Environment and Climate Change Canada

Canada Nature Fund: Community Nominated Priority Places for Species at Risk

Kootenay Connect: Bonanza Corridor Focal Area

Preliminary Upslope Wetland Assessment

Year 7 (2025 - 2026)

Kootenay Connect Priority Places is a project facilitated by the Kootenay Conservation Program

Environment and Climate Change Canada | Environnement et Changement climatique Canada

KCP Kootenay Conservation Program

KOOTENAY CONNECT

SLOCAN LAKE STEWARDSHIP SOCIETY

ACKNOWLEDGEMENTS

The Slocan Lake Stewardship Society respectfully acknowledges that these assessments, projects and initiatives are in the traditional, ancestral, and unceded territories of the Sinixt, Syilx Okanagan, Ktunaxa and Secwépemc. We recognize the relationship between land and people and continue to work towards Indigenous people's continued presence on the lands being acknowledged.

This report was created by Ryan Durand (EcoLogic Consultants Ltd.), with field surveys completed by Ryan Durand and Tyson Ehlers (Masse Environmental Ltd.) for the Slocan Lake Stewardship Society for this Kootenay Connect Year 7 project.

TABLE OF CONTENTS

List of Figures

List of Photos

1. INTRODUCTION

1.1 BONANZA BIODIVERSITY CORRIDOR UPDATE

The Bonanza Corridor was recognized as a focal area for conservation at the inception of the Kootenay Connect initiative. Commonly referred to as the Bonanza Biodiversity Corridor (BBC), the terrain is largely defined by steep slopes, undeveloped lands, intact mature forests and a multitude of streams, wetlands, species and habitats. The BBC hosts an important wildlife corridor connecting the Selkirks and the Valhalla ranges at the north end of the Slocan Watershed. Bonanza Creek meanders through the valley bottom, supporting rainbow trout and kokanee spawning. The series of wetlands in the valley bottom are a vital contributor of nutrients and a source of cold water flowing into Slocan Lake.

Kootenay Connect projects commenced with three wetland restoration projects, along with concurrent projects for Species-at-Risk, sensitive ecosystems and developing a series of Terrestrial Ecosystem Maps for the Bonanza Watershed. Projects included a review of Old Growth Management Areas, current and historical beaver activity in the valley bottom. The cumulative results of this expanded knowledge base provided the foundation for developing a BBC Conservation Plan in 2023 for the ongoing stewardship and protection of the BBC's ecosystems, biodiversity and connectivity values.

Stakeholder collaborations, site tours and monitoring activities continue under the guidance of the BBC Conservation Plan. Highlights for Year 7 are summarized as follows:

- Biodiversity – Wildlife Conservation Society Canada conducted bat mist-netting survey at Hunter seasonal breeding habitat, recommending roost enhancement. Spring amphibian surveys observed high activity and egg masses for Columbia Spotted Frog, Pacific Tree Frog and Western Toad.
- Canadian National Wetland Inventory (CNWI) – Received confirmation that Bonanza wetland data (provided in 2023) was updated in 2026 in the CNWI catalogue by Environment and Climate Change Canada.
- Forests – Field reviews, discussions and meetings with Licensees in the BBC were conducted throughout the year. Site reviews highlighted rare species, habitats and sensitive ecosystems, resulting in minor adjustments to harvesting plans with one Licensee. Field tours with BCTS included discussions on methodologies for assessing hydrologic and geomorphic risk in the forest sector.

Expanding the understanding and delineating the complexity of hydrologic regimes in the BBC is an ongoing task in the face of climate change. In 2025, it was determined that there was a need to better understand the connectivity between several of the significant upslope wetlands in the BBC and the nature of those hydrological regimes.

This report is a preliminary assessment to illustrate the importance of how these wetland complexes function, rely on current water sources, adjacent forests and other ecosystem types to sustain their

hydrologic integrity. This landscape-level assessment has revealed that tailored wetland assessments for the identified study areas will be of value for knowledge flow to vested stakeholders in land-use planning and the potential for identifying future nature-based conservation opportunities.

1.2 UPSLOPE WETLAND ANALYSIS

The steep topography and nature of the hydrologic networks in the BBC limit the natural occurrence of upslope wetlands. For this assessment, two wetlands were selected to illustrate the connectivity and importance of upslope wetlands in the health of downslope subwatersheds (Figure 1.2-1). Both study areas are located within the Slocan Moist Warm Interior Cedar-Hemlock (ICHmw2) biogeoclimatic unit (MacKillop and Ehman 2016). At the south end of the BBC in the Lower Bonanza Wetland Study Area, a large mid-slope swamp complex near Shannon Creek FSR connects to the lower reaches of Bonanza Creek and then Snk'mip (Bonanza) Marsh at the head of Slocan Lake. In the middle of the BBC, two subwatersheds form the Upper Bonanza Wetland Study area, both extending from the height of land and connecting to small mid slope bench wetlands and larger complexes at valley bottom above Bonanza Creek (at the site of the Upper Bonanza Riparian Restoration Project).

Kootenay Connect: Bonanza Biodiversity Corridor

0 0.5 1 1.5 2
Kilometers

Wetland Connectivity Study Areas

Figure 1.2-1

Date: 2026-03-16
Map Number: BBC26-1
Coordinate System: NAD 1983 UTM Zone 11N
Projection: Transverse Mercator
Datum: North American 1983

Legend
- Subwatershed
- Streams
- Wetlands

EcoLogic consultants

2. APPROACH AND METHODS

Over the last seven years the BBC has been extensively mapped and inventoried, resulting in a substantial amount of information to utilize in a landscape level review for this preliminary upslope wetland assessment. This project included desktop assessments of the two study areas and targeted field surveys by Ryan Durand, M.Sc., R.P.Bio. and Tyson Ehlers, B.Sc., R.P.Bio. Extensive mapping and inventories have resulted in a substantial amount of data for use, including:

