



PEACE REGION UPLANDS ACTION PLAN

August 11, 2020

The Fish & Wildlife Compensation Program is a partnership between BC Hydro, the Province of B.C., Fisheries and Oceans Canada, Indigenous Nations, and public stakeholders to conserve and enhance fish and wildlife in watersheds impacted by BC Hydro dams.

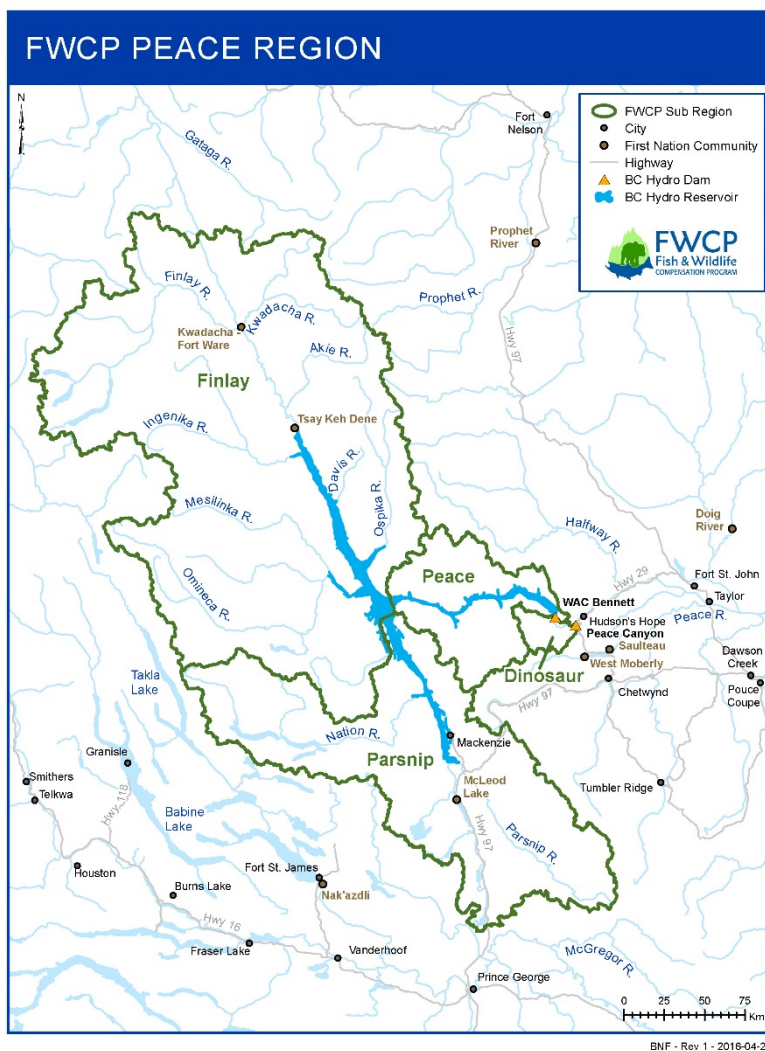


Figure 1. The Fish & Wildlife Compensation Program Peace Region boundary includes the Upper Peace River Basin, which consists of the Finlay, Parsnip, Peace, and Dinosaur sub-regions.

Cover photos clockwise from top left: Wolverine, iStock Waitandshoot; Stone Sheep, iStock Chuck Schug; Goshawk, iStock; mountain lake, Mike Nash; caribou, Steve Rooke; Little Brown Bat, Cori Lausen.



The Fish & Wildlife Compensation Program (FWCP) is a partnership between BC Hydro, the Province of B.C., Fisheries and Oceans Canada, Indigenous Nations, and public stakeholders to conserve and enhance fish and wildlife in watersheds impacted by BC Hydro dams (W.A.C. Bennett and Peace Canyon dams). The FWCP funds projects within its mandate to conserve and enhance fish and wildlife in Upper Peace River Basin ecosystems.

Learn more about the FWCP, projects underway, and how you can apply for a grant at fwcp.ca. Subscribe to our free email updates and annual newsletter at fwcp.ca/subscribe. Contact us anytime at fwcp@bchydro.com. Connect with us on LinkedIn and follow us on Instagram.

EXECUTIVE SUMMARY

Uplands Action Plan

The Fish & Wildlife Compensation Program (FWCP) is a partnership between BC Hydro, the Province of B.C., Fisheries and Oceans Canada (DFO), Indigenous Nations, and public stakeholders to conserve and enhance fish and wildlife impacted by BC Hydro dams. This Peace Region Uplands Action Plan builds on the FWCP's strategic objectives and is an update to the 2014 FWCP Peace Basin Uplands Action Plan.

The action plan was developed with input from BC Hydro, the Province of B.C., participating Indigenous Nations, and local communities. It specifies priority actions that will conserve, restore, and enhance fish and wildlife species in upland habitats in the Upper Peace River Basin. Priority actions are in the [action tables](#) at the end of this document. The priority actions are intended to support the FWCP's strategic objectives of conservation, sustainable use, and community engagement and related sub-objectives. Priority actions fall into one of five action types funded by the FWCP:

1. **Research and information acquisition** – These actions will collect information necessary to evaluate, review, and implement subsequent conservation, restoration, and enhancement actions. Examples include gathering Indigenous knowledge and values, a limiting factor assessment, and other activities to address data gaps and information needs to complete other actions.
2. **Monitoring and evaluation** – These actions will monitor and evaluate riparian and wetland projects supported by the FWCP to understand the effectiveness of habitat- or species-based actions.
3. **Habitat-based actions** – These actions will conserve, restore, and enhance riparian and wetland habitats. Examples include habitat creation, restoration, and enhancement; enhancing habitat connectivity; nutrient restoration; and invasive species prevention.
4. **Species-based actions** – These actions will alleviate limiting factors for riparian and wetland species. Examples include restoration planning and species-specific habitat restoration and initiatives.
5. **Land securement** – These actions will contribute to investigating and prioritizing land securement and stewardship opportunities for conservation purposes.

The Uplands Action Plan sets out priority actions for the FWCP that will guide funding decisions for FWCP projects in upland habitats of the Upper Peace River Basin. The focus of the priority actions over the next five-year period will be to prioritize upland habitats for conservation, enhancement, and/or restoration and to implement high-priority habitat-based and species-based actions.

This action plan identifies priority species associated with upland habitats (i.e., priority species have been merged into the appropriate updated 2020 ecosystem-based action plan). Priority species for upland ecosystems include caribou and bats, as well as many focal and inventory species. Recognizing that many terrestrial and semi-aquatic wildlife species make use of upland habitat as well as riparian and wetland habitat, and actions in the Uplands Action Plan and the Riparian & Wetlands Action Plan may be applicable to these species, primary and secondary habitat types have been identified for these species (Table 2). For example, upland habitat has been identified as the primary habitat type for bats, and actions specific to bats are contained in the Upland Action Plan; however, projects associated with bat use of riparian and wetland habitat can be developed under one of the more general actions in the Riparian & Wetlands Action Plan. Other priority species that use upland habitats may also be identified in the Riparian & Wetlands Action Plan.

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INTRODUCTION AND BACKGROUND

FWCP introduction

The FWCP action plans provide strategic direction for each region based on the unique priorities, compensation opportunities, and commitments in that region, and how they reflect the FWCP's vision and mission. The action plans describe the objectives, sub-objectives, and priority actions to support the FWCP's strategic objectives of conservation, sustainable use, and community engagement. Please refer to the Peace Region: Overview & Action Plans document for more information on the process that was followed to update the 2020 action plans.

There are four updated 2020 action plans for the FWCP's Peace Region representing the ecosystems in the Upper Peace River Basin:

- Cross-Ecosystem Action Plan
- Rivers, Lakes, & Reservoirs Action Plan
- Riparian & Wetlands Action Plan
- Uplands Action Plan

This Uplands Action Plan builds on the FWCP's strategic objectives by setting out priorities for the FWCP to guide projects within the FWCP's Peace Region to support upland priority species and ecosystems.

