

Wildlife Projects

Funded in 2009 – 10



Northern Leopard Frog Recovery

Northern leopard frogs (*Rana pipiens*) were once one of the most common amphibians in North America. However, over the past three decades there have been drastic declines across their western range. Once common throughout south-east B.C., only a single population in the province remained by the 1990's. Both COSEWIC and the CDC list the BC population of leopard frogs as Endangered. Recent surveys suggest that habitat loss and alteration, disease, introduced fish species, and low reproduction levels threaten this population.

In 2000 a recovery effort was initiated under the direction of a multi-agency team with the primary goals of securing the existing population and establishing five additional populations. A captive rearing and re-introduction program ran from 2001 to 2005 during which time 14,487 froglets and 10,147 head-started tadpoles were released. In addition, habitat enhancement, disease research, and outreach initiatives were undertaken. Since 2005, the final year of the re-introduction program, the focus has been to monitor the population in the CVWMA and BFWMA and to support research on *chytridiomycosis*.

Activities for 2009-2010 include:

- 1) Continuing to monitor the NLFs in the CVWMA and BFWMA by conducting nocturnal calling, egg mass, and visual encounter surveys;
- 2) Expanding survey efforts during the spring breeding season to include potential, breeding areas within the CVWMA and BFWMA;
- 3) Continuing habitat surveys at potential re-introduction sites within the Columbia Basin to confirm habitat suitability during spring and winter;
- 4) Continuing to monitor and support research on the affects of *chytridiomycosis* on NLFs within the study area;
- 5) Contributing to efforts to have a chytrid report published;
- 6) Collaborating with other recovery efforts in Alberta, Washington, and Montana;
- 7) Working with Vancouver Aquarium to set up a captive assurance colony;
- 8) Researching the most effective field sampling technique for chytrid detection (swabs versus bag rinses).

Vaux's Swift Nesting Habitat

The goal of this project is to implement and evaluate three methods for monitoring Vaux's swift populations in the Columbia Basin. Vaux's swifts are migratory birds that are little studied in B.C. despite the fact that more than half the global population nests in the province. Vaux's swifts are listed as a priority 2 species in the BC Conservation Framework, and lack of monitoring methods and data have been identified as important issues.

The three monitoring methods to be implemented and evaluated this year are nest box monitoring, nest site monitoring, and migratory roost monitoring. Monitoring nest sites and nest boxes will provide much-needed information on nesting behaviour and ecology as well as reproductive success. Migratory roost monitoring data in the Basin will provide a key contribution to North American monitoring efforts.

Specific activities for 2009-2010 include:

1. Monitoring 25 nest boxes that were installed in 2008. Nest boxes will also be checked with a cavity camera to identify hatching and fledging success.
2. Installing two additional nest boxes near the St Eugene Mission in Cranbrook (spring 09). The boxes will be installed in riparian cottonwood habitat on the St. Mary's River.
3. Conducting nest searches at Summit Creek study area to locate natural nest sites; and monitoring use and reproductive success.

4. Initiating volunteer-based migratory roost monitoring (spring and fall) for Vaux's swift following the approach of the US program *Swift Watch*.

Columbia Basin Amphibian Inventory

Amphibians are in decline across the globe. Locally amphibians are threatened by the loss of habitat from wetland reclamation, urban expansion, hydroelectric development, disease, introduction of non-native fish, pollution, and climate change. Of eight species that occur within the FWCP program area, four are listed (red or blue). The northern leopard frog and the Rocky Mountain tailed frog are listed as endangered; the western toad is listed as a species of special concern; and the Coeur d'Alene salamander is blue-listed. The wood frog and the Pacific tree frog may also be in decline. An amphibian inventory was conducted in the East Kootenay in 2005 that focused on revisiting historical western toad breeding sites. Results suggest that they disappeared from several historical breeding areas, particularly at low elevations in the Trench.