- ***Terrain mapping:*** a LiDAR based product created in 2022 that mapped the major surficial materials and topography in the BBC generally following the Terrain Classification System for BC, Version 2.0 (Howes and Kenk 1997).
- ***Terrestrial Ecosystem Mapping (TEM)*****:** using terrain mapping, air photo interpretation and field assessments, a TEM was created in 2022 for the full BBC as per the provincial Standard for Terrestrial Ecosystem Mapping in BC (RIC 1998).
- ***Field Survey Data:*** surveys completed between 2020 and 2025 using the methods from the Field Manual for Describing Terrestrial Ecosystems; 2nd Edition (BC Ministry of Forests and Range and BC Ministry of Environment 2010). Ecosystems were classified using *A Field Guide to Site Identification and Interpretation for Southeast British Columbia* (MacKillop and Ehman 2016) and *Wetlands of British Columbia: A Guide to Identification* (MacKenzie and Moran 2004). Survey data included basic assessments of organic soil depth (when encountered) to enable soil carbon estimates.
- ***Bonanza Biodiversity Corridor Conservation Values Assessment report (Durand and Ehlers 2022)***: species at risk inventory and mapping, sensitive ecosystem mapping, and initial management planning.

Provincial base data used for the project included:

- Freshwater Atlas (rivers, lakes, streams, watersheds, and wetlands);
- Forestry (tenures, forest cover, forest harvest data);
- Roads, private land, parks, and other tenures; and
- Provincial Old Growth Technical Advisory Panel (old growth mapping, intact watersheds, ancient forests, older forest with large trees).

After highlighting the importance of these wetlands in relation to the landscape, the draft Ktunaxa Forest Standards document (Ktunaxa Nation 2022) for Riparian and Wetland Management Areas (Figure 2-1), were applied to the two study areas. These publicly available standards provide a more holistic approach to ensuring healthy ecosystems, biodiversity and hydrology, with less emphasis on wetland and stream

size more on connections and function to guide stewardship obligations. The Ktunaxa Forestry Standards align with the Sylix (ONA) headwaters wetland strategy to conserve and protect aquatic ecosystems[1].

In addition to the Ktunaxa riparian and wetland management zones, the project was designed to consider wildlife corridors to include the Ktunaxa requirement to '*ensure that there is at least one travel corridor to a wetland/lake from a larger complex of un-harvested area*' (Ktunaxa Nation 2022). We also focused on ensuring that the planning exercise considered the Ktunana desire of seeing increased streamside retention when disturbances occur in both fish bearing watercourses, and the upstream watercourses that provide water, food and nutrients.

Table 1. Minimum Retention for Stream Classes.

Riparian Class	Mean Channel Width (m)	Total RMA Width (m)	RRZ Width (m)	RMZ Width (m)	Minimum RMZ Basal Area Retention (%)
S1A large rivers	>100	100	50	50	50
S1B stream	>20	70	50	20	50
S2	>5 - ≤20	60	30	30	50
S3	1.5 - ≤5	50	30	20	50
S4	<1.5	50	30	20	50
S5	>3	40	20	20	50
S6	≤3	40	20	20	50
S6 seasonal or NCD	≤3	30	10	20	20

Table 2. Minimum Retention for Wetland Classes.

Wetland Class	Description (ha)	Total RMA Width (m)	RRZ Width (m)	RMZ Width (m)	Minimum RMZ Basal Area Retention (%)
W1	>5	100	80	20	50
W2	1-5*	100	70	30	50
W3	1-5	100	70	30	50
W4	0.25-1 or 0.25-1*	100	50	50	50
W5	complex	100	60	40	50

*Located in PP, BG, IDFxh, xw, xm, CDF, CWHds, dm, xm units only

Table 3. Minimum Retention for Lake Classes.

Lake Class	Description (ha)	Total RMA Width (m)	RRZ Width (m)	RMZ Width (m)	Minimum Basal Area Retention (%)
L1A	≥1000	100	80	20	50
L1B	>5 - <1000	100	70	30	50
L2*	1-5*	100	70	30	50
L3	1-5	100	60	40	50
L4	0.25 – 1*; 0.5-1	100	50	50	50

*Located in PP, BG, IDFxh, xw, xm, CDF, CWHds, dm, xm units only

Figure 2-1. Ktunaxa Forestry Standards Minimum Retention Areas for Streams, Wetlands and Lakes

The provincial watercourse mapping for the study areas is not accurate; therefore, when available we interpreted streamlines using LiDAR. LiDAR (or the 2022 terrain mapping) was also used to map gullies and steep riparian slopes, along with active fluvial floodplains. Since the Ktunaxa standards do not

[1] https://syilx.org/wp-content/uploads/2022/07/FINAL-Water-Strategy_2022-Edition.pdf

mention gullies and steep slopes, the provincial Riparian Areas Regulation Assessment (RAPA) Methods were used to guide the creation of an RMA that was applied to the top of bank (Figure 2-2).

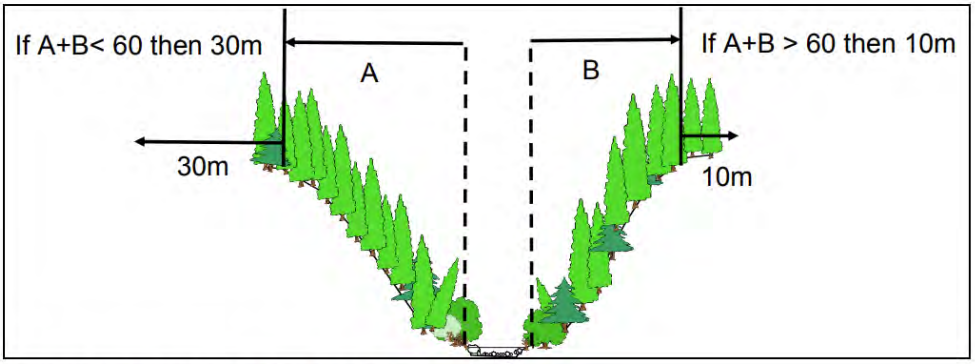


Figure 1-2: Assessment Area for ravines

RIPARIAN AREAS REGULATION definition- ravine "means' a narrow, steep-sided valley that is commonly eroded by running water and has a slope grade greater than 3:1"

RIPARIAN AREAS REGULATION definition – top of ravine bank "means the first significant break in a ravine slope where the break occurs such that the grade beyond the break is flatter than 3:1 for a minimum distance of 15 meters measured perpendicularly from the break, and the break does not include a bench within the ravine that could be developed;

Figure 2-2. Riparian Areas Regulation Assessment Area for Ravines[2]

3. OVERVIEW OF WETLAND STUDY AREAS

3.1 LOWER BONANZA WETLAND STUDY AREA

The Lower Bonanza Wetland Study Area encompasses a 471 hectare subwatershed of Bonanza Creek (Figure 3.1-1). The study area starts at the height of land above Shannon Creek and ends near the mouth of Bonanza Creek at the north end of Slocan Lake where it enters Snk'mip (Bonanza) Marsh. The subwatershed includes multiple small drainages (and likely contains additional seasonal unmapped watercourses) that feed a large lower slope wetland complex.