The objectives and priority actions described herein have been developed with input from the Province of B.C., BC Hydro, Indigenous Nations, provincial and regional stakeholders, and local communities.

Planning priorities within action plans may not translate immediately into funded projects. Limited funding requires that priority setting be developed across the FWCP as a whole, not just within action plans. The process of selecting which actions will be implemented in any given year will occur during the annual implementation planning cycle.

Uplands Action Plan introduction

Setting

The Uplands Action Plan addresses the area within the approximately 70,000 km² Upper Peace River Basin (Figure 1) that is above the direct influence of the Williston and Dinosaur reservoirs. The Upper Peace River Basin consists of the Finlay (Figure 2), Parsnip (Figure 3), Peace (Figure 4), and Dinosaur (Figure 5) sub-regions. The uplands areas are mostly comprised of low to moderate elevation forests (Boreal White and Black Spruce [BWBS], Sub-boreal Spruce [SBS], and Spruce-Willow-Birch [SWB] biogeoclimatic zones), subalpine forests (Engelmann Spruce-Subalpine Fir [ESSF]), and alpine (Boreal Altai Fescue Alpine [BAFA]) areas. The Peace Arm of the Williston Reservoir spans the continental divide, which delineates significant differences in climate, habitat, and wildlife species. Hundreds of species inhabit the Upper Peace River Basin, including many species at risk, other species of regional conservation concern, and culturally important species. Because of the size of the basin, the Uplands Action Plan focuses effort on ecologically important habitats (e.g., wildlife habitat features and rare or endangered plant communities) and areas heavily impacted by human use. Many of these habitat types have not yet been adequately surveyed in the basin.

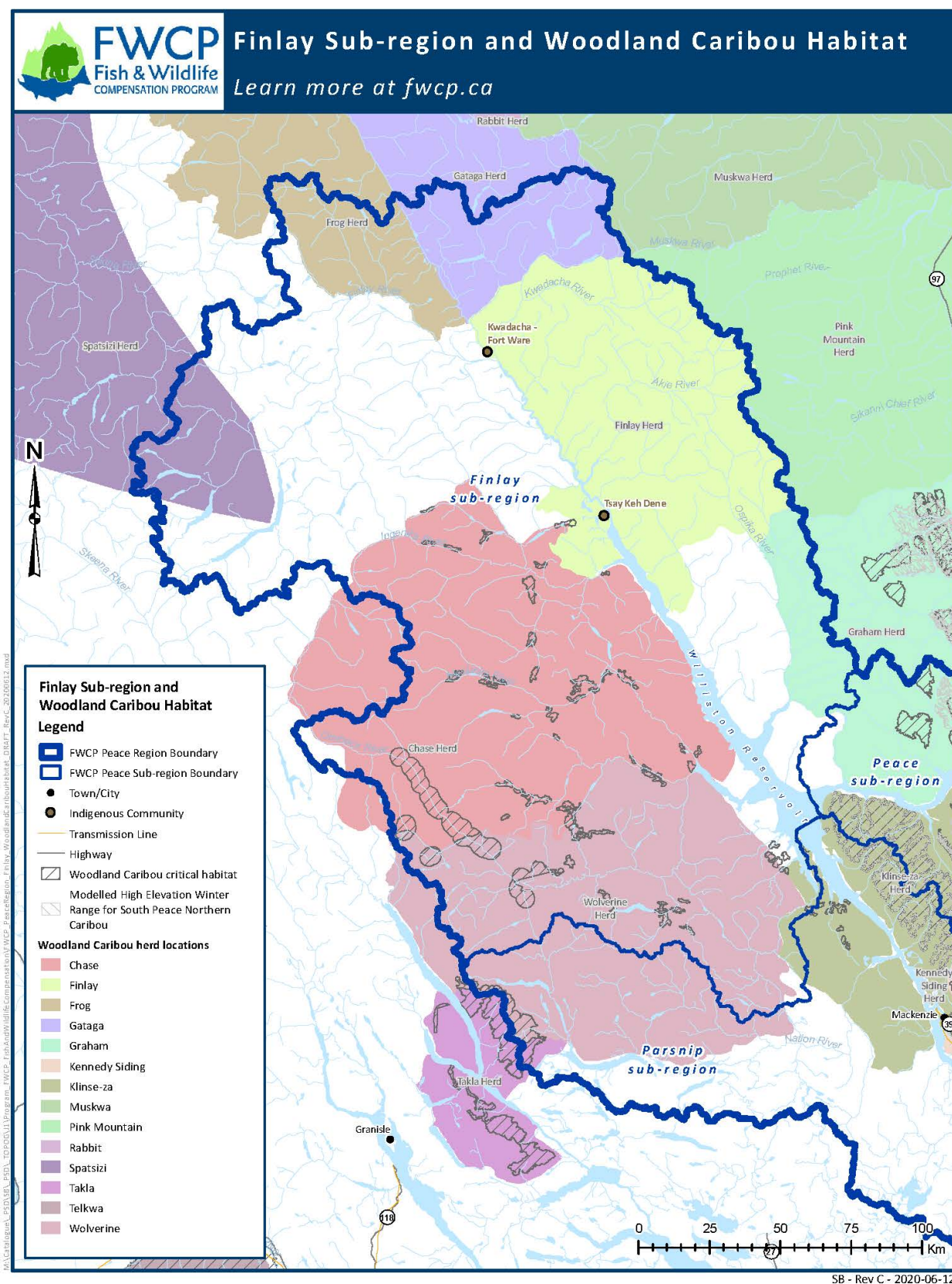


Figure 2. Caribou habitat in the Finlay sub-region.

