCP projects

Our First Nations Working Group (FNWG) is unique to our Peace Region and is responsible for bringing First Nations' perspectives into all aspects of FWCP planning and project delivery.

Established in 2012, the FNWG includes participation from Doig River, Kwadacha, McLeod Lake, Nak'azdli, Prophet River, Saulteau, the Treaty 8 Tribal Association, Tsay Keh Dene, and West Moberly First Nations.

To support early engagement and First Nations participation in FWCP projects, we require all grant applicants to submit a Notice of Intent to the FNWG for review, prior to submitting a grant application. Through this process, FNWG members identify proposed projects for which they wish to be contacted. This early communication between grant applicants and First Nations strengthens information sharing and supports potential First Nations' involvement in FWCP projects.

The FNWG has been very successful, and First Nations participated in 92% of FWCP projects in the Peace Region in 2018-2019.

23 of 25 projects in 2018-2019 had First Nations involvement (i.e. leading or participating/supporting):
8 projects were led by First Nations
17 projects had First Nations participation/support



Arborist Ryan Murphy with Strategic Resource Solutions.
Photo: T. Manning

60 wildlife trees created in Tsay Keh Dene

Finlay Sub-region

For many years, Strategic Resource Solutions has been introducing heart-rot fungi to live trees to create wildlife trees across B.C. In fall 2018, with FWCP funding, this technique was brought to the Tsay Keh Dene area to create 60 future wildlife trees that will benefit Fishers, Marten, owls, woodpeckers, bats, and many other species.

A wildlife tree is any standing dead or live tree that has special characteristics, which provide valuable nesting, denning, roosting, and feeding habitat for wildlife. They're important because more than 70 species of wildlife in B.C. depend on them.

Typically, wildlife trees can take many decades to develop but the project team, that included forestry technicians from Tsay Keh Dene (Chu Cho Environmental), use innovative techniques to speed up the internal decay process. They insert native heart-rot fungi, cultured beforehand on wooden dowels, into selected trees such as Cottonwoods, Spruce, and Trembling Aspen.

Additional tree treatments applied by chainsaw — lopping the live top off and applying full or partial girdling to remove bark and cambium layer — help accelerate the decay process or kill the tree above a certain height. Other stem cuts simulate frost cracks, lightning strikes, or bark-slabbing and provide potential bat-roosting micro-habitats.

The internal decay process is anticipated to begin within four to 10 years after applying these treatments. Once decay begins, cavity excavators, such as woodpeckers, take advantage of the decaying tree and create nesting cavities which can be subsequently used by secondary cavity-users, like squirrels and small owls. Previous work in the Columbia Region has shown woodpeckers excavating cavities three years after these treatments.

This project aligns with the Peace FWCP's Species of Interest Action Plan and takes a proactive approach to increasing the supply of cavities and crevices in wildlife trees that will be used for nesting, denning, and roosting.

Coarse woody debris essential to amphibians

Parsnip and Finlay Sub-regions

We're funding the most comprehensive amphibian research project in Northern B.C. The project is both an investigation and a message about the important connections between the forest floor and amphibian wetland breeding habitats. One significant early finding is the importance of different types, mixtures, and volumes of coarse woody debris in upland areas around wetlands, where many amphibians spend most of their life. The woody debris acts like a sponge and retains moisture — of growing importance when considering climate change — and provides mini oases of food and shelter for amphibians.

DWB Consulting Services Ltd. is leading the four-year amphibian wetland connectivity project. It has gathered data on the movements and habitat use of Western Toads, Long-toed Salamanders, Spotted, Wood, and Boreal Chorus Frogs. Amphibians are facing declines more rapidly than any other vertebrate and the threat is being amplified by climate change and hydrological cycles in northern environments.

(Continued on following page)

More than 700 amphibians photographed and catalogued

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Over the course of the project, 385 plots and 84 wetlands were surveyed alongside Williston Reservoir, with nearly 700 amphibians — including 366 Western Toads, 130 Wood Frogs, and 129 Long-toed Salamanders — photographed, measured, weighed, and catalogued. In addition, presentations, student field excursions, and stakeholder meetings were undertaken to promote conservation.

The goal is to use the data gathered to develop conservation recommendations and opportunities for habitat enhancement. The plan is to work closely with regional forest managers and other partners to promote new silvicultural practices with amphibians in mind. This may include prescriptions for specific classes and volumes of coarse woody debris, in addition to new considerations for landscapes and buffer design to maintain connectivity for amphibians in forests around wetlands.



Long-toed Salamander. Photo: M. Thompson

Contact a Regional Manager anytime to learn more about the FWCP

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We can help with your grant application by exploring your project idea and providing guidance on eligibility and alignment with Action Plans and priorities. Email fwcp@bchydro.com and we'll keep you posted about our fall webinars.

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