FISH AND WILDLIFE COMPENSATION PROGRAM

FWCP NEWS

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There is a real risk of provincial extirpation, making this captive assurance program so essential for the northern leopard frog.

Photo courtesy of Doug Adama.

A BACKUP PLAN

NORTHERN LEOPARD FROGS GET THEIR OWN INSURANCE POLICY

The Fish and Wildlife Compensation Program (FWCP) has teamed up with the Vancouver Aquarium to create a very unusual insurance policy.

Over the last two years, with the help of the FWCP, 113 northern leopard frog tadpoles have been moved from the Creston Valley Wildlife Management Area in southeast B.C. to the Vancouver Aquarium. Biologists hope that some of the 60 adults currently in captivity will successfully breed in the future. This is one of many projects the FWCP has taken part in on behalf of its program partners BC Hydro, the Province of B.C. and Fisheries and Oceans Canada who work together to conserve and enhance fish and wildlife in British Columbia.

"The goal is to maintain a back-up population should northern leopard frogs disappear from the wetlands of British Columbia," says Dr. Dennis Thoney of the Aquarium. "The plan, which has the backing of the Northern Leopard Frog Recovery Team, is to create a self-sustaining population through breeding and a few additional tadpoles in future years."

There is a real risk of provincial extinction, making this captive assurance program so essential. "Just to give an idea of how fragile the population is, we were only able to locate seven egg masses in each of the last two years," says Columbia region's FWCP crew lead John Krebs from BC Hydro. "Removing a number of tadpoles from each egg mass helps to ensure that the Aquarium has a genetically diverse population."

Once found in many areas across southern B.C., the last remaining wild breeding populations of northern leopard frog (Rana pipiens) occur in only two locations in the province. It is federally listed as endangered and red-listed (threatened) provincially.

"We have a similar captive assurance colony program in place for the endangered Oregon spotted frog," added Dr. Thoney. "Working with species-at-risk is an important role that we can play."

The good news is that with the efforts of the FWCP and the Northern Leopard Frog Recovery Team between 2001 and 2005 more than 25,000 northern leopard frogs have been raised and released in the Creston Valley and Bummers Flats in the East Kootenay, helping to stabilize the wild population.

Check out our new look!

The Fish and Wildlife Compensation Program has redesigned their newsletter to share success stories from across B.C. The *Update* newsletter from the Columbia region and the *Natureline* newsletter from the Peace region have combined to form a single newsletter that now includes projects from the Coastal region. Take a look inside for some amazing stories.

IN THIS ISSUE

The FWCP is a partnership of:

BC hydro FOR GENERATIONS

BRITISH COLUMBIA

Canada

Fisheries and Oceans Canada

Pêches et Océans Canada

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Summer 2011

INCREASING NUMBERS

A RECORD NUMBER OF MARMOT PUPS WERE RELEASED INTO THE WILD LAST SUMMER

A record 85 captive-born Vancouver Island marmots were released into the wild last summer—77 of them released into Strathcona Provincial Park with the assistance of the Fish and Wildlife Compensation Program (FWCP) to rebuild the Park's historical population that was affected by the Buttle Lake Reservoir and Strathcona Dam.

"The FWCP funds the component of the recovery process that releases marmots back in to the wild," says Scott Allen from the FWCP. The Vancouver Island Marmot Recovery Program is one of multiple projects funded by the FWCP in the Coastal region on behalf of its program partners BC Hydro, the Province of B.C. and Fisheries and Oceans Canada.

"The FWCP provides important and significant funding that allows important restoration work and community partnerships to continue," says Allen. "It allows BC Hydro, First Nations, government agencies, and stakeholders to continue to learn and adapt to biological conditions so that improvements or restorations can be made."

The FWCP's investment in this project specifically addresses the impacts of hydroelectric development on a migration route that is thought to be historically critical to Vancouver Island marmot reproduction. Raised in captivity, the marmots are taken to Mt. Washington to acclimate before they are flown by helicopter to a high-quality habitat at Greig's Ridge in Strathcona Park.

"Between the predation rates on marmots and the creation of a reservoir through development of the Strathcona Dam, marmots in that area have experienced restrictions to their migration process," says Allen. Marmots live in colonies and will travel more than 20 km to get to another one by travelling peak to peak.

Releases in Strathcona Provincial Park began in 2007 with the goal of establishing a sustainable population of between 150-200 marmots on both sides of Buttle Lake. These releases were highly significant because they marked a shift in the release efforts to focusing on recovering distribution of the Vancouver Island marmot population in the wild as well as increasing their numbers.

In 2008, 10 more marmots were reintroduced to the Park and in 2009, two litters were born. These pups were the first born in Strathcona Provincial Park, and the first born outside of the known established colonies of the 80s and 90s, in the last 20 years.

The presence of established burrow systems and the amount of habitat suggest an historical population that may have been well into the hundreds in the Park. Why the population collapsed there remains unclear but the uniquely Canadian marmot was completely eradicated from the Park by the late 1980s. By 2003, the entire wild population of Vancouver Island marmots had dropped to less than 30 individuals.

Since then, thanks to captive breeding and reintroduction, the wild population has increased to approximately 300 individuals on 27 mountains in the southern and central regions of Vancouver Island.

"We've come a long way since that first release in Strathcona Provincial Park three years ago, and we're half-way to our Recovery Strategy goal of 600 Vancouver Island marmots in the wild," said Allen. "Canada's most endangered animal is now on safer ground thanks to the coordinated efforts and contributions of all the partners involved in this conservation success story."