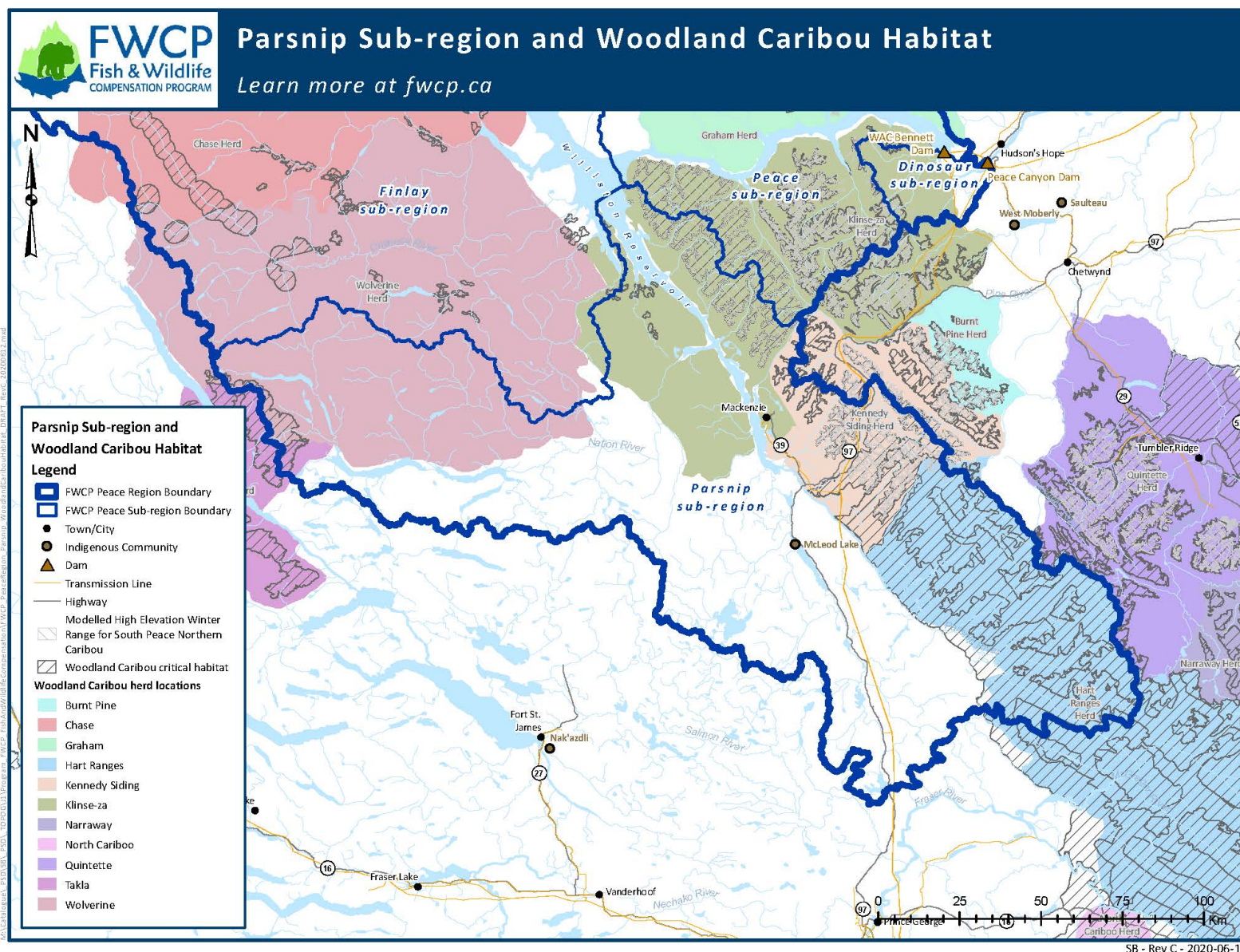


Figure 3. Caribou habitat in the Parsnip sub-region.



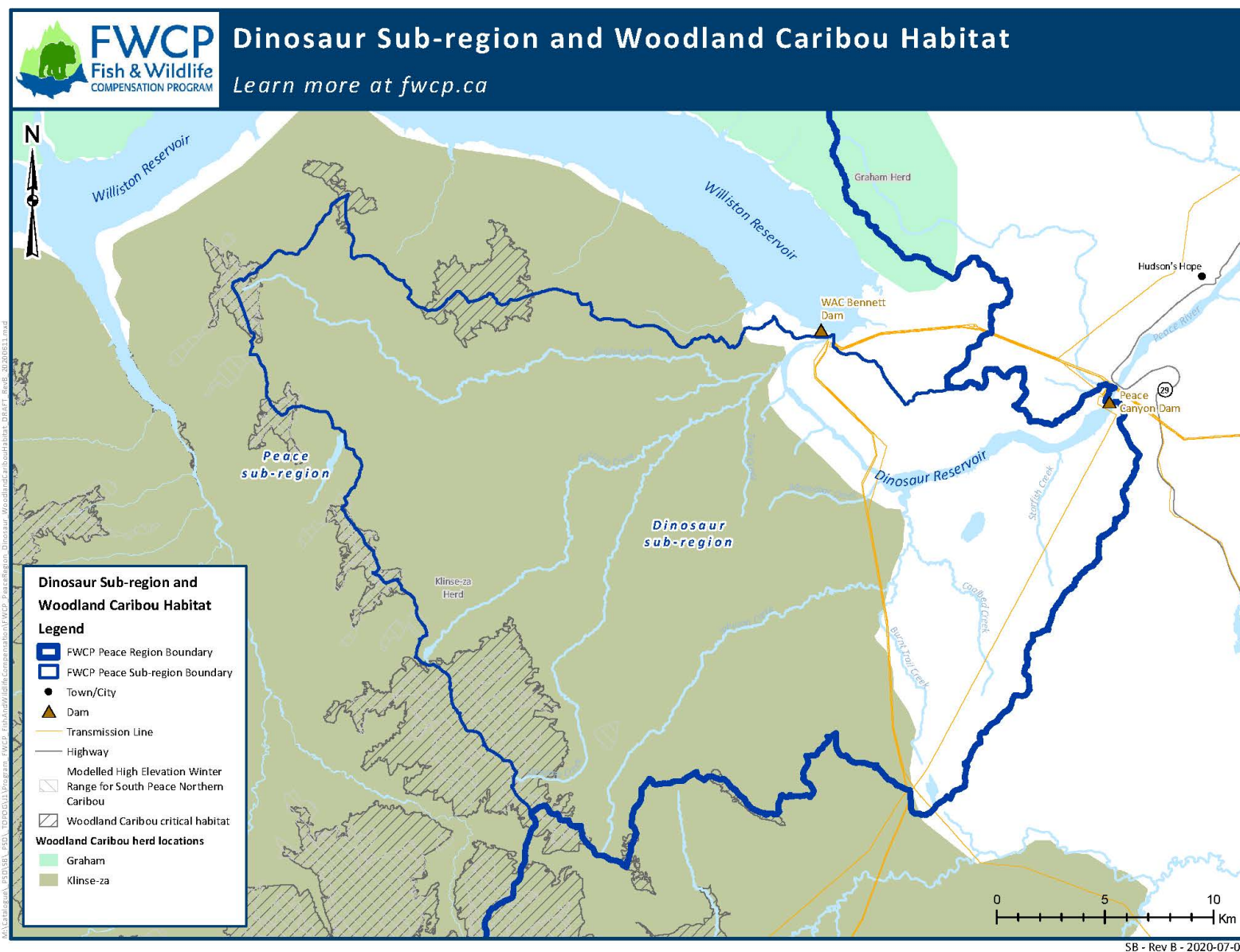


Figure 5. Caribou habitat in the Dinosaur sub-region.

Footprint impacts and threats

The FWCP blends its obligation to address dam impacts with a forward-looking approach that recognizes continual adaptation will be required in a dynamic natural environment in order to achieve the FWCP's vision of thriving fish and wildlife populations in watersheds that are functioning and sustainable. The actions in this plan were developed to address footprint impacts of the Williston and Dinosaur reservoirs, as well as other existing and foreseeable threats to priority species and their upland habitats in the Upper Peace River Basin, in a way that reflects the FWCP's forward-looking approach. These footprint impacts and threats, including cumulative effects and emerging issues such as other industrial land uses, climate change, and invasive species, are summarized below.

Hydro-related impacts

Upland habitats are defined as those ecosystems that are found above habitat influenced by periodic or permanent flooding. As a proportion of the Upper Peace River Basin, the upland area directly affected by the construction and operation of the Williston and Dinosaur reservoirs is relatively small, although most of the approximately 1,780 km² now inundated was at one time upland habitat (FWCP 2013a). Because the lowest-elevation upland habitat was flooded, areas lost to inundation were likely the most productive habitats, although the abundance and distribution of habitat types pre-construction is not known.

Although not specifically studied in the Upper Peace River Basin, large reservoirs can influence regional climate and precipitation patterns (Degu et al. 2011). In general, large reservoirs moderate temperatures, leading to cooler summers and warmer winters, and evaporation leads to increased local cloud cover and humidity. Local ecosystems in the Upper Peace River Basin are likely still equilibrating to these new conditions.

Cumulative effects

Reservoir construction and operation led to new transportation routes in the Upper Peace River Basin that have contributed to industrial development. The area of inundation has not changed significantly since dam construction, but there have been a variety of stressors and resulting cumulative effects since dam construction and the creation of the reservoirs that have continued to affect adjacent uplands, including forest harvesting, mineral exploration, petroleum and natural gas exploration, and related secondary development. These activities have greatly expanded the regional road network, leading to additional human-related pressures such as erosion, increasing hunting and recreation pressures, and the introduction of invasive species. The marginal impact of BC Hydro-associated roads and enabled boat traffic on regional development is unknown because resource opportunities would have been exploited in the basin without the creation of the reservoirs.

Climate change is also a key and emerging issue for the FWCP. Climate model projections predict that the region can be expected to experience overall increased precipitation with warmer summers and winters, more extreme storm events, increased risk of forest fires, changes in snowpack, and decreased summer stream flow in all basins (Fraser Basin Council 2019). These effects are likely to cause range shifts in many plants and animals, among other impacts.