The steep upper slopes of the subwatershed are forested to the ridgeline and have been heavily modified by wildfire and subsequent salvage logging (Photo 3.1-1). Small intermittent drainage channels originate on the upper slopes, in gullies of deep glacial till (Photo 3.1-2). Several small benches occur in these areas, that contain seepage sites with productive moist to wet forests (Photo 3.1-3). Most of the mid slopes contain young to mature conifer stands on deep morainal deposits, with zonal ICHmw2/101 HwCw – Falsebox – Feathermoss and ICHmw2/104 FdCw – Falsebox – Prince's pine forests the dominant cover

[2]https://www2.gov.bc.ca/gov/content/environment/plants-animals-ecosystems/fish/aquatic-habitat-management/riparian-areas-regulation/riparian-areas-regulation-model

(Photo 3.1-4). The mid slopes are more intact than the higher elevations, with older logging blocks along the northern side, and several newer logged areas to the south. The majority of the forested area along the two main watercourses that feed the lower slope wetland is intact, resulting in an important wildlife movement connection to the valley bottom, with frequent observations of moose, grizzly bear and black bear using the corridor.

A large bench occurs on the lower slope where the wetland complex is located. This bench is uncommon in the BCC and is a very important feature for biodiversity including species at risk and globally rare species, wildlife habitat, carbon storage, and water storage. Mature and old wet forests surround much of the wetland. The wetland complex contains mature to old wet ICHmw2/114 CwSxw – Skunk cabbage forests at the north and south ends, with ICHmw2/110 CwHw – Oak fern forests on the western slope and drier young to mature ICHmw2/101 and 104 stands on the slopes of the hill that forms the eastern side of the wetland. The wetland itself includes an old Ws10 Cedar – Skunk cabbage swamp on the edges, and an unclassified sedge fen in the middle (Photos 3.1-5 and 3.1-6). The wetland is connected to streams flowing both north and south (Photos 3.1-7 and 3.1-8), as well as a community water intake pond.

The wetland complex has been extensively studied over the last seven years and contains vital features such as old growth logs that contain the globally rare *Reticularia lobata* (Photo 3.1-9), with the adjacent forest containing some of the only known occurrences of *Stemonitis mussooriensis* (Photo 3.1-9) and *Collaria collinsii* in Canada. Numerous species at risk occur in the swamp and the adjacent forests, including white chanterelle (*Cantharellus subalbidus*), Kurotake (*Boletopsis grisea*), coeur d'Alene Oregonian (*Cryptomastix mullani*), and pale jumping-slug (*Hemphillia camelus*). Other species at risk that have been documented in the area include mountain moonwort (*Botrychium montanum*), western bumble bee (*Bombus occidentalis*), and western toad (*Anaxyrus boreas*). The forested slopes around the wetland complex have been documented as some of the most productive fungi foraging sites in the west Kootenay region for pine mushroom (*Tricholoma murrillianum*) and white chanterelle.

The streams that drain off the lower slope bench to Bonanza Creek are located within deep gullies. While fish sampling has not been completed in these watercourses, they are assumed to be fish bearing as they have permanent water flow and no known obstructions. The gullies contain productive riparian forests, mostly ICHmw2/111 CwHw – Devil's Club – Lady fern ecosystems. The northern streams enter Bonanza Creek at a kokanee spawning location, and likely contribute cool water, food and nutrients directly to this important fish habitat. Below the bench, steep morainal slopes of ICHmw2/101 and 104 forests extend down to the active floodplain of Bonanza Creek (Photo 3.1-10 to 3.1-12). From there, the watercourses connect with the Bonanza Creek mainstem and flow towards the large wetland complex and old wet forests around Snk'mip (Bonanza) Marsh (Photo 3.1-13).

Kootenay Connect: Bonanza Biodiversity Corridor

Lower Bonanza Wetland Study Area

Figure 3.1-1

0 250 500 750 1,000
Meters

Date: 2026-03-16
Map Number: BBC26-2
Coordinate System: NAD 1983 UTM Zone 11N
Projection: Transverse Mercator
Datum: North American 1983

Legend
- Subwatershed
- Streams
- Wetlands

EcoLogic consultants

Photo 3.1-1. Looking upslope towards the height of land at cut blocks (forest fire salvage) from 2020.

Photo 3.1-2. Seasonal drainage channels on logging roads on the upper slopes of the drainage system.

Photo 3.1-3. Small upper bench wet ICHmw2/111 mature to old forests connected to the drainage system.

Photo 3.1-4. Looking downslope at younger ICHmw2/101 stands on the mid to upper slope of the drainage system.

Photo 3.1-5. Old growth Ws10 and ICHwm2/114 cedar swamp.

Photo 3.1-6. Sedge fen in the wetland complex.

Photo 3.1-7. Unnamed stream flowing to the southeast from the wetlands and ICHmw2/114 forests.

Photo 3.1-8. Unnamed stream flowing to the northeast from the wetlands through mature ICHmw2/111 forests.

Photo 3.1-9. Reticularia lobata (left) and Stemonitis mussooriensis (right); photo credit: Tyson Ehlers.

Photo 3.1-10. Typical younger ICHmw2/101 forests that occur with ICHmw2/104 on the gentle to moderately steep slopes around the wetlands.