The Vancouver Island Marmot Recovery Team, established in 1988, developed a Recovery Strategy for the species and the Marmot Recovery Foundation was established in 1998 to raise the funds to implement the Strategy. Major partners working on the Vancouver Island Marmot Recovery Program include the FWCP, the B.C. Government, Island Timberlands, TimberWest, Calgary and Toronto Zoo, Mountain View Conservation & Breeding Centre, Mt. Washington Alpine Resort and the public.

If you have a project to help conserve fish and wildlife in B.C. affected by the development of a BC Hydro dam, visit **fwcp.ca** for details on how you can apply for funding.

For more stories from the Coastal region turn to pages 4 and 5.

PEACE REGION

THE SURE-FOOTED CLIMBER

ENHANCEMENT TRIAL AIMS TO EXPAND CURRENT GOAT POPULATION

An artificial mineral lick site created in the mountains west of the Nabesche River on the north side of the Peace Arm of Williston Reservoir in north-eastern B.C.

On July 13, 2010 biologists from the FWCP re-supplied 8 artificial mineral lick sites in the mountains west of the Nabesche River with 25 salt blocks each and assessed the sites for previous use by mountain goats. This was the fourth time the sites were replenished since the artificial mineral licks were first established in 1999.

The objective of the trial is to determine if the current range and population of mountain goats in the area could be expanded to the mountains west of the Nabesche River through the provision of artificial mineral licks.

"Though some sites showed no sign of use by mountain goats, the most highly used site was on a mountain at the extreme northwest portion of the study area," says FWCP wildlife biologist Mari Wood. "This was not a surprise, as it is thought to be a corridor for goats moving from the Ospika drainage in the northwest to the Nabesche/ Brewster area in the southeast."

Sites were assessed for any signs of mountain goat use including hair, tracks, fecal pellets and digging or cratering in the area where the salt would have leached into the ground.

If the trial is a success, options will be investigated to create a longer term and more natural solution to the placement of artificial salt blocks. A potential option may be to identify and expose naturally occurring mineral-rich sites.

A final helicopter survey to determine if the numbers and distribution of mountain goats in the Nabesche drainage were increased by the mineral lick trial will be conducted in the summer of 2011.

For more stories from the Peace region turn to pages 10 and 11.

A MESSAGE FROM THE FWCP PARTNERS

As the new manager of the Fish and Wildlife Compensation Program (FWCP), I would like to welcome you to the first issue of FWCP News.

This newsletter is a chance for the FWCP to come together to share the stories and achievements of all the research, projects and partnerships that have taken place in the Coast, Columbia and Peace regions of British Columbia. The FWCP is about conserving and enhancing the fish and wildlife impacted by the construction of BC Hydro dams and we are very proud of the continued success from all our projects.

Just look at the Jordan River Wetland Mitigation project on Vancouver Island (page 4). A project like this is a great example of creativity in design and solid partnership building, while keeping the focus on increasing biodiversity and improving ecosystem function.

You can also take a look at the 600 people who attended a toad bucketing event last August at Summit Lake just south of Nakusp. Using buckets the volunteers helped western toadlets safely cross Highway 6. And not just a bucketful of toads, but more than 20,000 of them!

If you would like to share your ideas, photos, comments and questions, or would like information on funding please contact us at **FWCP@bchydro.com**. We look forward to hearing from you.

Patrice Rother,
Manager
FWCP

COLUMBIA REGION

SPAWNING GREATNESS

HILL CREEK KOKANEE FRY EXCEED EXPECTATIONS

For the fourth year in a row the egg-to-fry survival has exceeded 50 per cent at Hill Creek Spawning Channel, north of Nakusp. Kokanee fry counts in 2010 show that 67 per cent of the eggs survived over winter—the second highest survival rate since 1989. Since a record-high 30 million eggs were laid in the channel, this means a lot of kokanee headed for the Arrow Lakes Reservoir last year.

It is estimated that the channel, which is jointly run by the Ministry of Environment and the FWCP, may account for about 80 per cent of upper Arrow Lakes Reservoir production and 60 per cent of the total Arrow production.

"This long run of high survival rates shows that our local contractors are doing a good job in the maintenance and operation of the channel, and that those involved are paying attention to detail," said FWCP fisheries biologist Steve Arndt. "Everything from managing water flows to the annual cleaning of the spawning gravel plays a role in these consistent results."

With the number of eggs deposited in the channel last year and this year's egg-to-fry survival rate, it means more than 20 million kokanee fry headed out from the channel. This is well above the usual kokanee loading rates for the reservoir.

The high egg deposition coupled with the survival rate have biologists rethinking the capacity of the spawning channel that was built in 1980 with BC Hydro funds as partial compensation for spawning habitat lost due to the construction of Revelstoke Dam.

"In short, the fry production in 2010 was well beyond the original design criteria and clearly the channel is capable of producing a lot more fry than was thought possible when it was built," said Arndt. "This means we have an opportunity to better understand how record spawning channel fry numbers will affect food web efficiency, kokanee spawning in other tributaries and recreational fisheries in the Arrow Lakes Reservoir for the foreseeable future.

For more stories from the Columbia region turn to pages 6 and 7.

A PROJECT IN THE DARK

BAT ENHANCEMENT PROJECT UNDERWAY AT ALOUETTE, BUNTZEN AND STAVE-HAYWARD LAKES

It was a workday that began at sunset when Keystone Wildlife Research Ltd. put up their nets between trees and over creeks at Buntzen Lake in Coquitlam in order to capture and inventory some of B.C.'s least known animals—the bats.