Limiting factors

Factors limiting upland habitat fall into three broad categories:

Habitat extent

Habitats are lost through inundation and conversion to other land uses. Although the extent of upland habitat lost to inundation was significant in some areas, as a proportion of upland habitat in the Upper Peace River Basin, the area was very small. There were likely range-restricted rare habitat types that were inundated; however, the extent of these losses is unknown.

Distribution

Connectivity among habitats is important for the dispersal of plants and animals and for the seasonal movements of some species. Inundation of the Williston and Dinosaur reservoirs created major north-south and east-west barriers for a variety of wildlife species. Other land-use pressures and the creation of barriers such as highways and fencing have further restricted connectivity. Alternatively, forest roads, transmission lines, and pipeline rights of way have increased connectivity between some habitats, which can alter predator-prey dynamics.

Productivity

The productivity of an ecosystem is defined as its ability to grow or yield native plants and animals. Even where the extent and distribution of habitats is relatively intact, the productivity of ecosystems can be eroded by pressures such as invasive species, mechanical disturbance, soil erosion, and changes in drainage patterns, as well as forest harvesting, livestock grazing, and other extractive activities.

Knowledge status and gaps

Substantial work has been completed to identify ecologically important upland habitats (e.g., the identification of karst and cave features that provide important wildlife habitat; Lausen 2017, Zonal 2020). Although this work is not necessarily complete, future work should focus on protecting, restoring, and/or enhancing these habitats.

Long-term monitoring data are generally unavailable for terrestrial species. As a result, knowledge of pre-dam populations is limited to anecdotal accounts or inferences made from general habitat impacts. Trend information for some species (e.g., ungulates) has become more available starting in the 1990s. More recently, a focus on threatened and endangered wildlife has improved our knowledge of the distribution and abundance of these species (e.g., Culling and Culling 2016, Klaczek and Anderson 2019, Klaczek 2019); however, there remain significant gaps in the FWCP's Peace Region. Priority actions to address these gaps are included in this action plan.

Previously implemented FWCP projects

The FWCP has funded a variety of projects in upland habitats. Most of these projects have been focused on priority species, but some have had implications for the management of ecologically important habitats. Future projects should leverage the learnings from previous relevant projects, including:

- enhancing habitat for wildlife tree-dependent species (Dawson et al. 1992, Corbould and Booth 2003, Corbould 2011, Manning 2019);
- biophysical habitat classification and mapping (Thompson and Lacelle 1992, McKenzie 1993);
- effects of logging on the use of mineral licks by mountain goats (Corbould et al. 2010);
- identification of moose, elk, Stone's sheep, and mountain goat habitats that could benefit from prescribed burning (Woods and McNay 2017);
- the Bickford habitat restoration pilot project to restore the upper portion of the Fisher Creek Forest Service Road (Woods 2019, or more recent); and
- effects of habitat alteration on caribou terrestrial forage lichens in the Omineca area (Cichowski et al. 2018, Wildlife Infometrics 2020).

UPLANDS ACTION PLAN OBJECTIVES

Clear and realistic objectives are necessary to guide and prioritize actions. Priority actions will change as progress is made and information is gained. The current action plans reflect the progress made to date, information available, and values expressed by FWCP partners, including Indigenous Nations and stakeholders.

The FWCP has the following overarching strategic objectives:

1. Conservation – maintain or improve the integrity and productivity of ecosystems and habitats
2. Conservation – maintain or improve the status of species or ecosystems of concern
3. Sustainable use – maintain or improve opportunities for sustainable use, including harvesting and other uses
4. Community engagement – build and maintain relationships with Indigenous and stakeholder communities

The Uplands Action Plan has seven sub-objectives, which are high-level statements of desired future conditions (goals) that are nested within the FWCP’s strategic objectives (Figure 6). While sub-objectives provide specific direction on desired future conditions for ecosystems and priority species, priority actions in the [action tables](#) are the “means” to achieve each sub-objective and often occur in a sequence under each sub-objective.

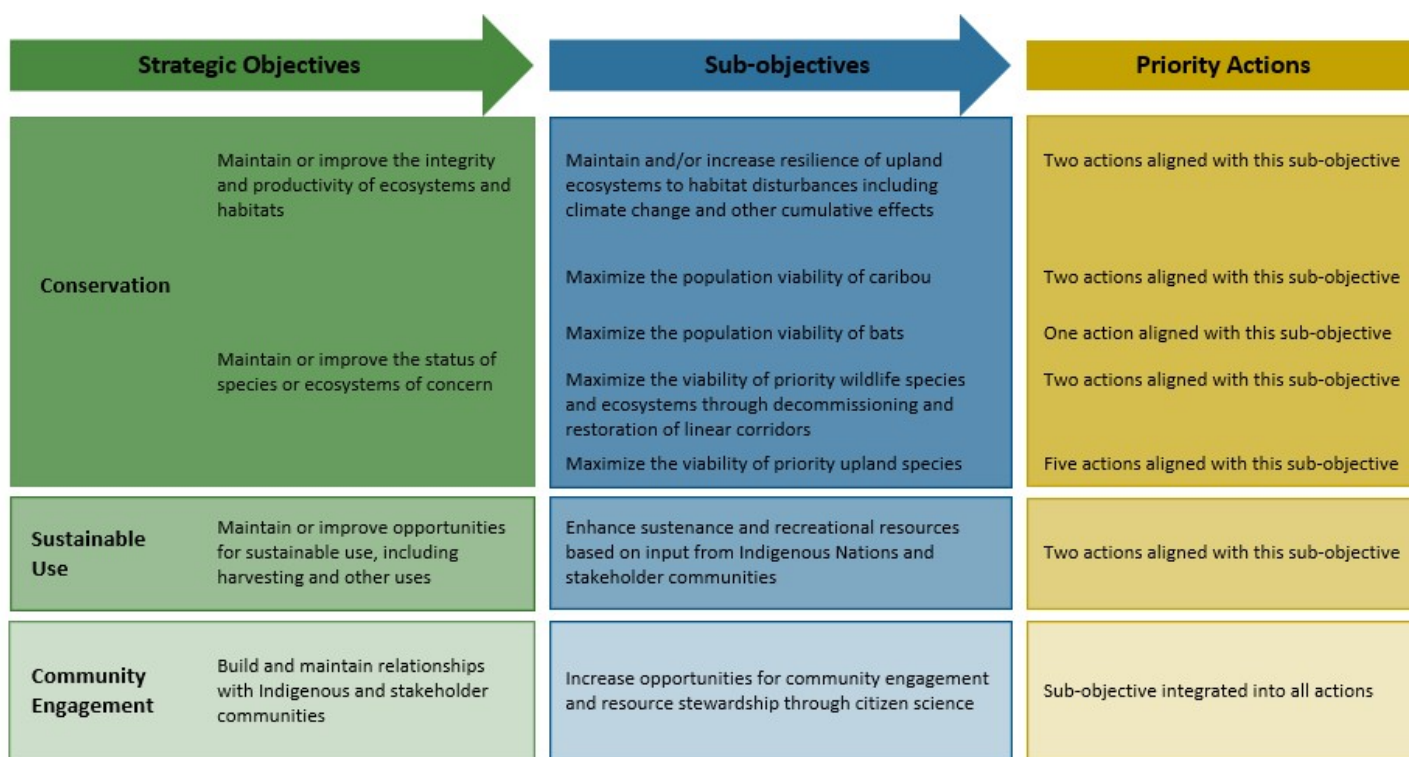


Figure 6. Action plan objectives and measures.