Activities for 2009-2010 include:

1. Determine presence/absence of amphibian species in the Revelstoke and Kinbasket areas;
2. Work in cooperation with program partners and contractors to optimize allocation of sampling effort;
3. Sample for the chytrid fungus pathogen. The incidence of this fungus is implicated in the decline of numerous amphibian species worldwide.

This work will:

- Determine distribution of breeding populations of western toad, Pacific chorus Frog and spotted frog in the Revelstoke and Kinbasket areas;
- Provide a benchmark for future surveys by developing presence/absence models;
- Indicate the presence of chytrid fungus in amphibian species;
- Recommend actions to help protect, restore, or enhance habitat within the study area.

Bighorn Sheep Augmentation

Over the course of the last few years the FWCP has supported several bighorn sheep transplants, the most recent in February 2009 when 10 sheep were relocated from Golden to the Wildhorse area. These transplants are necessary because of several factors: a) the carrying capacity of the Golden winter range being reduced when Highway #1 was twinned; b) the sheep's dependency on a winter feeding program; and c) to help bolster the recovery of bighorn sheep in the Premier to Wildhorse area where populations have been in decline.

Monitoring transplanted animals (21 have radio collars) is needed to determine success of the program. Monitoring will be conducted bi-weekly during winter and monthly during summer.

East Kootenay Enhancement

Over the last several decades forest in-growth has resulted in an estimated annual loss of 3,000 hectares of open grassland and open forest in the East Kootenay Trench. The result has been the concentration of native and domestic ungulate grazing which has negatively impacted both grassland habitats and native wildlife.

The main goal of this project is to expedite the recovery of grassland habitat via participation of FWCP biologists on the Trench restoration committees and through the funding of grassland restoration opportunities with the Rocky Mountain Forest District. These opportunities are operational in nature and include the development of Ecosystem Restoration Prescriptions, Burn Plans, pre-burn slashing and prescribed burning. It is estimated that 4,500 ha per year will need to be treated to restore grassland and open forest habitat and their dependent wildlife. Monitoring and weed control will also be conducted.

Activities planned for 2009-2010 include:

1. Participating in the Trench restoration committees, Radium Bighorn Sheep Working Group and the Prescribed Burning Council;
2. Developing Stand Management Plans/Burn Plans for priority sites;
3. Implementing a prescribed burn at South Stoddart (40ha);
4. Slashing treatments at Hofert (100 ha) and Premier area (Lewis Creek – 70ha);
5. Collecting native grass seed on conservation properties;
6. Monitoring vegetation (Rocks Pasture and Bull River with Hofert as a control) and fire effects; and
7. Producing reports (Annual Summary, 10-year Activity), collecting GPS data and populating a database.

Large Mammal Monitoring

In 1998 a Basin-wide Large Mammal Monitoring Plan (LMMP) was developed to address the need for population trend data for the seven species of ungulates. Trend data is used to detect changes in species numbers to assist with management decisions.

Planned activities for 2009-2010 include:

- An inventory of bighorn sheep in all areas occupied by transplanted individuals (including Premier to Wildhorse, White Swan-Mutton Creek and the Van Nostran Range), plus an inventory for the Syringa Creek area;
- Surveys of mule deer and moose in the West Kootenay;
- Deer counts in the East Kootenay (involving local Rod and Gun Club members);
- Spotlight night counts (for white-tail for deer) in the Pend d'Oreille.

Caribou Recovery

Dam footprint impacts on mountain caribou include loss of spring and early winter habitat in valley bottoms of the Duncan, Arrow, Revelstoke and Kinbasket dam units. Effects of dam-caused fragmentation, microclimate warming, and altered predator-prey systems are not known, but may also impact the caribou. In addition, forestry, recreation, transportation and human settlement affect caribou distribution and abundance directly and indirectly. A multi-agency effort led by MOE to recover threatened caribou sub-populations is underway. FWCP supports the recovery effort by assisting with population monitoring and providing information on predator-prey dynamics.