The bat inventory and habitat enhancement project in the Alouette, Buntzen and Stave-Hayward watersheds is one of multiple projects funded by the Fish & Wildlife Compensation Program (FWCP).

"One of the first steps in any habitat enhancement project is to identify what species are in the area," says FWCP Coastal Program Manager, Scott Allen from BC Hydro. "Three field surveys, one at each watershed, were completed in August 2010 by biologists from Keystone Wildlife Research Ltd. Now we're establishing a baseline to make habitat enhancement recommendations and decisions. In the meantime, biologists installed artificial rock roost during their initial surveys to see if it was one way to help increase the bat population in these areas."

There is little information on the distribution of B.C.'s sixteen bat species, seven of which are considered endangered, threatened or of special concern in the province. They are difficult to identify and biologists must carefully examine and measure each bat to establish its identity. Some bat species look so similar that tiny DNA samples must be taken for genetic analysis in order to positively identify the species. Once each bat has been measured, weighed, sexed and photographed, it is released and flutters off into the darkness.

The biologists also use instruments called bat detectors to record bat vocalizations. Some bat species are very difficult to capture in nets, but can be identified by the characteristics of their echolocation calls. Most bats call at frequencies that are too high to be heard by people, so the detectors record the ultrasonic calls for computer analysis later.

"Bats are very mysterious and misunderstood creatures," explains Lorraine Andrusiak, one of the biologists from Keystone who took part in the bat surveys. "People expect them to be disease-carrying animals that drink human blood, but they actually perform valuable pest-control functions and eat millions of insects annually, some of which are pests of timber and agricultural crops."

As the FWCP works towards developing future habitat enhancement goals for bats located in these three watersheds, they are also on the watch for a devastating fungal disease known as white-nose syndrome. This disease is decimating bat populations in eastern Canada and the United States and is spreading westward.

"We don't know for sure what effect the white-nose syndrome will have on our bat populations, but right now the outlook is grim," says Allen. "That's one reason why it is so important for the FWCP to document the bats in these areas now, so we can measure the effect of this syndrome in the future, as well as plan for habitat enhancement."

> "One of the first steps in any habitat enhancement project is to identify what species are in the area."
>
> – Scott Allen, FWCP Coastal Region Program Manager

FINDING A NEW HOME

WILDLIFE USING NEW WETLAND HABITAT AT THE JORDAN RIVER WATERSHED

The red-legged frog, a federal species of special concern, is one of five species of pond-breeding amphibians using a new wetland habitat in the Jordan River watershed on southern Vancouver Island. The new wetland was built in the drawdown zone of BC Hydro's Jordan Diversion Reservoir to offset the impacts of the hydroelectric development.

With funding from the Fish and Wildlife Compensation Program (FWCP), companies LGL Limited, TimberWest and Kerr Wood Leidel Associates, partnered to design and develop a two-tiered wetland system that resulted in the creation of two ponds and a habitat area of 8,672 m^2, a size similar to that of an international soccer field.

"The construction of a wetland within the drawdown zone of this reservoir appears to be a very new and innovative habitat mitigation strategy," says Virgil Hawkes from LGL Limited. "And based on the success of this project, the approach we used could be implemented in other watersheds where BC Hydro has hydroelectric facilities."

Approximately half of the wetland habitat is situated on TimberWest property and it played a major role within the partnership to make this restoration project happen. An unexpected side benefit of the project was the appearance of red-legged frogs in a rock borrow pit used in the wetland build after physical works had been completed. The materials from the pit were one of several key in-kind contributions from TimberWest.

"Projects like these are great for biodiversity and we're happy to participate in well organized plans that have broad support," says Domenico Iannidinardo from TimberWest Forest Corp. "TimberWest and BC Hydro are neighbours in many locations across Vancouver Island. Using our large land holdings to their highest use is fundamental to our company, including this significantly positive wetland addition to our southern land base."

Results of initial post-construction monitoring indicate that multiple species groups are using the wetland habitat. In addition to the red-legged frog, waterfowl, songbirds, two species of garter snakes, bats and other mammals have been found using the new habitat. As the wetland matures it will likely be utilised by more species of wildlife.

"The project has shown signs of success far beyond our plans in improving amphibian habitat, and these anticipated benefits will continue to increase as natural vegetation becomes better established at the site," adds Hawkes.

"The FWCP provides strategic BC Hydro funding that allows important restoration work and community partnerships to continue," says FWCP manager Patrice Rother from BC Hydro. "A project like this is a great example of creativity in design and solid partnership building while keeping the focus on increasing biodiversity and improving ecosystem function. Watching the site continually evolve will be fascinating."

If you have a project to help conserve and enhance fish and wildlife in B.C. affected by the development of a BC Hydro dam, visit **fwcp.ca** for details on how you can apply for funding.

COASTAL REGION

2010 COAST REGION PROJECT HIGHLIGHTS

TRACKING SOCKEYE SPAWNERS IN THE ALOUETTE RESERVOIR

This project, in its second year, is a study of the migration behaviours of Alouette River sockeye in order to learn of their survivorship and spawning locations of those that have been transported above the Alouette Dam. The $45,000 investment in 2010 was part of a larger effort to understand if Alouette Reservoir kokanee can sustainably revert back to being sockeye, an "ocean-going" species that was found in Alouette Lake prior to dam construction.

