TEST

Trail Environmental Screening Tool

To begin, please fill out:

Project Title

Organization

Date

A fillable PDF form for trail projects in British Columbia developed by the Shuswap Trail Alliance for Recreation Sites and Trails BC

PHOTO CREDIT: SHUSWAP TRAIL ALLIANCE, RECREATION SITES AND TRAILS BC

BRITISH COLUMBIA
Ministry of
Forests, Lands and
Natural Resource Operations

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This fillable PDF form is designed to collect important early stage information about new trail projects in the Province of BC using an environmental screening tool developed by the Shuswap Trail Alliance for Recreation Sites and Trails BC

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The purpose of this form is to give community trail organizations an opportunity to integrate a framework of environmental considerations, actions and standards into planning, construction and management of the provincial trail network in keeping with the Trails Strategy Vision.

1.0 INTRODUCTION

Basic Requirements

To use this form, you will need access to the following:

Adobe PDF Reader
version 10.0 or higher

Internet Access

iMapBC application

Microsoft Excel

Ability to print documents to PDF

This tool is not intended as a replacement for professional or expert opinion. The services of a Qualified Environmental Professional may also be required to assess specific environmental values.

1.1 **A Word of Caution**

All trail work must be done in accordance with provincial or local legislation, regulation and requirements. Section 57 of FRPA applies to all provincial Crown land outside of parks. If you are in doubt as to the status of an area and whether or not section 57 applies, please contact the nearest Front Counter BC.

1.2 **How it Works**

This form is designed to lead you, the proponent, through a series of question about your project. It is also designed to give you step by step instruction on how to retrieve the necessary data such as maps and tables for inclusion in the form.

The end result is an overview of the project, maps, tables, a screening for environmental impact and mitigation steps to consider in the trail planning process.

By first describing the trail and its uses **(DESCRIBE** and describing the environment, plants and animals **(MAP & ASSESS** you can then design and plan the ideal ways to minimize any negative impacts **(MITIGATE**.

Please note that only one form is required for an application to build a multiple trail network in one area.

Completion of the screening tool should take about 1.5 to 2.0 hours to complete. Additional research and project complexity will add to the time.

1.3 **View Sample**

A completed sample form is available in PDF for viewing here:
https://shuswaptrailalliance.com/aboutus.php?p=standards
Please open and save to your desktop for reference.

1.4 **Information Sources**

Throughout the document, you will find direct links to external sources to help you get access to the information you need to complete the application. Please add your understanding of local knowledge when applicable.

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The describe section will lead you through a series of questions about you, your organization, your project and your trail(s) description and features.

2.0 DESCRIBE

2.1 Name

2.2 Organization/Society

2.3 Daytime phone

2.4 Email address

2.5 Organization/Society address

2.6 Role

☐ Volunteer ☐ Employee ☐ Contractor ☐ Consultant ☐ Other

2.7 Trail building experience

☐ Beginner ☐ Intermediate ☐ Advanced ☐ Professional

2.8 What kind of work are you proposing?

2.9 Construction

☐ Build a new trail ☐ Extend an existing trail

OR

2.10 Maintenance and rehabilitation

☐ Repair an existing trail ☐ Decommission a trail

OR

2.11 Other

☐ Combination of both

☐ Screening for pre-existing trail

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2.0 DESCRIBE

2.12 Purpose of proposed trail. Please describe the reason for the project.

2.13 Brief description of trail. Please describe the type of trail you envision.

2.14 Location of proposed trail. Please describe where the trail will be in relation to urban area, neighbourhood, provincial park or municipal park.

2.15 Does this project involve adding a new component to an existing trail such as a foot bridge, or trail signage? If so, please describe.

2.16 Legal description: (if applicable)

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2.0 DESCRIBE

2.17 Can you identify the jurisdictions applicable to this trail?
Please select all that apply (and refer to section 5)

- ☐ First Nations Territory
- ☐ Crown Land (Rec Sites and Trails BC)
- ☐ BC Park or Protected Areas
- ☐ Regional District
- ☐ Municipality
- ☐ Private Lands

2.18 Map coordinates
Can you provide the GPS Coordinates of the Trail head and Trail end?

☐ Yes ☐ No

2.19 Trailhead coordinates utm, lat/long	Trailend coordinates utm, lat/long

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2.0 DESCRIBE

2.20 What is the approximate trails length?

[ ] Trail(s) to cover approximately [ ] kms

2.21 Proposed trail uses. Please check all that apply.

[ ] Foot	[ ] kms	[ ] XC skiing	[ ] kms
[ ] Cycling	[ ] kms	[ ] Snowshoeing	[ ] kms
[ ] Equestrian	[ ] kms	[ ] Mountaineering	[ ] kms

Motorized (OHV off highway vehicles)

[ ] ATV [ ] Motorcycle [ ] Snowmobile

Other? Please detail.