Photo 3.1-11. A side channel of Bonanza Creek near the Bonanza Creek Road bridge.

Photo 3.1-12. Wet ICHmw2/111 forests with old spring board stumps on the Bonanza Creek floodplain.

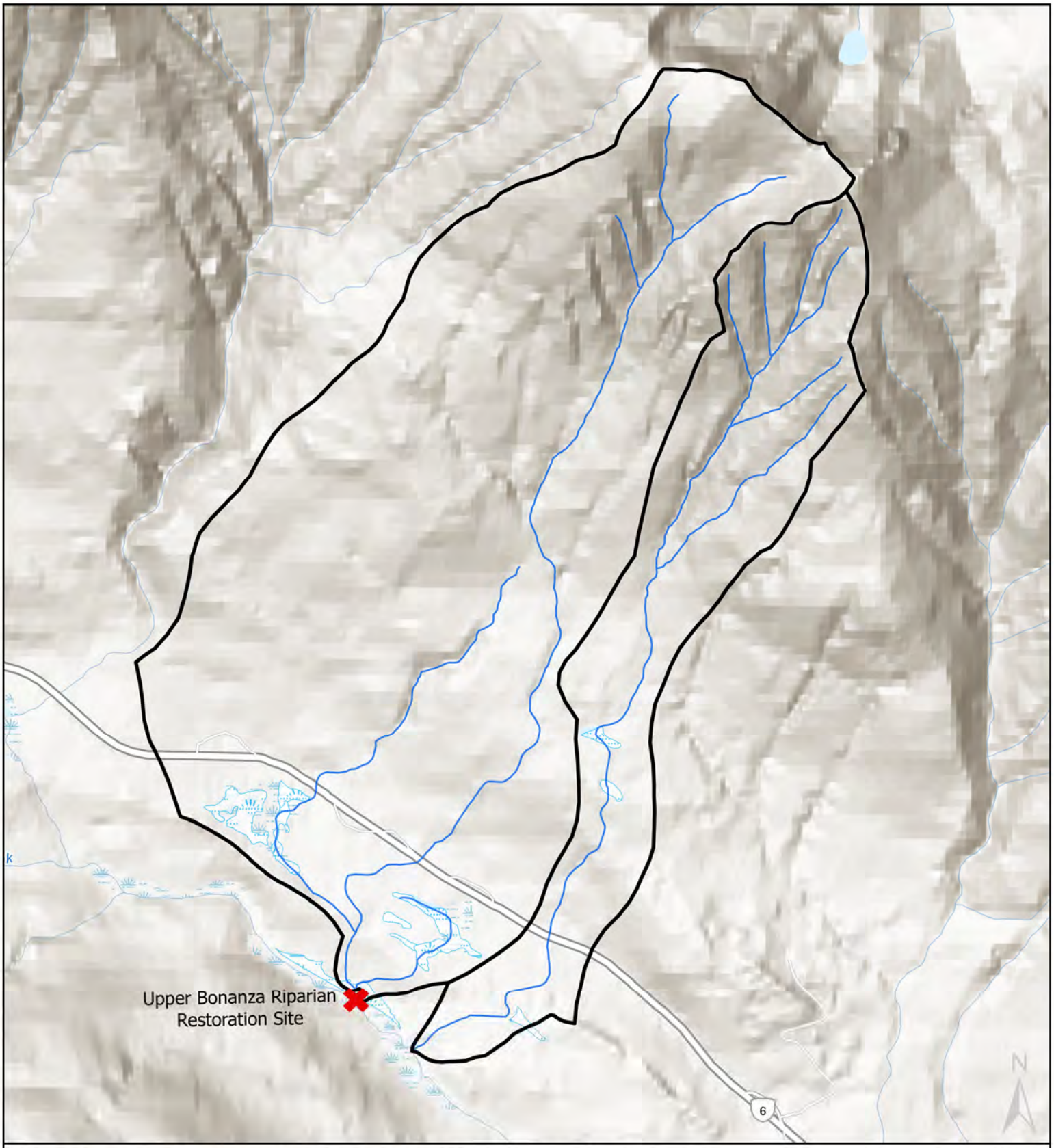
Photo 3.1-13. The mouth of Bonanza Creek entering Slocan Lake at Snk'mip (Bonanza) Marsh.

3.2 Upper Bonanza Wetland Study Area

The Upper Bonanza Wetland Study Area contains two small subwatersheds of Bonanza Creek, encompassing 606 hectares (Figure 3.2-1). The subwatersheds extend from height of land in the Nakusp Ranges to Bonanza Creek at the bottom (with one stream flowing into the Upper Bonanza riparian restoration site) and include multiple small unnamed drainages and wetlands. The upper slopes include sparsely treed subalpine ridges that contain abundant endangered whitebark pine (*Pinus albicaulis*) and are within proposed mountain caribou Critical Habitat, that give way to steep rocky, dry forests on coarse colluvial slopes (Photo 3.2-1). Several large avalanche chutes start near the crest of the mountain as steep rocky and exposed soil with intermittent watercourses and transitions to lush tree and shrub dominated avalanche run outs near mid slopes where the seasonal streams combine into permeant flows (Photos 3.2-2 to 3.2-5).

Mid to lower slopes contain small benches as colluvium changes to glacial till, combining with groundwater seepage from upslope and resulting in more productive forests (including mixed stands), seepage sites, and pocket wetlands (Photos 3.2-6 and 3.2-7). At the toe of the mountain, where Highway 6 runs, the terrain flattens out into a large bench above Bonanza Creek. This area contains deep glacial till, with numerous small kettle holes, old flood channels, and a slight morainal ridge above Bonanza Creek that directs surface water flow to the south. Numerous wetlands and beaver modified systems occur in this area, along with productive cedar forests, and an increase in current and historic human use (Photos 3.2-8 to 3.2-12). The wetlands are sustained by the two subwatersheds, by both surface and subsurface flows that keep most wetlands wet throughout the growing season.