POWERHOUSE FORESHORE RESTORATION PROJECTS

In the third year of a multiple year project in the Lillooet area, $150,000 was invested in focusing on the Seton River foreshore, where it meets the Fraser River, in an area that was impacted during the original construction of Seton Dam, canal and powerhouse. The project has resulted in the recovery of habitat that benefits many species, and the blossoming of a strong community-based partnership that includes local stakeholders, First Nations and government agencies.

REHABILITATION OF GATES CREEK SOCKEYE SPAWNING GRAVEL CHANNEL

In its third year as well, the project aimed to continue improving the productivity of Gates Creek, an adjacent sockeye spawning channel and the facility's enumeration functions. Through several decades of wear and tear, a weir in Gates Creek had become an impediment to upstream migrations of adult salmon.

The 2010 project completed upgrades that were originally installed to allow for spawner enumeration. The upgrade work allows fish to migrate upstream without delay and improve the reliability and accuracy of fish counting equipment at the weir. Additional work also improved enumeration technology used to count fry during outmigration from the spawning channel.

$1.6 MILLION IN FUNDING ANNOUNCED

In January the FWCP announced $1.6 million in funding towards 30 projects in the Coastal region. All research and project work will take place in 2011.

"We received very good research and restoration applications this year, and this led to full program funding across the Coastal region," says FWCP Coastal Program Manager, Scott Allen. "The intent of the FWCP is to fund projects designed to restore fish and wildlife resources that have been adversely affected by the original footprint development of BC Hydro hydroelectric facilities."

ALL REGIONS

FWCP—WORKING IN REGIONS ACROSS THE PROVINCE

FWCP REGIONS IN THE PROVINCE

Since 1988, the FWCP has been delivered through a partnership between BC Hydro, the Province of B.C. and Fisheries and Oceans Canada. They collaborate and work with First Nations and local government, community and environmental groups to ensure the success of all FWCP projects.

The FWCP has invested more than $100 million in over 700 projects that conserve and enhance fish, wildlife and supporting habitats affected by the creation of BC Hydro owned and operated generation facilities in the Coastal, Columbia and Peace regions of British Columbia.

While the program operates in basins and landscapes that have been significantly altered by hydroelectric development, the program's vision recognizes that an effective program can support the maintenance of healthy fish and wildlife populations that will meet both conservation and sustainable use objectives. Actions focussed on conserving and, where possible, restoring ecosystem function, will help species be more resilient to emerging pressures such as climate change.

FWCP VISION

Thriving fish and wildlife populations in watersheds that are functioning and sustainable.

HOW DID THE TOAD CROSS THE ROAD?

WITH A KOOTENAY TOAD EVENT "HOPPING" WITH VOLUNTEERS

More than 600 people from all over the West Kootenay, and beyond, descended on Summit Lake just south of Nakusp to help western toadlets safely cross Highway 6. And not just a bucketful of toads, but more than 20,000 of them!

The August 2010 event was organized by the FWCP with support from the Ministry of Environment (MOE), B.C. Parks and BC Hydro. "We were astounded at the turnout," said FWCP crew lead John Krebs. "It was great to see so many enthusiastic people wanting to help this species."

The goal of the event was to save as many toadlets as possible from being squashed on the highway and raise awareness of the importance of Summit Lake as a breeding site for western toads.

Western toads are listed federally as a species of concern. While once widespread throughout North America, their distribution has diminished considerably in recent decades primarily due to habitat loss. While the population is still healthy in this province, biologists want to ensure it remains that way. Summit Lake is likely one of the most important breeding sites in the Kootenay region, if not the province.

Adult western toads descend from upland habitat in the spring, laying their eggs in huge strings—each one containing up to 16,000 eggs—on the shoreline of Summit Lake. The juvenile toadlets, only about the size of a penny, make their way to higher elevation areas in early to mid August where they spend their adulthood. Typically their movement is triggered by wet weather since they need to keep their skin moist, especially as a juvenile.

The Ministry of Transportation & Highways and MOE have constructed a tunnel for the toads, but this is only part of the solution given the broad stretch of highway that the toadlets have to cross. In just a two day period in 2009 an estimated 90,000 dead toadlets were found on a one kilometre stretch of the road.

> "It was great to see so many enthusiastic people wanting to help this species."
>
> — John Krebs, FWCP crew lead

"Given the evident enthusiastic participation of the community, similar events will likely occur in future years," added Krebs. "It is a great way to reach out to the community and for people to make a real connection with the wildlife around them."

Check out **fwcp.ca** or call 2**50 352 6874**, in the summer, for information about the 2011 Western Toad Bucketing Event.

FLIGHT OF FREEDOM

SIX SHORT-EARED OWLS RECEIVE A BRAND NEW LEASE ON LIFE

While biologists conducted Water Licence Requirements monitoring studies in the Columbia system near Revelstoke in 2010, they found six newly hatched short-eared owl chicks. The problem was that the nest was located in the drawdown zone of upper Arrow Lakes Reservoir and water levels were expected to rise and submerge the nest.

Short-eared owls are blue-listed (of special concern) in B.C. so a rescue plan was developed with the help of BC Hydro, the Ministry of Environment (MOE), and BC Wildlife Park. In early June, the chicks were moved from the nest to the BC Wildlife Park near Kamloops by MOE biologists, while BC Hydro contributed funds for their care.

After spending nearly three months at the Wildlife Park the FWCP assisted with their release into the wild in the Creston Valley Wildlife Management Area in late August and has assisted with the subsequent monitoring of the birds after their release.