Activities for 2009-2010 include:

- 1) Region-wide late winter population censuses;
- 2) Monitoring of remaining radio-collared caribou in the South Selkirks, including mortality investigations;
- 3) Caribou predator winter track surveys.

Land Acquisition and Stewardship

FWCP works with land securement agencies, (e.g. MOE and NGOs) to co-ordinate land conservation work Basin-wide. The FWCP Land Acquisition Strategy provides direction on the value to the fish & wildlife resource to aid in prioritising potential purchases. The FWCP is a key partner in the East Kootenay Conservation Program (EKCP), which helps to lever funds for both acquisition and stewardship. Properties recommended for purchase will depend on availability, priority ranking and cost. A detailed proposal outlining the parcels being considered, their conservation values, purchase options and partnerships is submitted for the Technical and Steering Committee's approval.

In addition to acquisition, FWCP facilitates land donations, and establishes conservation covenants or stewardship agreements on sites not suitable for acquisition. Candidate sites have been identified through the course of other FWCP project work such as inventories and restoration projects.

Proposed activities for 2009-2010 include:

1. Contributing to the Valhalla Mile (156 ac) acquisition spearheaded by TLC and local groups;
2. Participating as a partner on other priority EKCP acquisitions currently underway;
3. Continuing to facilitate land donations, establishment of covenants or stewardship agreements on priority sites;
4. Continuing to update priority list in conjunction with the Nature Trust and EKCP partners to guide future acquisitions;
5. Developing new acquisition projects based on collaborative priority list;
6. Administering EKCP program management and co-ordinating acquisitions and covenants in the East and West Kootenay.

Land Management Operations

FWCP manages approximately 7,500 ha in the vicinities of the Arrow Lakes, Pend d'Oreille River, Kootenay Lake, and Rocky Mountain Trench as well as participating in management activities on Big Ranch/Musil properties in the Elk Valley. Detailed management plans direct enhancement activities on MOE and/or TNT properties in the Pend d'Oreille Valley, Arrow Lakes, Nelson, Meadow Creek, and the Rocky Mountain Trench.

This task includes dealing with ongoing land management issues and new issues as they arise. Examples include removal of junked vehicles, trespass grazing, clean-up of long-term campers, gating and access issues, and site clean-up and restoration. Funds will also support essential weed control efforts in the Pend d'Oreille, at Deer Park, Coleman Ranch, Marsden, and Meadow Creek. The FWCP also provides in-kind support to the Central Kootenay Invasive Weed Committee (CKIWC).

Actions for 2009-2010 include:

1. Developing a Land Management Plan for the Duncan Lardeau Conservation properties;
2. Pend d'Oreille, Arrow (Coleman Ranch + Deer Park) and Marsden invasive plant control and grass seeding;
3. Duncan – Lardeau haying, thistle mowing, manual burdock and thistle control;
4. East Kootenay land management activities: Elk Valley, Hofert, East Columbia properties in conjunction with The Nature Trust Youth Crew;
5. West Kootenay Land Management Activities (e.g. maintenance of informational signs, roads and fences);
6. Conducting weed inventories or bio-control releases on conservation properties as identified in the CKIPC Strategic Plan;
7. Developing Wildlife Management Plans for properties that do not currently have plans (Renata, Edgewood and Slocan); and
8. NCC Darkwoods land management activities support.

Salmo River Harlequin Duck Population Inventory, Monitoring and Stewardship

Harlequin ducks typically breed on undisturbed, densely vegetated portions of fast-moving rivers and streams with abundant freshwater invertebrates. They are sensitive to human disturbance and development and serve as excellent indicators of intact freshwater ecosystems. The Salmo watershed supports a significant population of harlequin ducks (51 est. in a 1999-2000 inventory of the upper watershed). Since this benchmark was established, a number of watershed changes have occurred that coincide with a noticeable decrease in harlequin activity. Notably, the Northern Burlington Trail was established in 2000, and increased river access associated with the trail has led to greater recreational use (i.e., ATVs, dirt bikes,

4x4's, snowmobiles, cyclists, hikers, kayakers, canoeists, anglers, etc.), and disturbance and habitat degradation along the corridor. Several riparian properties have also been logged in recent years.