One wetland in particular, a fen that does not fit into the provincial Bioegeoclimatic Ecosystem Classification system, is unique to the BBC (and the Slocan Watershed) and contains species such as white beak-sedge (*Rhynchospora alba*) that are rarely observed in the interior of BC. The fen also contains uncommon (for the watershed) species (Photo 3.2-13) such as round-leaved sundew (*Drosera rotundifolia*), slender spikerush (*Eleocharis elliptica*), Kalm's lobelia (*Lobelia kalmii*), common and intermediate bladderworts (*Utricularia macrorhiza* and *U. intermedia*), and cottongrass (*Eriophorum* spp.). Also unique to the lower elevations of the Slocan watershed, the fen has deep mesic organic soils that are over 1.5 meters in depth, creating a significant long-term natural carbon storage site as long as the sustaining upslope water systems remain intact.



Kootenay Connect: Bonanza Biodiversity Corridor

Upper Bonanza Wetland Study Area

0 250 500 750
Meters

Figure 3.2-1

Date: 2026-03-16
Map Number: BBC26-3
Coordinate System: NAD 1983 UTM Zone 11N
Projection: Transverse Mercator
Datum: North American 1983

Legend
Streams
Wetlands

EcoLogic consultants

Photo 3.2-1. Subalpine ridge at the start of the subwatershed.

Photo 3.2-2. Steep upper subalpine slopes and start of the drainage channels.

Photo 3.2-3. Dry upper slope ICHmw2/103 forests.

Photo 3.2-4. Mid slope avalanche paths.

Photo 3.2-5. Watercourses in lower slope avalanche path (photo taken in adjacent area closer to Summit Lake).

Photo 3.2-6. Moist mid slope ICHmw2/110 seepages.

Photo 3.2-7. Lower slope ICHmw2/104 mixed forests.

Photo 3.2-8. Wet ICHwm2/111 forests downslope of Highway 6.

Photo 3.2-9. Edge of the unclassified fen complex.

Photo 3.2-10. Middle of the unclassified fen complex.

Photo 3.2-11. Active beaver ponds.

Photo 3.2-12. Old beaver ponds reverting to swamps and marshes.

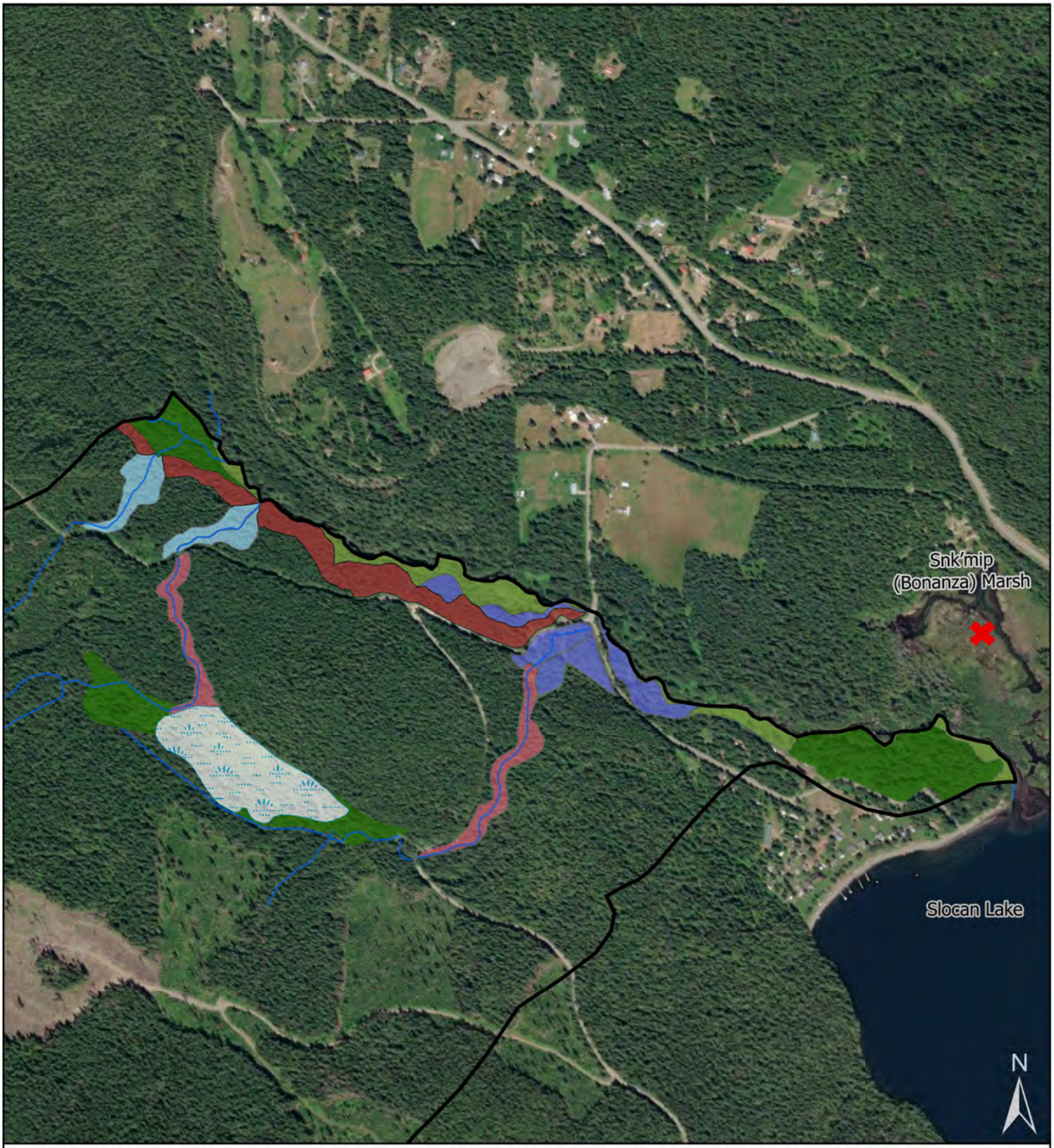
Photos 3.2-13. Left to right: white beak-sedge, slender spikerush, Kalm's lobelia, common bladderwort.