Four out of the six owls became adept at catching live prey in their enclosure. It is expected that the two less proficient at hunting will quickly pick up those skills from their siblings as they will likely stay together for a short time in the wild.

"We are extremely pleased that we all were able to come together and follow through with the rescue plan," said Ed Hill, senior environmental coordinator with BC Hydro. "It is very rewarding for all of us to be able to take action such as this, especially with a species-at-risk like the short-eared owl."

To watch a short video of the owls being released near Creston, visit **fwcp.ca**.

REELING IN THE DATA

KOOTENAY LAKE CREEL SURVEY CAPTURES IMPORTANT INFORMATION ON ANGLERS AND FISH

Photo provided by Reel Adventures.

Blair Mumford catches—and releases—a beautiful 17 lb. Gerrard rainbow trout on Kootenay Lake in the latter part of 2010.

Next time after reeling in a fish caught in Kootenay Lake don't be surprised if someone politely asks how the fishing went, and then whips out a notebook to record your catch information. The FWCP is undertaking a whole-lake angler survey for the lake.

"This will be the first creel survey done in this lake since the 1980s," says crew lead John Krebs with BC Hydro. "The information we expect to gather will be extremely valuable, both for measuring the recreation and economic benefits of the fishery, and for helping evaluate the effects of our major compensation initiatives, Meadow Creek Spawning Channel and the Nutrient Restoration Program, at the upper levels of the food web."

The survey, which is named after the wicker basket anglers used for their catch decades ago known as a creel, will focus on the species, length, and weight of the fish as well as the length of time anglers have spent finding and catching them. It started in early winter 2010 and will run for 12 months.

"There is still a Kootenay Lake Rainbow Trout mail-in survey that anglers are encouraged to complete. Although very useful, one of its limitations for shedding light on harvest estimates is the inherent bias—less successful anglers are less likely to return the survey, and the data is collected after the fishing season is over," explained Krebs. "With this creel survey we'll be able to more accurately capture the data, and provide better information on angler effort and fish harvest."

Project personnel will be located at key access points on Kootenay Lake to survey returning anglers. Boat counts will also be conducted from the air to determine the total number of anglers on the water.

"One of the primary targets of the Nutrient Restoration Program and the operations of Meadow Creek Spawning Channel is the restoration of Gerrard rainbow trout, bull trout and kokanee," added Krebs. "This survey will provide the first whole-lake estimates of angler use and harvest since the nutrient additions started, and provide important biological data as well."

PRESENTING BASIN BIODIVERSITY

BIODIVERSITYATLAS.ORG

A new updated version of the Columbia River Basin Biodiversity Atlas has recently been launched at **biodiversityatlas.org** allowing anyone concerned about biodiversity—and protecting the rich and diverse species and habitats found in the Columbia Basin—the ability to access a range of data in one, online location.

The Atlas has been developed with GIS mapping technology and helps people learn, understand, and make planning, conservation, and other decisions by presenting complex biodiversity information in a simple, visual format. It uses maps, facts, reports and pictures to tell the story of wildlife and their habitats in the entire Canadian portion of the Columbia River Basin.

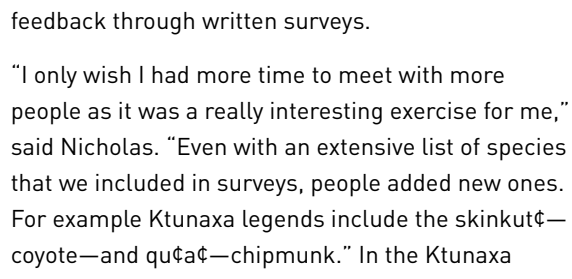
By using the interactive maps, you can 'zoom' to any area of interest and find out more about biodiversity.

The information available through its dynamic maps and data will help protect British Columbia's biodiversity by providing important information to resource managers, groups and individuals pursuing conservation efforts in the Columbia Basin.

The Biodiversity Atlas is a joint initiative of the FWCP, Selkirk Geospatial Research Centre, Columbia Basin Trust and The Nature Trust of B.C.

SETTING PRIORITIES

FIRST NATIONS ARE HELPING TO DEFINE NEW PLANS FOR THE FWCP BY PROVIDING INPUT ON SPECIES AND HABITATS IN THE COLUMBIA BASIN.



Joe Nicholas

First Nations in the Columbia Basin are part of stakeholder consultations that will define new plans for the FWCP. And the feedback so far indicates that many species—and ecosystems—are important—from the muskrat to the grizzly bear, the wolverine to the fisher, and the white sturgeon to the mountain whitefish.

These were the findings during a recent FWCP planning exercise to develop Basin and Actions Plans. These plans, which are in development for all three FWCP chapters—Columbia, Peace and Coastal—will set strategic priorities for compensation programs across the province.

As part of plan development, Ktunaxa First Nations representative, Joe Nicholas, a member of the FWCP Steering Committee, met with the bands in his area to get input on the relative importance of various species and habitats. He met with chiefs, band managers, elders and trappers, and solicited feedback through written surveys.

"I only wish I had more time to meet with more people as it was a really interesting exercise for me," said Nicholas. "Even with an extensive list of species that we included in surveys, people added new ones. For example Ktunaxa legends include the skinkut¢—coyote—and qu¢a¢—chipmunk." In the Ktunaxa language the "¢" sounds like the "ts" in "cats."

"For many of the respondents, all the species and the ecosystems are connected, so it was not surprising that many allocated a high ranking to a wide variety of species and habitats," added Nicholas. "What this says to me is that we need a balanced approach to the FWCP's conservation and enhancement work, and not a focus on a single, higher profile, group."