The objectives of this project are to:

- 1) Undertake pair and brood surveys to establish an updated harlequin population estimate for the entire watershed;
- 2) Characterize sites selected by mated pairs and broods in order to identify areas where further developments and amenities must be avoided;
- 3) Produce a harlequin conservation and stewardship brochure and conduct stewardship follow-up with relevant government agencies, land planners & managers, riparian landowners and watershed user groups; and
- 4) Promote conservation and stewardship of this species and its riparian habitat by working in partnership with Salmo Watershed Streamkeepers to implement a public awareness campaign.

South Selkirk Grizzly Bear Habitat Assessment & Enhancement Project

This project is to assist the recovery of “threatened” grizzly bears in the South Selkirks. Recent research estimated the population to be less than 100 in the entire ecosystem with a 15% loss of genetic diversity. With such a small and isolated population there is a serious conservation issue.

This project will use GPS radio telemetry to identify “core” (high quality) grizzly bear habitat within the South Selkirk Mountains and “linkage” habitat between neighbouring areas. This will help inform management actions that will foster the full recovery of the grizzly bears in the region. In addition to identifying the habitat use of grizzlies in the unit, the research results will help to develop workable management plans to enhance habitat security where appropriate.

The work will be conducted over a five-year period and has four main components;

- radio collaring and data collection;
- GPS habitat modeling with the resulting location data;
- Management Plan development; and
- Implementation of those Management Plans.

For 2009-2010 the objective will be to radio collar 4-6 grizzly bears in the northeast and central South Selkirk Mountains. The data collected from these bears will be added to that currently being collected from an additional seven bears that already have radio collars in the eastern area of the Selkirk Mountains.

Rocky Mountain Trench Rangeland Assessment

The quality and quantity of grassland ecosystems in the Rocky Mountain Trench are in decline. This decline threatens the long-term health of wild ungulate populations, grassland-dependent species, and the viability of the ranching industry. A number of factors are likely contributing to this degradation, including forest in-growth and encroachment, invasive plants, land alienation, and increasing foraging pressures by wild ungulates (e.g., elk and deer) and domestic ungulates (primarily cattle). These ecosystems provide critical habitat for elk, deer, bighorn sheep, and a host of other wildlife species.

This project will help to assess the current status of forage production throughout the Rocky Mountain Trench. It includes a literature review of range, ecological restoration effectiveness, and wildlife habitat monitoring; and consultation with Ministry of Agriculture and Lands, MoE, Ministry of Forests and Range and the FWCP. The long-term project will describe range condition, forage production, forage selection, and forage utilization accurately in high priority range units in the Trench.

Non-Game Enhancement

FWCP has developed and implemented small-scale enhancement projects to benefit populations of many non-game species and their habitats. Species that benefit from this work include reptiles, bats and birds that are provincially or federally listed at risk. Non-game enhancement projects focus on critical habitat features that are important for species reproduction and survival, such as roosting, denning and nesting habitat. Inventory and monitoring of non-game species is conducted to increase our understanding of species distribution and habitat requirements in the Columbia Basin.

Activities for 2009/2010 will be to:

1. Monitor, maintain and install nest boxes (Columbia Valley wetlands, Marsden Face, Hofert and Pine Butte);
2. Control vegetation, provide nesting material for, and monitor, alternate turtle nest sites (Argenta, Revelstoke and Cranbrook);
4. Investigate potential for a population assessment of western painted turtles with the CVWMA;
5. Monitor and maintain Townsend's big-eared bat maternity roosts near Cranbrook, including liaison with First Nations and resort developers at the St Eugene Mission;
6. Monitor western skink post-treatment population and habitat in the Creston Valley;
7. Identify and implement riparian and wetland enhancement and protection opportunities in the WK;
8. Monitor great blue heron nest colonies to track nest success and coordinate stewardship with private land owners;
9. Monitor wildlife tree recruitment and longevity following prescribed burns focusing on wildlife trees used by species at risk. Monitor species at risk following restoration treatments.