4. RESULTS

4.1 LOWER BONANZA WETLAND STUDY AREA

The Lower Bonanza Wetland Study Area contains a significant wetland complex that is connected from the upper slopes to valley bottom by multiple watercourses. Ecosystem mapping and management zone buffers were created to illustrate key areas that have high value (biodiversity, species at risk, carbon storage, water storage, and wildlife habitat) and are sensitive to development (Figure 4.1-1). The management zones shown on Figure 4.1-2 are minimum areas that are designed to protect the most sensitive features; however, in order to protect the important valley bottom to ridge line corridor that follows the riparian habitat, a more substantial area should be preserved and carefully managed (Figure 4.1-3).

While a significant portion of the subwatershed is disturbed (29%), an important corridor that links Slocan Lake and Bonanza Creek via the lower bench wetland complex and several small watercourses are largely intact. Roughly 137 hectares (29%) of the subwatershed has been disturbed, primarily by logging within the last 25 years, including over 10 km of roads. Some of the older logging areas along the northern boundary are in a pole sapling stage, while most of the upper slope salvage logging areas are a mix of shrub and herbaceous cover. There is limited capacity for additional disturbance in the subwatershed without potential negative effects on the identified ecological values.



Kootenay Connect: Bonanza Biodiversity Corridor

Lower Bonanza Wetland Sensitive Ecosystems

Figure 4.1-1

Date: 2026-03-16
Map Number: BBC26-4
Coordinate System: NAD 1983 UTM Zone 11N
Projection: Transverse Mercator
Datum: North American 1983

Legend

- Subwatershed
- Streams
- Wetlands
- Floodplain
- Moist Forest
- Riparian Forest
- Riparian Gully
- Steep Slope
- Wet Forest

EcoLogic consultants

Kootenay Connect: Bonanza Biodiversity Corridor

Lower Bonanza Wetland Management Zones

Figure 4.2-1

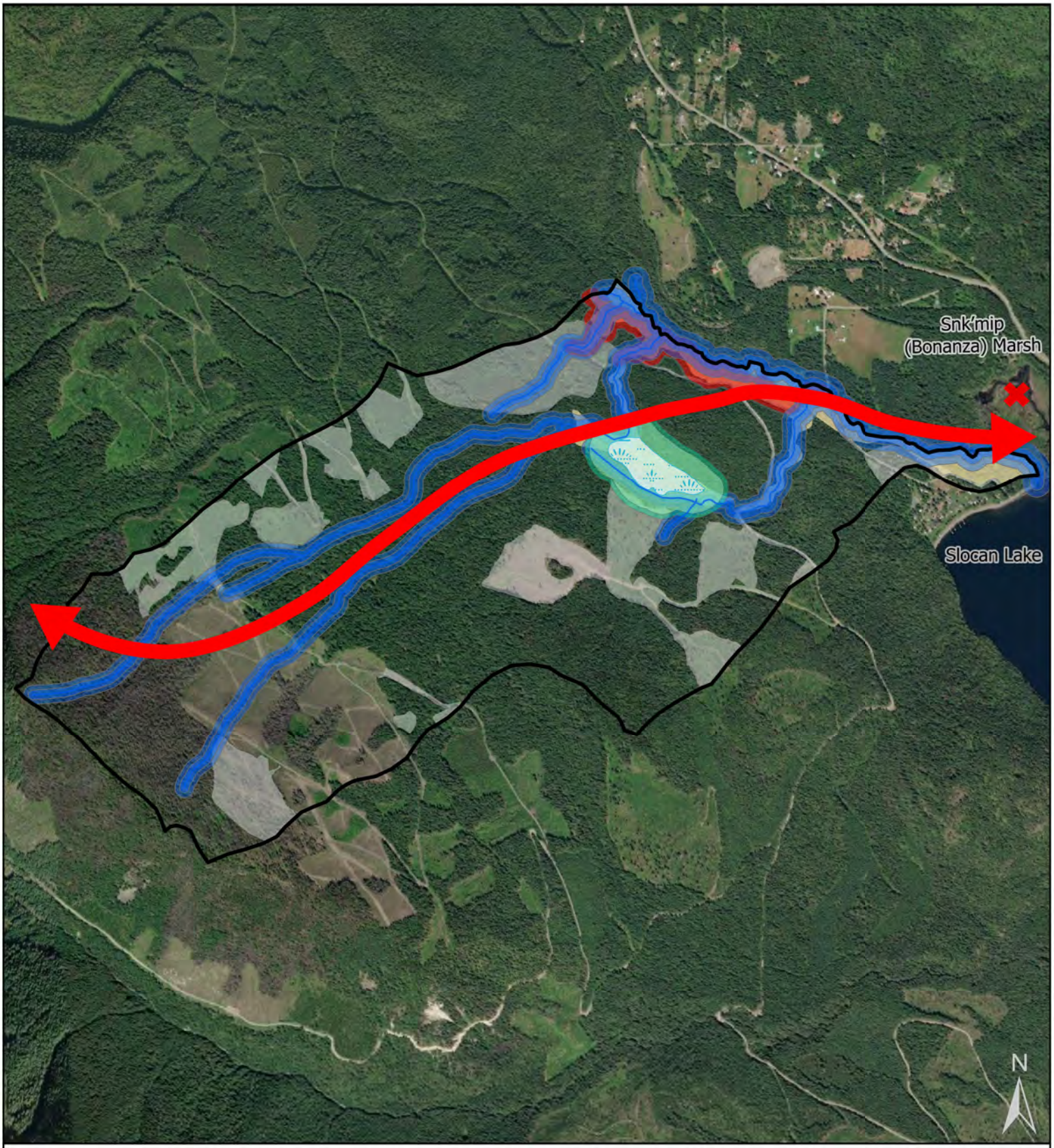
0 250 500 750
Meters

Date: 2026-03-16
Map Number: BBC26-5
Coordinate System: NAD 1983 UTM Zone 11N
Projection: Transverse Mercator
Datum: North American 1983

Legend

- Subwatershed
- Streams
- Wetlands
- Wetland Reserve Zone
- Wetland Management Area
- Riparian Reserve Zone
- Riparian Management Area
- Sensitive Ecosystems
- Disturbance