[ ]

2.22 Primary use

[ ] Winter [ ] Spring [ ] Summer [ ] Fall [ ] All

Secondary Use

[ ] Winter [ ] Spring [ ] Summer [ ] Fall [ ] All

2.23 Volume/Usage. Can you estimate the intended volume of use? Please choose one.

Visitors [ ] per day

Visitors [ ] per month

Visitors [ ] per year

2.24 Proximity to urban or developed area

[ ] < = 100m	[ ] < = 500m to 1000m
[ ] < = 500m	[ ] > = 1000m

2.25 Trail head anemities. Please check all that apply.

[ ] Parking	[ ] Garbage can	[ ] Benches	[ ] Picnic Tables
[ ] Toilets	[ ] Fencing	[ ] Gateway Stiles	

Planned Anemities

[ ]

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2.0 DESCRIBE

2.26 What is the elevation range of the trail?

Min _____ meters to Max _____ meters

2.27 Is your project within a community watershed? Find this information on a provincial filter at: https://maps.gov.bc.ca/ess/hm/imap4m/

☐ Yes ☐ No

2.28 Terrain. Please check all that apply and briefly describe the terrain.

☐ Hillsides ☐ Steep hill ☐ Hills ☐ Gentle hills ☐ No hills

_____

2.29 Signs of slope instability

☐ recent landslide scars
☐ soils and rocks piled on upslope side of trees
☐ slump tension fractures
☐ scoured gullies
☐ numerous spings/seeps at toe of slope
☐ talus or scattered boulders at base of slope

2.30 Sensitive Wildlife Habitat. Please check all that apply.

☐ nest trees
☐ natal areas
☐ mineral licks
☐ cottonwood trees
☐ cliff bands, boulder and scree slopes
☐ Other. Please describe

_____

2.31 Open area and grassy area

☐ flat ☐ marsh ☐ forest ☐ alpine medows
☐ rocky ☐ arid ☐ stream crossing

2.32 Does this cross an existing cut block, active timber harvest area, forestry road or track? Find this information on a provincial filter at: https://maps.gov.bc.ca/ess/hm/imap4m/

☐ Yes ☐ No ☐ Don't know

Recreation sites and trails are public campgrounds and trails located on Crown land outside of parks and settled areas. They provide enjoyable recreation experiences generally within an integrated resource management setting. This means that the land base is managed for a variety of land uses, which may include forestry, cattle grazing, mineral extraction, oil and gas exploration, recreation, fish and wildlife management, and watershed protection.

Learn More: Go to Recreation Sites and Trails BC website: https://www2.gov.bc.ca/gov/content/sports-culture/recreation/camping-hiking/sites-trails/planning

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2.0 DESCRIBE

2.33 Trail type. There are five identified trail types.

Disclaimer: Rec Sites and Trails BC ratings are different from International Mountain Biking Association.

Type 1 smooth, paved or hard packed crush surface, 1.5-3.0 m tread width, flat to gently rolling (0-4% avg grade), suitable for all

Type 2 smooth, hard packed crush or natural mineral surface, 1.0-1.5m tread width, gently rolling with short steep sections (5-8% avg grade), suitable for most users

Type 3 natural surface, 0.25-1.0m tread width, rolling with steep sections that may be longer (8-12% avg grade), suitable for experienced users

Type 4 unmaintained route, minimal/no constructed tread surface, variable grades, extended steep sections, exceptional navigation experience required

Other Abandoned resource road

Please select the trail types that best apply to your project.

2.34 Level of difficulty. Check all that apply.

- ☐ Easiest ○ (White circle)
- ☐ Easier ● (Green circle)
- ☐ More Difficult ■ (Blue Square)
- ☐ Most Difficult ◆ (Black Diamond)
- ☐ Expert Unlimited ◆◆ (Double Black Diamond)
- ☐ Unrated

Use a clinometer to measure the slope.

2.35 Average grade of proposed trail

- ☐ Flat (avg slope less than 2%)
- ☐ Gentle (avg slope 2- 5%)
- ☐ Moderate (avg slope 5-10% or less)
- ☐ Steep (avg slope 10 - 15%)
- ☐ Very Steep (greater than 15%)

Thank you for describing the project.