Conservation

Strategic objective: maintain or improve the integrity and productivity of ecosystems and habitats

Sub-objective 1: maintain and/or increase the resilience of uplands ecosystems to habitat disturbances, including climate change and other cumulative effects

At a broad scale, resilient ecosystems can maintain or recover key functions, such as primary production, nutrient cycling, and water management, during or following disturbances, such as fire or flooding. The function, connectivity,

and species diversity of ecosystems are often good indicators of potential ecosystem resilience. Adjacent undisturbed species populations will provide source populations for the recolonization of areas subjected to habitat disturbance in well-connected ecosystems. The sub-objective to maintain and/or increase the resilience of uplands ecosystems to habitat disturbances, including climate change and other cumulative effects, focuses on the conservation goals for ecosystems, habitats, or ecological communities. There are two general actions under this sub-objective:

- Action #1 to prioritize upland habitats for conservation and enhancement; and
- Action #2 to implement habitat-based actions identified in Action #1.

Please note that this sub-objective is parallel to sub-objective 1 in the Cross-Ecosystem Action Plan, where actions nested under this sub-objective include an action to incorporate climate change effects into the prioritization of conservation, enhancement, and/or restoration actions, and actions to prioritize and support the securement and protection of land.

Strategic objective: maintain or improve the status of species or ecosystems of concern

Sub-objective 2: maximize the population viability of caribou

The FWCP's Peace Region overlaps with the ranges of the southern mountain and northern mountain caribou populations (Province of British Columbia 2020a) (Figure 2, Figure 3, Figure 4, Figure 5).

The southern mountain population is provincially Red-listed and federally listed as Threatened (CDC 2020). Southern mountain population herds that occur in the FWCP's Peace Region include the:

- northern group – Chase, Wolverine, and Graham herds;
- central group – Klinse-za (formerly the Moberly and Scott herds) and Kennedy Siding herds; and
- southern group – Hart Ranges herd.

The northern mountain population is provincially Blue-listed and federally listed as Special Concern (CDC 2020). Northern mountain population herds that occur in the FWCP's Peace Region include the:

- Thutade, Finlay, Frog, and Gataga herds.

Caribou are thus categorized as a recovery species and projects must align with the published federal recovery strategy (i.e., Environment Canada 2014) and the Provincial Caribou Recovery Plan, which is expected to be finalized in the summer of 2020 (Province of British Columbia 2020b). Southern mountain caribou projects should also align with recovery measures in the Canada British Columbia Conservation Agreement for Southern Mountain Caribou in British Columbia, signed under Section 11 of the *Species at Risk Act* (Canada and British Columbia 2020). Caribou projects should be developed in coordination with the provincial caribou recovery team, and funding applications must be accompanied by a letter of support from the recovery team.

There are two actions specific to caribou:

- Action #3 to support maternal penning programs.
- Action #4 to restore habitat through the maintenance and restoration of old forests in important habitats, in collaboration with forest licensees.

There are additional actions applicable to caribou under the sub-objective to maximize the viability of priority wildlife species and ecosystems through the decommissioning and restoration of linear corridors.

Sub-objective 3: maximize the population viability of bats

All bat species present in the FWCP's Peace Region, including those not provincially or federally listed as species at risk, are included in the list of priority species due to conservation concern associated with the approach of white-nose syndrome (Province of British Columbia 2020c). At the time this action plan was published, the nearest documented

case of white-nose syndrome was in Washington state. Priority bat species include two species at risk that occur within the FWCP Peace Region: little brown myotis (*Myotis lucifugus*) is federally listed as Endangered, northern myotis (*Myotis septentrionalis*) is provincially Blue-listed and federally listed as Endangered (CDC 2020).

There is one action specific to bats:

- Action #5 to research bat populations, distributions, and identify important habitat features.

Conservation and/or enhancement actions identified for bats and their habitats can be implemented under the more general action #2 to implement upland habitat-based actions.

Sub-objective 4: maximize the viability of priority wildlife species and ecosystems through the decommissioning and restoration of linear corridors

Anthropogenic linear corridors and motorized access to upland habitats can increase predator access to ungulate habitat, disturb wildlife, compact soils, and introduce invasive species. The restoration of linear corridors through functional restoration (e.g., road decommissioning) or ecological restoration (e.g., planting vegetation) can reduce these effects. Almost 2,000 km of forest road have been prioritized for functional or ecological restoration within the range of the Chase caribou herd (Chu Cho 2019), and a strategic plan for linear corridor restoration was developed within the range of the Klinse-Za caribou herd (Nun wa dee Stewardship Society 2019). A pilot project is underway to deactivate and ecologically restore a portion of the Fisher Creek Forest Service Road near Mount Bickford, within the range of the Klinse-Za caribou herd (Nun wa dee Stewardship Society 2019). The restoration of linear corridors is also underway within other areas of the range of the Klinse-Za/Scott East caribou herd (Nikanese Wah tzee Stewardship Society 2020).

There are two actions under the sub-objective to maximize the viability of priority wildlife species and ecosystems through the decommissioning and restoration of linear corridors:

- Action #6 to hold a workshop to prioritize linear corridors for functional and ecological restoration.
- Action #7 to implement the recommendations from the workshop to restore linear corridors.

Engagement with road user groups and ministries who may be permitting new roads in these areas will be critical during the prioritization of linear corridors for restoration.

Sub-objective 5: maximize the viability of priority upland species

This objective addresses the concept of ecosystem integrity, resiliency, and the functional elements of ecosystems, including efforts to improve or optimize productive capacity. There are three actions applicable to all priority upland species, and two actions specific to ungulates under the sub-objective to maximize the viability of priority upland species:

- Action #8 to identify limiting factors for priority wildlife species.
- Action #9 to develop species-based habitat restoration and protection plans, informed by knowledge of limiting factors for the species.
- Action #10 to implement habitat-based actions for priority wildlife species.
- Action #11 to research limiting factors for ungulate species.
- Action #12 to implement actions to address limiting factors for ungulate species.

Ungulate species were identified as ecological priorities during engagement on action plan updates, thus actions #11 and #12 were developed to highlight this priority and promote the development of research projects and the implementation of habitat- and species-based actions for ungulate species. The other more general actions (i.e., actions #8, #9, and #10) are intended to cover any of the priority wildlife species. Actions to assess the success of habitat- and species-based actions are housed in the Cross-Ecosystem Action Plan.

Sustainable use

Strategic objective: maintain or improve opportunities for sustainable use, including harvesting and other uses

Sub-objective 6: enhance sustenance and recreational resources based on input from Indigenous Nations and stakeholder communities

This objective focuses on the FWCP's role in restoring or enhancing the abundance of priority species and in providing information to resource-management decision-makers related to providing opportunities for harvesting and other uses. Sustenance and recreational harvesters include Indigenous Peoples, licensed hunters and anglers, and commercial harvesters. Other uses may include cultural, medicinal, or non-consumptive uses.

There are two actions under the sub-objective to enhance sustenance and recreational resources based on input from Indigenous Nations and stakeholder communities:

- Action #13 to conduct research on culturally important species, to identify priorities for conservation and/or enhancement actions.
- Action #14 to implement habitat- and species-based actions for culturally important species.

Work under action #13 could be informed by work under action #10 in the Cross-Ecosystem Action Plan or existing surveys of Indigenous knowledge (e.g., Pearce et al. 2019a-e). See also actions #13 and 14 in the Riparian & Wetlands Action Plan, and actions #22 and #23 in the Rivers, Lakes, & Reservoirs Action Plan for similar actions for culturally important species in those ecosystem types.

Community engagement

Strategic objective: build and maintain relationships with Indigenous and stakeholder communities

Sub-objective 7: increase opportunities for community engagement and resource stewardship through citizen science

The FWCP's overarching strategic objective of community engagement stems from BC Hydro's social responsibility policy, the Province of B.C.'s shared stewardship goal, and the approach of the DFO's Stewardship and Community Involvement Program. This recognizes the importance of engaging Indigenous Nations, Bands, and groups; local stakeholders; and other interest groups to contribute to making good decisions and delivering effective projects.

In the previous iteration of the FWCP's Peace Region action plans, the Peace Basin Plan (FWCP 2014) highlighted community-based projects under a separate category of "stewardship and education" to better facilitate projects not (necessarily) directly aligned with the objectives of the action plans but consistent with the overarching FWCP strategic objective for community engagement. During the 2020 action plan update process, it was decided that these community engagement actions should be more directly integrated into the action plans.