As well as input from First Nations, the FWCP will also be consulting with its public representatives, partner agencies and stakeholders to develop these Basin and Action Plans.

"This process will provide us with important information, allowing us to tailor delivery of our projects and achieve conservation and enhancement objectives" said FWCP manager, Patrice Rother from BC Hydro. "Broad input like this will help us fund projects that contribute to our vision—thriving fish and wildlife populations in watersheds that are functioning and sustainable."

The FWCP's Basin and Action Plans are now completed and being used to guide funding decisions and projects for this current fiscal year.

GRIZZLY BEAR SMARTS

LOTS OF FISH MEAN LOTS OF BEARS

Meadow Creek Spawning Channel at the north end of Kootenay Lake is extremely proficient at attracting kokanee—hundreds of thousands each fall. And lots of fish can mean lots of bears, so to minimize any human-bear conflicts around the channel supporting the Bear Smart Program is an important project for the FWCP.

The spawning channel is jointly managed by the Ministry of Environment and the FWCP. The channel was constructed in 1967 with funds from BC Hydro to offset spawning habitat that was lost from the construction of Duncan Dam. Typically the channel receives between 450,000 and 550,000 adult kokanee, depositing more than 40 million eggs in the gravel.

"Of course we are really pleased with the level of kokanee productivity in the channel—it's good for the lake ecosystem, and for angling opportunities, as well as the terrestrial species that feed on the kokanee, such as bears. Nearly all the bears that come to the channel are grizzlies—a species that is provincially blue-listed," says FWCP crew lead John Krebs from BC Hydro. "Our focus is also on the number of neighbouring residents around the man-made spawning channel and we want to make sure that the correct information and support is getting out there. Supporting this Bear Smart Program is a great way of doing that."

In addition to disseminating bear safety information and education with area residents, North Kootenay Lake Bear Smart coordinator, Gillian Sanders, helped install electric fences to protect fruit trees and small livestock around the spawning channel, and hosts fruit processing workshops. Sanders also maps bear hazards around the community and has identified some of the corridors that the bears typically use to access the spawning channel. "I think that most residents of Meadow Creek don't mind that the bears are using the channel," says Sanders, "They just don't want them in their backyards."

In addition to the FWCP, the North Kootenay Lake Bear Smart Program is supported by BC Conservation Foundation's Bear Aware Program, the Columbia Basin Trust, and the Regional District of Central Kootenay.

Photo courtesy of Gillian Sanders.

SOMETIMES CREATING A BARRIER IS A GOOD THING

A new wire fence has been installed around a portion of Boulder Creek at the south end of Kootenay Lake near Creston, to keep grazing cattle away from a sensitive riparian zone. The fencing project was conducted by volunteers from the local rod and gun club under the direction of the Creston Valley Wildlife Management Area (CVWMA) and funded by the FWCP.

The fencing is part of a multi-pronged (and multi-partner) effort to restore the creek, and bring back kokanee to it in significant numbers.

"Although the land is part of the CVWMA, a rancher does have a permit to graze his cattle in the area. Their movement in and out of the creek has eroded the banks, increased sedimentation, and trampled the creek bed, all of which degraded the kokanee spawning habitat," said FWCP fisheries biologist Steve Arndt. "The rod and gun club volunteers did a great fencing job, and already there is a buffer zone around the creek and the vegetation is thriving. There is still access for the cattle to drink from the creek, but now it's restricted to a much smaller area."

For several years the local Creston Valley Rod and Gun Club, with the support of the FWCP and Ministry of Environment (MOE), have also been adding gravel to Boulder Creek to improve spawning habitat for kokanee.

In addition to this, MOE biologists have been adding fertilized kokanee "eyed-eggs" (about one-and-a-half months old) to the gravel each fall in an attempt to build kokanee populations. To see a video of the eyed-eggs being placed in the gravel go to **fwcp.ca** and click on Check Out Our Videos.

Photos Marc-Andre Beaucher

Volunteers from the Creston Valley Rod and Gun Club bore holes for the fence posts.

FUNDING COMMUNITY PROJECTS

Small project funding from the Fish & Wildlife Compensation Program is an important component of conserving and enhancing fish and wildlife habitat.

"Each small project has to be less than $10,000 and preferably delivered by volunteers connected with a community group," says FWCP Steering Committee co-chair Kevin Conlin from BC Hydro. "We know that these hands-on projects are very effective and have quick and positive impacts on habitat and the species that rely on them. So, we really appreciate the time and energy volunteers like this put toward helping local watersheds."

For information on how to apply for small project funding visit **fwcp.ca**.

TIME TO TAKE INVENTORY

A WEST KOOTENAY CONSERVATION PROPERTY BLITZED

Three from a twelve person team consisting of FWCP summer students, staff biologists and contractors descend on the Renata Conservation Property near Nakusp to undertake a detailed species inventory.

FWCP Columbia staff performed a bio-blitz—where biologists fan out on the landscape to undertake an intensive inventory—on the 40 hectare Renata Conservation Property southwest of Nakusp. Their objective? To clearly understand what is already there.

"We really wanted to get a thorough picture of what key species and ecosystems are on the property. This information will provide the foundation for a comprehensive land management plan," said FWCP wildlife biologist, and co-organizer of the two-day event, Irene Manley.