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The Map & Assess section will help build on the information provided in the Describe section. By mapping the area using online tools such as IMAP and BC Species and Ecosystems online resource, you're collecting important information about the area required for proper assessment of the trail project.

3.0 MAP & ASSESS

To help describe the environment surrounding your trail please use iMAP BC. This mapping websites creates maps and compiles information on the ecological values of the area so that you can design new trails that minimize negative impacts.

You will need to prepare four maps

1) Overview Map
2) Biogeoclimatic Map
3) Plants & Wildlife Map
4) Water Map

There may be other ecological or landscape values in your trail area that you are interested in. As you become more familiar with this mapping website, you should review the complete list of map layers. You may find that there are map layers that are important to your area or that provide useful information related to local concerns with your proposed trail development. Feel free to create more maps where appropriate.

The iMAP BC website is here:
https://maps.gov.bc.ca/ess/hm/imap4m/

You can begin by spending some time working through the iMAP tutorial or simply follow the step-by-step instructions for each of the four maps. Begin by clicking on the link: Launch the Application (Public).

You can save your iMAP session at any time to keep the trail line work and layers that you have added to your map. Click the save icon and follow instruction on the right hand side about how to bookmark the URL that will return you to your mapping session.

Once you've attached the maps, you can assess the findings for each one which will help the mitigation steps.

Learn more: Follow the tutorial in iMAP to learn more about this mapping tool.

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The overview map will allow you to draw a trail line onto a map to identify the specific location of your trail(s) project. In doing so, you'll be able to identify wether or not the project crosses or potentially impacts any water features such as creeks, streams, rivers or wetlands.

3.0 MAP & ASSESS

3.1 Make an Overview Map

Step 1. Go to iMap https://maps.gov.bc.ca/ess/hm/imap4m/

Step 2. Click on the Zoom In (+) icon, then draw a "zoom in" box around your trail area, you can also use the hand symbol to move the map to focus on your area of interest, make sure the map extent includes a few good landmarks (nearby towns, water bodies or roads). You can either upload a line as a shapefile or you can upload from Google Earth Pro. Google Earth Pro uses KMZ files – you can use a converter to create a KML file to successfully upload to iMaps.

Step 3. To add your trail line to the map, click on Markup, and then click on the Line tool. Start your trail line by clicking at the trail head.

Step 4. When you are finished marking your trail on the map, double click at the end of the trail.

Step 5. Click the Printer icon below the blue bar at the top to Print to PDF.

Disclaimer: iMaps BC is outdated and using the Print to PDF function often results in a weird legend. We have tried to fix this issue with the GIS team at iMaps, with little success. Make a legend by hand or use photoshop or a similar editing software.

Step 6. Keep iMap BC open for the creation of the next map.

3.0 MAP & ASSESS

3.2 Assess Overview Map findings

Does your trail cross or potentially impact any water features including lakes, streams, rivers or wetlands?

☐ Yes ☐ No

If yes, please list and briefly describe.

Learn more: Find out more about water management on forest land: https://www2.gov.bc.ca/gov/content/environment/air-land-water/water

The Biogeoclimatic Ecosystem Classification (BEC) system is a landscape classification system that groups ecosystems together into units that have similar vegetation, soils and climate. Specific plant communities and wildlife habitat can be predicted if we know the biogeoclimatic (BEC) classification of the trail area. This provides good information on which which plants and animals might live in the area. Using the BioGeoClimatic layer available in iMAP, you can determine BEC classification in your trail area. The BEC classification, will be used to determine the Red (endangered) and Blue (Special Concern) listed plants and animals.

3.3 Make a BioGeoClimatic (BGC) map

Step 1. Click on the tab Maps & Data Sources, then choose Add Provincial layers, the catalog of map layer choices will open.

Step 2. Click + box beside Forest Grassland and Wetlands.

Step 3. Click box beside BEC Analysis - Zones - All - (RES), then click OK.

Learn more: Find out more about the Biogeoclimatic classification system: http://www.for.gov.bc.ca/hre/becweb/

Step 4. To determine which BEC zone your trail is in, click on the Analysis tab, and chose the Point tool with the blue i circle. This tool will query what is below the point on the map that you click on. Click on the coloured area where your trail is, if your trail goes through more than one colour, click within each one. The Results of each query will appear on the left and will show the Layer name (BEC Analysis) followed by the particular zone (eg, Interior Cedar Hemlock). Click on the first result listed on the left. A window should open providing detailed information about this BEC zone subzone and variant. Record the Zone, Subzone, and Variant, as well as the BEC Label. Close the window by clicking the X at the top right corner.