Stewardship and education actions are housed in the Cross-Ecosystem Action Plan and do not appear in the ecosystem-based action plans; however, stewardship and education are encouraged to be incorporated into relevant projects in the ecosystem-based action plans.

PRIORITY SPECIES

A list of priority species was developed as an outcome of the action plan engagement process, which focuses the action plans toward species of conservation concern and those most likely affected by the creation of the reservoirs. The full list of priority species across all ecosystems is available in the Peace Region: Overview & Action Plans document. The approach to identifying priority species includes all at-risk vertebrate species that breed in the FWCP's Peace Region, additional sustenance species, and species of conservation concern that are not federally or provincially listed as a species at risk due to observed declines or current/imminent threats (e.g., bats due to white-nose syndrome). An open category of culturally important species is also included in the list of priority species to provide flexibility for Indigenous Nations, Bands, and groups to develop a project on a culturally important species that does not appear on the list of priority species. As conservation status may change during the period that this action plan is in place, action #5 in the Cross-Ecosystem Action Plan has been developed to allow for emerging species of conservation concern to be considered.

The FWCP uses three general categories of priority species: recovery, focal, and inventory. Recovery, focal, and inventory categories are an indication of the state of knowledge for each species and not an indication of the priority level for each species (Table 1). The priority species that apply to the Uplands Action Plan are shown in Table 2. Note that many terrestrial species utilize both upland and riparian and wetland ecosystem types; therefore, a primary and secondary ecosystem-based action plan has been assigned for each of these species.

Table 1. Category definitions for the FWCP's Peace Region priority species.

Category	Priority Species Category Definitions
Recovery	Recovery species are a high priority and conservation concern and have likely been adversely impacted by dam construction. These species have formally been classified as either Threatened or Endangered by Canada or B.C., and recovery and/or management plans have been developed by federal or provincial management agencies. Actions for recovery species align with recovery strategies and plans.
Focal	Focal species have a strong linkage to dam footprint impacts and are of high priority. At least some information related to population status, critical habitats, and key limiting factors have been defined for focal species based on previous FWCP projects (e.g., through the development of a monitoring framework), and therefore specific follow-up actions have already been developed. Actions for focal species should build upon previous FWCP projects with an aim to restore and/or enhance suitable habitats in the relevant ecosystems.
Inventory	Inventory species have also been affected by dams and are a high priority, but detailed inventory and/or trend monitoring is required to better understand population status, critical habitats, and key limiting factors. Actions for inventory species should aim to provide the basis for future compensation actions, if required.

Table 2. Priority species for the FWCP's Peace Region Uplands Action Plan.

The FWCP's Peace Region priority species for riparian, wetlands, and uplands						
Species Group	Species	Provincial Listing	Federal Designation	Species Category	Applicable Ecosystem-based Action Plan	
					Riparian & Wetlands ¹	Uplands ¹
Carnivores	Grizzly bear	Blue	Special Concern	Inventory	Secondary	Primary
	Fisher	Blue	-	Focal	Secondary	Primary
	Wolverine	No Status	Special Concern	Inventory	Secondary	Primary
Ungulates	Caribou (central mountain population)	Red	Threatened	Recovery		√
	Caribou (northern mountain population)	Blue	Special Concern	Recovery		√
	Moose	-	-	Focal	Primary	Secondary
	Mountain goat	Blue	-	Inventory		√
	Stone's sheep	Blue	-	Inventory		√
Small Mammals	American water shrew	Blue	Special Concern	Inventory	√	
Bats	Little brown myotis	Yellow	Endangered	Recovery	Secondary	Primary
	Northern myotis	Blue	Endangered	Recovery	Secondary	Primary
	Additional bat spp. (big brown bat, long-eared myotis, long-legged myotis, hoary bat, silver-haired bat, eastern red bat)	-	-	Inventory	Secondary	Primary
Amphibians	Western toad	Yellow	Special Concern	Inventory	Secondary	Primary
	Long-toed salamander	-	-	Inventory	Secondary	Primary

¹ Recognizing that many terrestrial and semi-aquatic species and species groups make use of riparian and wetland habitats, as well as upland habitats, actions for these species have been assigned to a **primary** ecosystem-based action plan; however, general habitat-based actions from the **secondary** ecosystem-based action plan may also be applied to these priority species.

The FWCP's Peace Region priority species for riparian, wetlands, and uplands						
Species Group	Species	Provincial Listing	Federal Designation	Species Category	Applicable Ecosystem-based Action Plan	
					Riparian & Wetlands ¹	Uplands
Breeding Birds	American bittern	Blue	-	Inventory	Primary	Secondary
	Baltimore oriole	Blue	-	Inventory	Primary	Secondary
	Bank swallow	Yellow	Threatened	Inventory	Primary	Secondary
	Barn swallow	Blue	Threatened	Inventory	Primary	Secondary
	Bay-breasted warbler	Red	-	Recovery	Secondary	Primary
	Black swift	Blue	Endangered	Inventory	Primary	Secondary
	Black-throated green warbler	Blue	-	Inventory	Secondary	Primary
	Broad-winged hawk	Blue	-	Inventory	Primary	Secondary
	Canada warbler	Blue	Threatened	Recovery	Primary	Secondary
	Cape May warbler	Blue	-	Inventory	Primary	Secondary
	Common nighthawk	Yellow	Threatened	Recovery	Primary	Secondary
	Connecticut warbler	Blue	-	Inventory	Primary	Secondary
	Eared grebe	Blue	-	Inventory	Primary	Secondary
	Evening grosbeak	Yellow	Special Concern	Inventory	Primary	Secondary
	Great blue heron, herodias subspecies	Blue	-	Inventory	Primary	Secondary
	Horned grebe	Yellow	Special concern	Inventory	Primary	Secondary
	Northern goshawk, atricapillus subspecies	Blue	-	Inventory	Secondary	Primary
	Olive-sided flycatcher	Blue	Threatened	Recovery	Primary	Secondary
	Rusty blackbird	Blue	Special Concern	Recovery	Primary	Secondary
	Short-eared owl	Blue	Special Concern	Recovery	Secondary	Primary
	Swainson's hawk	Red	-	Inventory	Primary	Secondary
	Upland sandpiper	Red	-	Inventory	Secondary	Primary
	Winter wren	Blue	-	Inventory	Secondary	Primary
	Yellow rail	Red	Special Concern	Recovery	Secondary	Primary
Invertebrates	Pollinator species at risk	Red, Blue	Special Concern, Threatened	Inventory	Secondary	Primary
Ecological Communities at Risk		Red, Blue	-	Inventory	Primary	Secondary
Culturally Important Species		-	-	Inventory, Recovery, or Focal	√	√

ACTION TABLES

The [action tables](#) in this document identify FWCP priority actions to conserve and enhance upland species and ecosystems in the FWCP's Peace Region. See the Peace Region: Overview & Action Plans document for additional information on action table format and the funding application process.

Priority actions are organized by ecosystem (or cross-ecosystem actions), species, and action type (research and information acquisition, monitoring and evaluation, land securement, habitat-based actions, and species-based actions)

and are assigned a priority ranking from 1 (highest priority) to 3 (lowest priority). The priority ranking does not account for potential project sequencing.

Priority – The action plans identify the importance and urgency of each priority action (i.e., priority 1, 2, or 3). When grant applications are evaluated, a priority 1 action will score higher than a priority 2 or 3 action. See Table 3 below for additional information on priority setting.

Table 3. Priority rating definitions for FWCP Peace Region actions.

Priority	Definition of FWCP Priorities
1	Required urgently due to current/imminent threats, highest priority for FWCP partners and stakeholders, and/or provide a significant benefit relative to cost.
2	Required due to current/imminent threats, high priority for FWCP partners and stakeholders, and/or provide good benefit relative to cost.
3	Identified due to possible threats, high priority for some FWCP partners and stakeholders, and/or benefit relative to cost may not be known.