Small Wildlife Projects

This task will address the need to maintain club and organization participation with the FWCP. Clubs will be invited to approach the program for technical and small financial assistance for club-initiated projects.

Projects in the past have included: Skattebo Slashing (Selkirk College), Dione Copper Butterfly Assessment (Rocky Mountain Naturalists), Fort Shepherd Biodiversity Inventory (Trail Wildlife Association), construction and placement of nest boxes, caribou/ snowmobile conflict signage and pamphlet, planting of conifers for wildlife cover, slashing of over-grown browse, and wildlife tree screening. In 2009-10 activities will include a Native Bee Survey of the Lower Columbia River.

BC Breeding Bird Atlas – Columbia Basin

The BC Breeding Bird Atlas, coordinated by Bird Studies Canada, is a systematic survey of the distribution and abundance of all breeding bird species and their habitats in the province. The survey is conducted by skilled volunteers using an internationally recognised scientific technique called atlasing. The Atlas will provide the most complete provincial coverage of any bird survey to-date. It will also showcase key information on bird status and habitat associations, and enable comparisons at a variety of spatial and temporal scales. Approximately 10% of the 10x10 km squares to be surveyed by trained volunteers are in the Basin.

This project will significantly advance local and regional conservation planning, informing issues such as species at risk, critical habitat conservation, appropriate industrial development, refining dam mitigation measures and promoting best practices in natural resource management. It will expand the region's scientific skill-base, provide a standard framework for landscape-scale biological monitoring, and augment the Columbia Basin Biodiversity Atlas by contributing valuable avian information.

Over five years of data collection (2008-2012), the project will:

1. Train approximately 50 local naturalist volunteers as well as recruit local biologists as atlasers;
2. Complete bird surveys in a minimum of 500 atlas squares in the Columbia Basin;
3. Collect abundance data from approximately 5000 point counts within those 500 atlas squares; and

4. Enter data into the BC Breeding Bird Atlas data system and work with the Columbia Basin Biodiversity Atlas Project to integrate the bird data into this program.

West Kootenay Screech Owl Telemetry

The western screech owl is endangered, primarily due to habitat fragmentation and alteration. It is particularly vulnerable as it resides in low elevation riparian zones often slated for hydroelectric development, transportation and utility corridors, and human settlement. Its favoured habitat - riparian cottonwoods in the Kootenay region - has been significantly impacted by damming. Predation and competitive-exclusion by the barred owl and great horned owl may be increasing. Both larger owls are adaptable and aggressive and do well in fragmented habitat. Anecdotal evidence suggests the barred owl is responsible for population declines of coastal western screech-owl populations.

This project will help determine the territories and nest sites of western screech owls in the West Kootenay region. The objectives of the work are to:

- 1) Conduct an inventory at previously occupied breeding sites;
- 2) Capture and radio-mark individual owls from two to four nest sites;
- 3) Use locations to assess reproductive parameters, survival, cause-specific-mortality, habitat use, and home range;
- 4) Use home range information for multiple landowner/agency stewardship; and
- 5) Make recommendations to regional community plans using annual home ranges.

Columbia Basin Wetland Inventory

Wetland loss is a fundamental impact of dam construction. FWCP is actively pursuing options to address wetland loss (e.g. land acquisition and donation, wetland restoration and protection), and a Basin-wide inventory of wetlands is necessary. This three-year project will locate and classify wetland habitat on both crown and private land and will ultimately roll out wetland compensation options and priorities.