EcoLogic consultants



Kootenay Connect: Bonanza Biodiversity Corridor

Lower Bonanza Wetland Wildlife Corridor

0 250 500 750
Meters

Figure 4.1-3

Date: 2026-03-16
Map Number: BBC26-6
Coordinate System: NAD 1983 UTM Zone 11N
Projection: Transverse Mercator
Datum: North American 1983

Legend

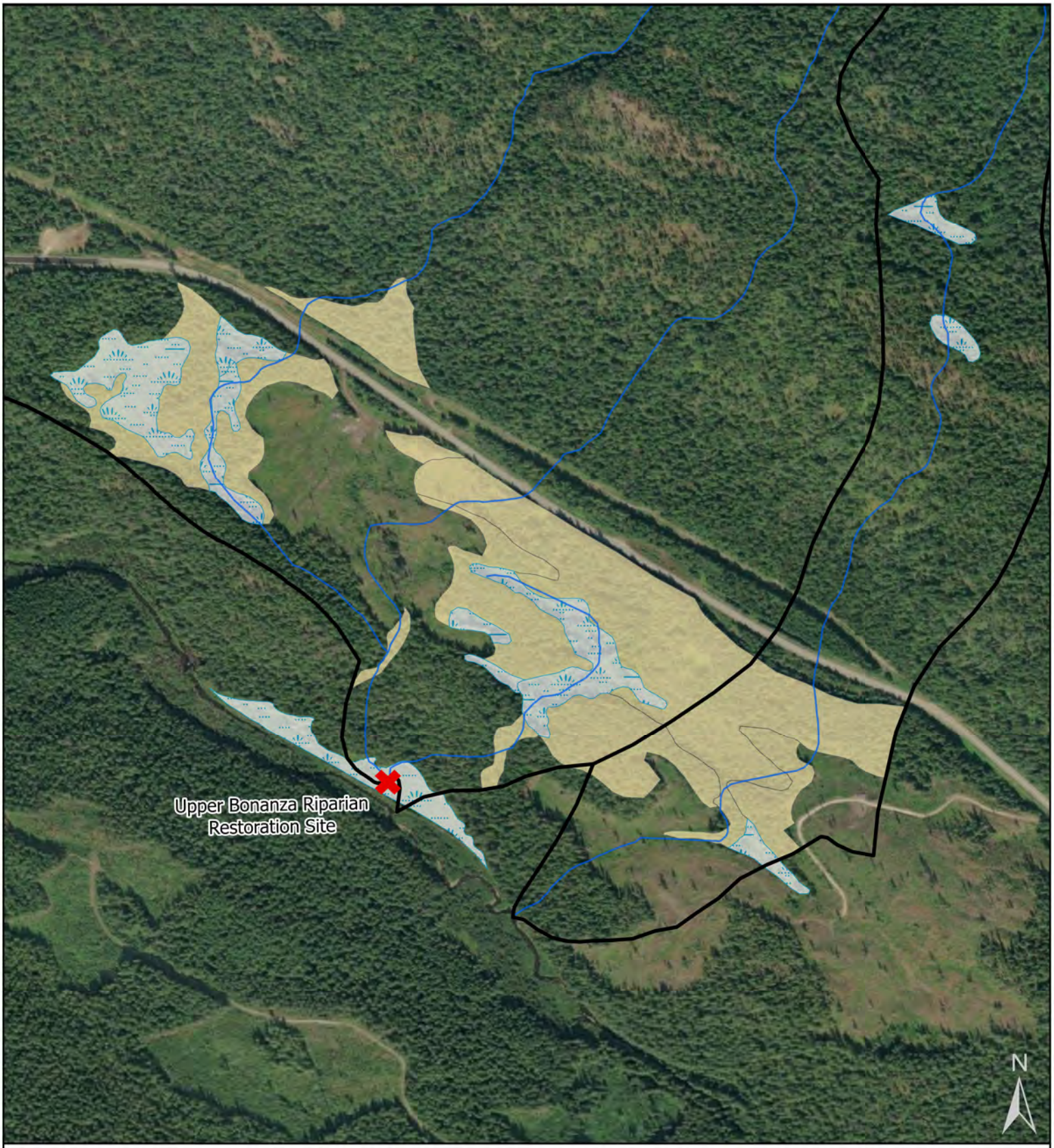
- Subwatershed
- Streams
- Wetlands
- Wetland Reserve Zone
- Wetland Management Area
- Riparian Reserve Zone
- Riparian Management Area
- Sensitive Ecosystems
- Disturbance

EcoLogic consultants

4.2 Upper Bonanza Wetland Study Area

The Upper Bonanza Wetland Study Area connects intact mountain slopes drainages to a unique valley bottom wetland complex and provides important hydrological inputs to Bonanza Creek, including the Upper Bonanza Riparian Restoration Site. The wetland complex is surrounded by sensitive moist to wet forests, that contain numerous records of species at risk, along with beaver and other wildlife habitat. Only 30 hectares (5%) of the 606 hectare subwatershed has been recently disturbed, with most of the disturbance related to the current and old Highway 6 corridor and some logged areas between the highway and Bonanza Creek. Some of the logged areas included seasonal drainages, into the edges of Ws10 cedar swamps, and wet forests.

These subwatersheds are within the identified cross-valley connection corridor that has been previously flagged as an important connection between the mountain ranges, as there are large areas of relatively intact habitat on both sides. As most of the forested low to mid slopes of the study area contain younger forests due to large historic fires and poor soil types, it is assumed that there will be limited development pressure. The valley bottom portion that contains the wetland complexes contains patches of mature to old forests, but as illustrated in the management zone mapping (Figure 4.2-1) if the mapped wetland and riparian areas are managed for ecological integrity, there are few operatable areas. The sensitive ecosystem layer shown on Figure 4.2-2 contains a large percentage of ICHmw2/113 CwHw – Horsetail – Lady fern and ICHmw2/114 CwSxw – Skunk Cabbage, both of which are considered to have sensitive soils and important hydrological and riparian values where forestry is not recommended (MacKillop and Ehman 2016).