Cross-ecosystem actions

Several broad actions are relevant to all ecosystem-based action plans and will require the consideration of multiple ecosystem types and values. These actions were not suited to any single ecosystem-based action plan and have been grouped into a stand-alone Cross-Ecosystem Action Plan. All grant seekers are encouraged to review the Cross-Ecosystem Action Plan as your proposed project may address actions in both the Uplands Action Plan and the Cross-Ecosystem Plan. During the online application process, grant seekers are asked to define primary and secondary actions that their proposed project may address. These primary and secondary priority actions can occur in more than one action plan. For example, actions to assess the success of habitat- and species-based actions are housed in the Cross-Ecosystem Action Plan.

Uplands actions

These action tables identify the FWCP's priority actions to conserve and enhance upland species and ecosystems impacted by BC Hydro dams in the FWCP Peace Region. Actions identified as **open** (see delivery approach column) **are eligible for a grant**. When completing your online grant application, you will be required to identify a priority action(s) that your project intends to address. A high-quality grant application will clearly demonstrate alignment with a priority action(s) in an action table. Actions identified as **directed only** are not eligible for a grant. These are projects that our regional boards will direct through the appropriate procurement process (e.g., a request for proposal). Please **do not** submit a grant application for a **directed only** project. Actions identified as **directed/open are eligible for a grant** or may be projects that our regional boards will direct through the appropriate procurement process. Contact us if you are unsure.

Action #	Action Type	Priority Action Short Description	Priority	Priority Species or Species Group	Priority Action	Intended Outcome	Delivery Approach
Conservation sub-objective 1: maintain and/or increase the resilience of uplands ecosystems to habitat disturbances, including climate change and other cumulative effects							
1	Research & information acquisition	PEA.UPD.SO1.RI.01 Identify and prioritize upland habitats for conservation and/or enhancement-P1	1	Upland species and ecological communities	Inventory the distribution, abundance, current function, and connectivity of remaining ecologically important upland habitats (e.g., wildlife habitat features such as mineral licks, wallows, and large stick nests; roosts, hibernacula, or other habitats where native species congregate; and Red- or Blue-listed ecological communities) and assess threats, including cumulative effects. The approach to assessing cumulative effects should be consistent with the approach developed under action #2 in the Cross-Ecosystem Action Plan. If applicable, projects should build on previous work in the FWCP's Peace Region identifying ecologically important upland habitats (e.g., caribou range, ungulate winter range). Assessments should be structured to focus on specific habitat types or features. The deliverable will include the identification of priority areas for conservation, monitoring, and restoration actions. Prioritization for conservation, restoration, and/or enhancement should consider Indigenous use through engagement with Indigenous Nations, Bands, and groups, and future land use, through engagement with industrial land users and provincial agencies responsible for permitting.	Prioritization of upland habitats for conservation and/or enhancement actions.	Open/ Directed

Action #	Action Type	Priority Action Short Description	Priority	Priority Species or Species Group	Priority Action	Intended Outcome	Delivery Approach
2	Habitat-based action	PEA.UPD.SO1.HB.02 Implement habitat-based actions-P1	1	Upland species and ecological communities	Implement conservation, restoration, and/or enhancement actions based on the findings of the uplands habitat function and connectivity assessment in action #1. Depending on the findings, actions may include vegetation management activities such as prescribed burning (outside of woodland caribou range), invasive species management, or other vegetation management activities. Actions may also include the creation of late-successional forest structures that have been documented or are known to be limiting the abundance of wildlife (e.g., wildlife trees, nest cavities, dens). Priority species and species not currently of conservation concern are expected to benefit from habitat-based actions; however, potential conflicts between enhancing habitat to benefit one species to the detriment of another should be noted and carefully considered.	Implementation of habitat-based actions to conserve and/or restore upland habitats.	Open/ Directed
Conservation sub-objective 2: maximize the population viability of caribou							
3	Species-based action	PEA.UPD.SO2.SB.03 Support caribou maternal penning-P2	2	Caribou	Support the development or continuation of Indigenous Nations-led maternal penning programs for caribou, in coordination with the caribou recovery team. Partnering with outside funders may be required, given the expense of these programs. A letter of support from the caribou recovery team will be required.	Maintain and/or increase the viability of caribou herds through maternal penning programs in alignment with the recovery plan.	Open

Action #	Action Type	Priority Action Short Description	Priority	Priority Species or Species Group	Priority Action	Intended Outcome	Delivery Approach
4	Habitat-based action	PEA.UPD.SO2.HB.04 Restore functional winter caribou habitat-P1	1	Caribou	Restore caribou winter habitat function, potentially through collaboration with local forest licensees. For example, a forest harvesting management plan could be developed in partnership with local forest licensees with a goal to improve mid- to long-term habitat conditions for caribou by increasing the area of older forest in important caribou habitats. Projects should be developed in coordination with the caribou recovery team and regional forestry operations, and align with the caribou recovery strategy (Environment Canada 2014) and the <i>Species at Risk Act</i> Section 11 agreement between the provincial and federal governments (Canada and British Columbia 2020). A letter of support from the caribou recovery team will be required.	Implementation of a broad scale plan to restore functional winter caribou habitat.	Open

Action #	Action Type	Priority Action Short Description	Priority	Priority Species or Species Group	Priority Action	Intended Outcome	Delivery Approach
Conservation sub-objective 3: maximize the population viability of bats							
5	Research and information acquisition	PEA.UPD.SO3.RI.05 Research bat populations, distribution, and identify important habitat features-P2	2	Bats	Assess the abundance, population trends, and distribution of bat species, building on existing data. Research should identify and prioritize the protection of important habitat features, including hibernacula and maternity roosts. Projects should build on previous FWCP projects (Lausen 2017 , Hansen 2018, Paterson and Hansen 2019) and be aligned with Level I priorities in the BC Bat Action Plan (http://www.bcbat.ca/publications/) to address knowledge gaps. Conservation and/or enhancement actions could then be implemented under action #2.	Identification of important bat habitat features and the prioritization of conservation and/or enhancement actions for bats and their habitats.	Open

Action #	Action Type	Priority Action Short Description	Priority	Priority Species or Species Group	Priority Action	Intended Outcome	Delivery Approach
Conservation sub-objective 4: maximize the viability of priority wildlife species and ecosystems through the decommissioning and restoration of linear corridors							
6	Research & information acquisition	PEA.UPD.SO4.RI.06 Prioritize linear corridors for functional and ecological restoration-P1	1	Ungulates	To reduce predator access to ungulate habitat and reduce wildlife disturbance, soil compaction, and the spread of invasive plant species, prioritize linear corridors for functional and ecological restoration in collaboration with land users including Indigenous Nations, landowners, agencies, stakeholders, and road user groups. Collaboration with ministries that may be permitting new roads is critical. Prioritization should build upon the previous FWCP projects (e.g., Chu Cho 2019 , Nun wa dee Stewardship Society 2019 , Nikanese Wah tzee Stewardship Society 2020) that identified priority candidate roads and tested methods to block motorized access.	Prioritization of functional and/or ecological restoration of linear corridors.	Open/ Directed
7	Habitat-based action	PEA.UPD.SO4.HB.07 Restore linear corridors-P1	1	Ungulates	Implement the recommendations from action #6 to strategically decommission roads and/or support the functional and ecological restoration of linear corridors.	Functional and/or ecological restoration of linear corridors.	Open/ Directed

Action #	Action Type	Priority Action Short Description	Priority	Priority Species or Species Group	Priority Action	Intended Outcome	Delivery Approach
Conservation sub-objective 5: maximize the viability of priority upland species							
8	Research & information acquisition	PEA.UPD.SO5.RI.08 Research priority species to identify limiting factors-P2	2	Upland species and ecological communities	Conduct research on priority species, including abundance, distribution, trend, threats, and the analysis of limiting factors, to support the prioritization of future projects in uplands habitats. This could include an assessment of existing data and information on population status, habitat status, or habitat capacity. The root causes of degraded habitats and limitations to productive potential should be considered. For priority species with approved recovery and/or management plans, research should address knowledge gaps identified in these plans.	Identification of limiting factors for priority species in order to identify and develop further conservation or enhancement actions for those species.	Open