Long Eared Bats: Roosting Ecology, Inventory and Monitoring

Bats are a significant component of forest biodiversity. Most bat species in BC rely on mature or old forest for roosting and foraging. Eight of B.C.'s sixteen species are considered at risk, and of the four long-eared species in the province three are found in the Basin (northern, fringed and long-eared myotis).

Several conservation issues are relevant to bats in the Basin: a) identification of habitat requirements for long term maintenance of critical habitat; b) being able to differentiate similar-looking bat species; and c) being able to monitor bat diversity and abundance through acoustic surveys.

The objectives of this project include:

- Developing and testing methods to identify, inventory, and evaluate habitat requirements;
- Developing a set of morphological and acoustic parameters that may be used to differentiate these species in the field;
- Creating a reference call library for all long-eared captures to be used for future work;
- Determining distributional patterns of long-eared species; and
- Determining (through radio-telemetry), roost selection and foraging habitat preferences for fringed myotis in the Basin.

Identifying Enhancement Opportunities in Arrow Lakes Reservoir

Working closely with Water Licence Requirements staff from BC Hydro, this project seeks to identify possible options to improve habitat for wildlife in the Arrow Lakes, especially with respect to migratory bird and nesting habitat. These options might include stabilization of areas by using berms; creation of

'pocket' wetlands by using back channels or water control structures; protection of nesting habitat through the creation of higher elevation points of land; and non-traditional terracing.

West Kootenay Enhancement

The construction of the dams resulted in a significant loss of valley-bottom wildlife habitat. While this habitat cannot be reclaimed, this project focuses on identifying other locations that could benefit from habitat enhancement and restoration activities, and then implementing and monitoring these activities.

The focus will be on maintaining early seral and open forest conditions on ungulate winter range to mimic historical natural disturbance patterns. This will be achieved through a combination of prescribed burning and slashing to re-create these natural disturbance patterns in a controlled fashion.

Activities for 2009-2010 include:

1. Project Identification

- a) Investigate enhancement and restoration opportunities near Whatshan Lake, Goat River, Sproule Cr., and Winlaw Cr.;
- b) Restoration opportunities at Syringa Creek Provincial Park;
- c) NDT4 (Natural Disturbance Type 4 – ecosystems that typically have low intensity fires every four to 50 years) restoration opportunities in the Arrow District through the Arrow/Boundary Ecosystem Restoration Steering and Operational Committees;
- d) Investigate other NDT4 restoration opportunities at Broadwater; and
- e) Investigate potential causes for the decline for the Lardeau Bluff goat population and identify potential enhancement and restoration opportunities.

2. Arrow Lakes Enhancement/Restoration

- a) NDT4 habitat through timber harvesting, slashing and prescribed burning on Lot 400 on the Deer Creek wildlife property;
- b) Implement conifer spacing on West Arrow Park property SW of Nakusp; and
- c) Implement NDT4 habitat restoration at Broadwater through timber harvesting, slashing and prescribed burning during the fall of 2009.

3. Pend d'Oreille/South Salmo River

- a) Slash 5 ha of deciduous shrubs and trees that have grown out of reach of browsing ungulates near McCormick Cr; and
- b) Selkirk College's RFW first year students will slash 3 to 4 ha of deciduous shrubs that have grown out of reach of browsing white-tailed deer in the Charbonneau Creek drainage.

4. Kootenay Lake

- a) Slash, pile, and burn 5 ha of deciduous shrub to rejuvenate browse values on DL 16024 on the Duncan Flats; and
- b) Slash in-growth Marsden Face deciduous shrub and conifer.

5. Monitoring

- a) Monitor vegetation on photo plots and native grass seeding trial in Pend d'Oreille. Enter and summarize vegetation monitoring data;
- b) Map boundaries of various habitat enhancement sites using GPS; and
- c) Identify and collect baseline plant data on weed-impacted sites in the West Kootenay.