The Renata property was transferred from BC Hydro to the Ministry of Environment in 1992 as part of the Arrow Lakes compensation package. It is hoped that, with careful management and the anticipated Agricultural Land Reserve designation of some adjoining private property, the wildlife value of this conservation property will increase over time.

Biologists used their time during the bio-blitz to set mist nets for bats, conduct owl call-back surveys, place minnow traps, observe signs of wildlife and identify invasive weeds.

"It went really well, and we will compile a full list of the species and ecosystems we inventoried," added Manley. "We knew the area was rich in biodiversity but now we have more accurate information to help develop the land management plan."

It did not take long for the area's richness to become apparent during the bio-blitz. The very first owl call-back survey yielded a red-listed (endangered) pair of western screech owls. To put this finding into perspective, in 2009 FWCP biologists, with the help of the public, undertook an extensive search for screech owls in the Kootenay region—only four pairs were found.

In addition, a recently fledged family of northern saw-whet owls was recorded, a breeding pair of bald eagles, a California myotis (bat), and numerous western skinks and an alligator lizard, both of which are blue-listed (vulnerable) in B.C. In the water, western toad tadpoles were observed, as well as redside shiners, longnose suckers and rainbow trout.

GETTING TO KNOW THE PARTNERS

The Fish and Wildlife Compensation Program is delivered through a partnership between BC Hydro, the Province of B.C. and Fisheries and Oceans Canada. They collaborate and work with First Nations and local government, community and environmental groups to ensure the success of all FWCP projects.

BRITISH COLUMBIA

Canada

Fisheries and Oceans Canada | Pêches Canada

BC hydro FOR GENERATIONS

PROVINCE OF B.C.

The Province of B.C. manages and delivers a wide range of programs and services that support the Province's environmental, social, economic goals. The Province encourages environmental stewardship, develops innovative partnerships, engages First Nations, stakeholders and the public and actively promotes the sustainable use of British Columbia's environmental resources.

FISHERIES AND OCEANS CANADA

Under the federal Fisheries Act, Fisheries and Oceans Canada is the primary agency responsible for conserving and managing Canada's fisheries, including pacific salmon. It does so through management and monitoring of fisheries, protection of fish habitat, salmon enhancement and scientific research.

BC HYDRO

As a Crown corporation, BC Hydro is committed to producing, acquiring and delivering electricity in an environmentally, socially and financially responsible manner through managing impacts from its operations, and weighing environmental values with social and economic interests. Through the FWCP it is committed to developing projects and building relationships to encourage stakeholder and aboriginal community engagement.

A STEPPING STONE IN RESEARCH

A REPORT ON THE ECOLOGY AND HEALTH OF STONE'S SHEEP IN THE DUNLEVY/SCHOOLER AREA

Rams wintering at low elevation had fewer ticks and hair loss than ewes, likely because they remained at higher elevations throughout the fall.

In March 1999, the Fish and Wildlife Compensation Program in the Peace region began a study of the health status and general ecology of Stone's sheep residing along the north shore of the Peace Arm Williston Reservoir, with particular emphasis on animals wintering at low elevation. The study examined Stone's sheep health, population dynamics, seasonal movements, habitat use, core use areas and critical habitat features used with a focus on the relationship between winter tick loads on sheep, associated hair loss and seasonal range use.

Before the study began it was believed that Stone's sheep wintering at low elevation may have come into increased contact with winter ticks. The increase in ticks is likely caused by the relatively high numbers of moose displaced by the flooding of the upper Peace River valley and creation of the Williston Reservoir in 1969.

"While the primary objective of the study was to explore the potential effects of winter tick infestation on the survival and productivity of Stone's sheep, we also analysed radio-telemetry data to determine broad-scale seasonal winter habitat use and seasonal movement patterns," explains FWCP wildlife biologist Mari Wood.

While Stone's sheep typically use high-elevation windswept alpine habitat during the winter, Stone's sheep in the Dunlevy Herd winter in the vicinity of low-elevation bedrock outcrops along the north shore of the Peace Arm. Sheep occupying these low-elevation ranges were observed to exhibit severe hair loss in late winter, similar to that observed in moose affected with winter ticks.

Severe hair loss associated with winter tick infestation is common in moose in northern Canada and is seen to a lesser degree in other low-elevation wintering ungulates like elk and deer. Although these Stone's sheep may have become infected with winter ticks as a result of close association with moose, initially it is more likely that the rapidly expanding Rocky Mountain elk population in the area (a result of a transplant into the area in the mid-1980s) perpetuating the winter tick cycle in the area.

Through six years of research, the FWCP confirmed that the cause of hair loss observed in Dunlevy Herd sheep was a result of infestation with winter ticks.

"We found that the degree of winter tick infestation and tick-associated hair loss in late winter varied by Stone's sheep migratory type, showing a relationship with seasonal elevation use by Stone's sheep during the critical tick life stages," says Wood. Late winter hair loss was generally highest in sheep that remained at low elevations year round, lower in migratory sheep that descended from high-elevation habitat to low-elevation winter ranges after October, and absent in alpine-resident sheep. This relates both to fall (September/October) being the peak season of acquiring tick larvae and the fact that winter ticks cannot complete their life cycle at colder, higher elevations.

> "To me, this is one of the best field studies documenting aspects of winter tick biology. Should be required reading for all tick biologists."
>
> – Dr. Bill Samuel, University of Alberta, retired professor

The study is the first to document the presence of winter ticks and various other intestinal parasites in Stone's sheep. It is also the first serological, bacteriological, and serum trace mineral survey of free-ranging Stone's sheep to be conducted.