Kootenay Connect: Bonanza Biodiversity Corridor

Upper Bonanza Wetland Sensitive Ecosystems

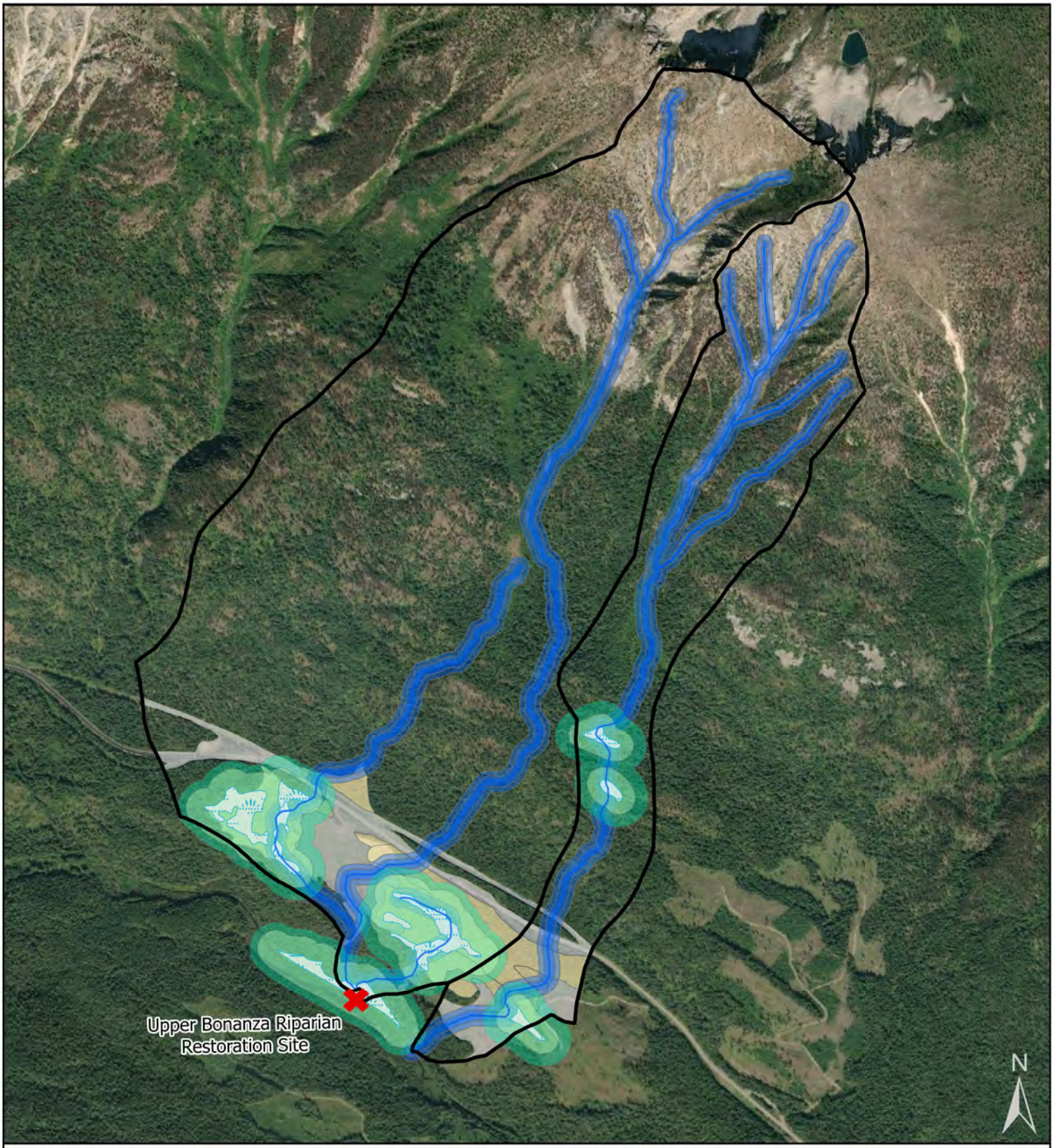
Figure 4.2-1

Date: 2026-03-10
Map Number: BBC26-8
Coordinate System: NAD 1983 UTM Zone 11N
Projection: Transverse Mercator
Datum: North American 1983

Legend

- Wetlands
- Wet Forests
- Streams

EcoLogic consultants



Kootenay Connect: Bonanza Biodiversity Corridor

0 250 500 750
Meters

Upper Bonanza Wetland Management Zones

Figure 4.2-2

Date: 2026-03-10
Map Number: BBC26-7
Coordinate System: NAD 1983 UTM Zone 11N
Projection: Transverse Mercator
Datum: North American 1983

Legend

Wetland
Wetlands
Streams
Wetland Reserve Zone
Wetland Management Area
Riparian Reserve Zone
Riparian Management Area
Disturbance

EcoLogic consultants

REFERENCES

Durand, R. and T. Ehlers. 2022. Kootenay Connect: Bonanza Biodiversity Corridor Conservation Values Assessment. Year 3 (2021-2022). Slocan Lake Stewardship Society, New Denver, BC. https://kootenayconservation.ca/bonanza-species-at-risk-conservation-values/.

Howes, D.E., and E. Kenk. 1997. Terrain Classification System for British Columbia. BC Ministry of Environment, Manual 10, Version 2, 102 pages.

MacKenzie, W.H. and J.R. Moran. 2004. Wetlands of British Columbia: a guide to identification. Res. Br., B.C. Min. For., Victoria, B.C. Land Manage. Handb. No. 52.

MacKillop, D.J. and A.J. Ehman. 2016. A field guide to site classification and identification for southeast British Columbia: the south-central Columbia Mountains. Prov. B.C., Victoria, B.C. Land Manag. Handb. 70.

Ktunaxa Nation. 2022. Ktunaxa Forestry Standards Document for Forestry within ʔAmak?Is Ktunaxa. Draft December 2022 version. Available: https://ktunaxahakqyit.org/ktunaxa-land-resources1/news_feed/forest-standards-document

RIC. 1998. Standards for Terrestrial Ecosystem Mapping in British Columbia. Prepared by Ecosystems Working Group. Terrestrial Ecosystems Task Force. Resource Inventory Committee.