Action #	Action Type	Priority Action Short Description	Priority	Priority Species or Species Group	Priority Action	Intended Outcome	Delivery Approach
9	Research & information acquisition	PEA.UPD.SO5.RI.09 Develop a habitat restoration and protection plan-P1	1	Upland species and ecological communities	Develop a comprehensive habitat restoration and protection plan for priority uplands wildlife in relation to limiting factors analyses (action #8) and an assessment of population status/habitat capacity. The plan will include prioritized candidate areas for habitat restoration and/or protection. Restoration refers to habitat- or species-based actions that restore habitat capacity or population viability, while protection includes land securement or employing legal mechanisms (e.g., WHA designation) to protect important habitat from further degradation. Please note that land securement actions are housed in the Cross-Ecosystem Action Plan. Prioritization for conservation, restoration, and/or enhancement should consider future land use through engagement with industrial land users and provincial agencies responsible for permitting.	Prioritization of habitat- and/or species-based actions informed by knowledge of limiting factors for priority species.	Open/ Directed
10	Habitat-based action	PEA.UPD.SO5.HB.10 Implement conservation and/or enhancement for priority wildlife-P2	2	Upland species and ecological communities	Implement conservation and/or enhancement actions from the findings of actions #8 and #9 to directly (through on-the-ground work) address identified risks or limiting factors, and to take advantage of habitat restoration and conservation opportunities identified under action #9 for priority wildlife species.	Implementation of conservation and/or enhancement actions to sustain/and or increase population viability of priority wildlife.	Open
	Species-based action		2				

Action #	Action Type	Priority Action Short Description	Priority	Priority Species or Species Group	Priority Action	Intended Outcome	Delivery Approach
11	Research & information acquisition	PEA.UPD.SO5.RI.11 Research limiting factors for ungulate species-P2	2	Ungulates	Assess potential habitat-based limiting factors for priority ungulate species (e.g., assessments of vegetation community, seral stage, forest age, and relationships to habitat capacity for important ungulate populations and vulnerable life stages). Assessments should provide recommendations for next steps, including conservation and enhancement actions. Recommendations should consider ecological function and competing factors, such as predator-prey dynamics and provincial prioritization of certain ungulate species (e.g., caribou) over others.	Prioritization of conservation and enhancement actions to address habitat-based limiting factors for priority ungulate species.	Open
12	Habitat-based action	PEA.UPD.SO5.HB.12 Implement actions from limiting factors assessment for priority ungulate species-P2	2	Ungulates	Implement conservation and/or enhancement actions from assessments of limiting factors under action #11 for important ungulate populations.	Implementation of conservation and/or enhancement actions to sustain/and or increase population viability of priority ungulate species.	Open
	Species-based action		2				

Action #	Action Type	Priority Action Short Description	Priority	Priority Species or Species Group	Priority Action	Intended Outcome	Delivery Approach
Sustainable use sub-objective 6: enhance sustenance and recreational resources based on input from Indigenous Nations and stakeholder communities							
13	Research & information acquisition	PEA.UPD.SO6.RI.13 Research and monitor culturally important species-P2	2	Culturally important species	Conduct research and monitoring to improve the understanding of documented culturally important uplands plants and animals, including abundance, distribution, trend, threats, and ecological relationships. Monitoring could be conducted by local Indigenous Guardians to support local concerns regarding potential stressors to upland habitats and sustenance resources. Research should incorporate Indigenous knowledge and values and must be used to identify conservation and/or enhancement actions for culturally important species.	Identification of priorities for conservation and/or enhancement actions for culturally important species.	Open
14	Habitat-based action	PEA.UPD.SO6.HB.14 Implement enhancement actions for culturally important species-P1	1	Culturally important species	Implement conservation and/or enhancement actions identified under action #13 for culturally important species. Habitat enhancement activities that include Indigenous Guardians, local community engagement, and volunteer support are encouraged.	Implementation of enhancement actions for culturally important species.	Open
	Species-based action		1				

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GLOSSARY

Action plan: The Fish & Wildlife Compensation Program has identified conservation priorities for fish and wildlife in each of its three regions and these are reflected in a series of action plans. The priorities and plans vary by region.

Blue-listed species: Includes any native species or subspecies considered to be of Special Concern (formerly Vulnerable) in British Columbia. Taxa of Special Concern have characteristics that make them particularly sensitive or vulnerable to human activities or natural events. Blue-listed taxa are at risk, but are not Extirpated, Endangered, or Threatened.

Community engagement: Community engagement refers to range of actions intended to inform and/or involve communities of interest, including but not limited to geographic communities, in a priority action and/or proposed project. The appropriate level of engagement and the engagement actions selected will vary depending on the desired outcomes (i.e., informing vs involving).

Cross-ecosystem action: An action that is relevant to two or more ecosystem-based action plans and may require the consideration of multiple ecosystems.

Delivery approach: Priority actions identified as “open” are eligible for a grant. Actions identified as “directed” are not eligible for a grant. These are projects that our regional boards will direct through the appropriate procurement process (e.g., a request for proposal).

Endangered species: A fish or wildlife species that is facing imminent extirpation or extinction, as listed under the federal *Species at Risk Act*.

Fish & Wildlife Compensation Program (FWCP): The FWCP is a partnership between BC Hydro, Fisheries and Oceans Canada, the Province of B.C., Indigenous Nations, and public stakeholders to conserve and enhance fish and wildlife impacted by the construction of BC Hydro dams.

Floodplain: An area of low-lying ground adjacent to a river, formed mainly of river sediments and subject to flooding.

Focal species: Defined by the FWCP’s Peace Region as having a strong linkage to dam footprint impacts and are of high priority. At least some information related to population status, critical habitats, and key limiting factors have been defined for focal species based on previous FWCP projects (e.g., through the development of a monitoring framework), and therefore specific follow-up actions have already been developed. Actions for focal species should build upon previous FWCP projects with an aim to restore and/or enhance suitable habitats in the relevant ecosystems.

Footprint impacts: The permanent loss of habitat associated with a dam and related infrastructure, including the permanently flooded habitat (below the drawdown zone) resulting from reservoir creation.

Habitat protection: Land securement or land conservation through legal mechanisms (e.g., wildlife habitat area designation) that conserve important habits by preventing further degradation.

Habitat restoration: Manipulation of abiotic or biotic site factors through habitat or species-based actions that drive the return of natural ecological functions to an area where these functions have been lost or degraded.

Indigenous Guardians: Indigenous Guardians are involved in local Indigenous Guardian programs that “manage protected areas, restore animals and plants, test water quality, and monitor development projects.” Land Guardians also “welcome visitors to traditional territories and maintain cultural sites.”²

Indigenous knowledge: The United Nations Educational, Scientific and Cultural Organization (UNESCO) refers to Indigenous knowledge as the “understandings, skills and philosophies developed by societies with long histories of interaction with their natural surroundings.”

² <https://landneedsguardians.ca/what-guardians-do>

Invasive species: An organism (plant, animal, fungus, or bacterium) that is not native and has negative effects on our economy, environment, or health. Invasive species can spread rapidly to new areas and will often out-compete native species as there are no predators or diseases to keep them under control.

Inventory species: Defined by the FWCP's Peace Region as species that have been affected by dams, but detailed inventory and/or trend monitoring is required to better understand population status, critical habitats, and key limiting factors. Actions for inventory species should aim to provide the basis for future compensation actions, if required.

Sustenance resources: Natural resources harvested directly by Indigenous Peoples or licensed hunters and anglers for personal food or medicinal use.

Upper Peace River Basin: The geographic area (i.e., watersheds) that drains into the Peace River, upstream of the Peace Canyon Dam. The geographic boundary of this area is the same as the administrative boundary for the FWCP's Peace Region.