Heavy tick infestations can cause excessive grooming and result in significant loss of the winter hair coat—in severely affected animals this can result in mortality. While the FWCP study confirmed the presence of winter ticks and tick-associated hair loss in Stone's sheep using low-elevation winter ranges, it did not find evidence of direct mortality or serious population level impacts resulting from tick infestation.

To read the full report visit **fwcp.ca**.

▲ Newborn lambs were captured and radio-collared to monitor survival and causes of mortality.

◀ Many volunteers assisted with the capture and handling of Stone's sheep throughout the project.

PEACE REGION HIGHLIGHTS

A DINOSAUR RESERVOIR HABITAT ENHANCEMENT PROJECT

Over the last seven years, 82 large woody debris structures have been added to the shoreline of the Dinosaur Reservoir by FWCP staff. The structures were added to improve rearing habitat for many species in the reservoir including rainbow trout, bull trout, and mountain whitefish.

The Dinosaur Reservoir is located only five minutes away from the community of Hudson's Hope. Local anglers may benefit from improved recreational opportunities resulting from the habitat enhancement work and increased overall fish abundance.

GIS mapping of the woody debris structures were completed in the summer of 2010. Maintenance of the structures is ongoing, and involves checking anchors, cables and clamps, and replacing damaged boom logs and markers.

BIRDS SINGING A SONG OF THANKS

2010 marked the sixteenth year the FWCP has supported the Mugaha Marsh Migratory Songbird Monitoring station near Mackenzie, B.C. Coordinated and run by the Mackenzie Nature Observatory, volunteers from northern B.C. donated over 1,200 hours of their time to monitoring neotropical migratory songbirds as they pass through the area between July and September each year.

The birds are captured in mist-nets, measurements and other data are recorded, and the birds are then fitted with small leg-bands and released. This is one of 25 Migration Monitoring Network sites in Canada monitoring the population status and trends of neotropical migratory songbirds across the country.

FISHER HABITAT IS GOING ONLINE

NEW WEBSITE COMING TO HELP FOREST PRACTITIONERS

The FWCP in the Peace region is one of many partners producing an online web module product that will assist forest practitioners with identifying, conserving and enhancing fisher habitat in B.C. The information being provided to practitioners is based on four provincial fisher studies, including the Williston study conducted by the FWCP.

Forest practitioners will receive specific information on how to best incorporate fisher habitat needs into future forest management activities.

Information will be available online at **fwcp.ca** in the summer of 2011.

SIGN UP AND ENTER FOR A CHANCE TO WIN

Sign up to receive FWCP newsletters and information or change your current mailing to our online option, plus enter for a chance to WIN one of three FWCP Prize Packs that includes a Waterproof Gear Bag.

Sign up at **fwcp.ca** or fill out and mail this entry form to the address below.

NEWSLETTER SIGN-UP FORM

Online Option

☐ Yes I'd like to receive the FWCP newsletter and program info via email.

Name: _____

Email address: _____

Mailing Option

☐ Yes I'd like to receive the FWCP newsletter and program info in the mail.

Name: _____

Street Address: _____

City: _____ Postal Code: _____

CONTEST ENTRY FORM

Name: _____

Phone: _____

☐ By ticking this box I agree to enter my name and telephone number into the draw for the FWCP Prize.

Skill testing question: (112 - 42) + (10 × 3) = _____

Entries must be received by September 30, 2011. Must be a B.C. resident age 19 or over to enter. Visit **fwcp.ca** for complete contest rules and regulations.

BC Hydro is collecting your personal information on this form in order to send you the Fish and Wildlife Program (FWCP) newsletters and related FWCP information and/or to administer the FWCP Contest in the manner described in the Contest rules. BC Hydro is collecting your personal information in order to run programs consistent with the water licenses it holds. If you have any questions about how BC Hydro collects, uses or discloses your personal information with regards to the Contest, please contact Beth Woodbridge at **250 352 6874**.

FISH AND WILDLIFE COMPENSATION PROGRAM

CHECK OUT OUR NEW WEBSITE **FWCP.CA**

HISTORY OF THE FWCP

1988 The FWCP officially launches in the Peace region of north-central B.C., with an $11 million dollar fund established to finance the programs. Until 2010, the program was known as the Peace/Williston Fish & Wildlife Compensation Program.

1995 The FWCP begins working in the Columbia River Basin in southeastern B.C., with a commitment of $3.2 million per year (indexed for inflation based on 1995 dollars) in perpetuity from BC Hydro. Until 2010, the program was known as the Fish and Wildlife Compensation Program—Columbia Basin.

1999 The FWCP starts working on Vancouver Island and British Columbia's coast, with an annual commitment of $1.7 million to fund these projects. Until 2010, the program was known as the BC Hydro Bridge Coastal Restoration Program.

2008 A comprehensive review of the FWCP in all regions was completed. Resulted in a plan to connect the work between the three regions, build best practices and develop a more effective and efficient program.

2010 The three regions fall under one new name—The Fish and Wildlife Compensation Program.

Basin and Action Plans are initiated.

2011 More than $100 million has been invested in over 700 projects since 1988. An additional $7 million will be invested across the three regions in 2011.

Environmental Benefits Statement

By using paper made from 100% post-consumer recycled content, the following resources have been saved.

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STAYING CONNECTED

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We would appreciate your feedback. Let us know if you have questions or comments about the newsletter or program.

The FWCP is a partnership of:

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Canada

Fisheries and Oceans Canada

Pêches et Océans Canada

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