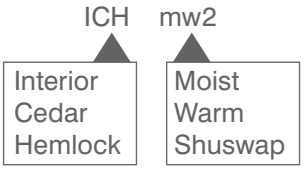
Step 5. Click on the tab Reports and Printing and click on Print Map to export this map to your computer. You can change the Title to [Trail Name] Biogeoclimatic Map. Click Print and then Open File. Save the file to your working folder (by clicking on the save icon) with the name Biogeoclimaticmap.pdf.

Step 6. Keep iMap BC open for the creation of the next map.

3.4 BioGeoClimatic (BEC Map) - Assess Your Findings

What did you find?

The BioGeoClimatic zones are six letter/number codes that identify the zone, subzone and variant ecosystem types of a geographic area. For example:



This code will help you determine the ecosystem or ecosystems your trail project will cross and it will help to identify your mitigation steps.

Learn more: Find out more about biogeoclimatic zone and subzone descriptions: https://www.for.gov.bc.ca/hre/becweb/

Enter all the codes identified on your BEC Map here

Describe your assessment of the zones based on your experience of the area and the map findings.

Please show your proposed trail location in relation to Community Watersheds and all local water bodies (streams, wetlands, lakes and ponds). For any work in and around water, you will have to submit applications to federal and provincial regulatory agencies. You will find links to these applications on the side bar in this section of the form. The water map will also be useful to include in these applications.

3.5 Make a Water Map

Step 1. Your map still probably shows the BEC Zone layers, we can turn them off to assess other environmental features by clicking on the Maps & Data Sources tab, then clicking Show Layers, and finally unchecking the boxes beside the BEC Analysis layers.

Step 2. To add more detailed waterbody information to your map, click on Maps & Data Sources tab, and then Add Provincial Layers. Click the + box beside Administrative Boundaries, and click the box beside Community Watersheds. Click OK. If a Community Watershed is nearby, it will appear as a blue area. To find out more about a nearby Community Watershed, click on the Analysis Tab, the Point query tool (blue i circle), and then click anywhere inside the Community Watershed you are interested in. The name of the Community Watershed will appear in the Results window on the left of the map. Record this information.

Step 3. Now add the Watershed atlas to your map by again clicking on Maps & Data Sources tab, and then Add Provincial layers. Click the + box beside Basemaps, and then the + box beside Freshwater Atlas. Within the Freshwater Atlas (FWA) layers, choose 4 layers: FWA - Stream Network - Lines, FWA - Rivers - Outlined, FWA - Lakes - Rivers - Outlined, FWA - Wetlands - Outlined. If your trail crosses any known waterbodies at this scale, they should be apparent now.

Step 4. Adding contour lines will help provide useful information about slope stability and potential erosion concerns. Add Contour lines by changing the map style to Topography Mode in the left corner of the map.

Step 5. Click on the tab Reports and Printing and click on Print Map to export this map to your computer. You can change the Title to [Trail Name] Water Map. Click Print and then Open File. Save the file to your working folder (by clicking on the save icon) with the name Watermap.pdf

Step 6. Keep iMap BC open for to complete your assessment of the Plants and Wildlife Map.

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3.6 Water Map - Assess Your Findings

Step 1. If you have a Community Watershed boundary near your trail area, use the *Identify tool* on the Community Watershed *(Colour Filled)* layer and record the *CWS Name*. From the *Identify Results* window from the Community Watershed layer, you can also click on *More data* to link to an online library where you may find a Community Watershed report.

If applicable, enter CWS Name here

Step 2. If any streams, rivers, lakes and ponds are within *30 metres* of the trail, please record the names. This 30 metre area is called the riparian area and is generally protected from development by provincial (Water Act) and federal (Fisheries Act) laws. Any new developments within riparian areas must follow regulatory guidelines To see how close your trail is to a water body, *click the analysis tab and select the ruler labelled "distance"*

Name of waterbody:

Approximate distance from trail:

Name of waterbody:

Approximate distance from trail:

Name of waterbody:

Approximate distance from trail:

Name of waterbody:

Approximate distance from trail:

Name of waterbody:

Approximate distance from trail:

Learn more: Find out more about Community Watersheds: https://www2.gov.bc.ca/gov/content/environment/air-land-water/water/water-quality/community-watersheds

Working in and around water bodies could trigger violations to the federal Fisheries Act and the provincial Water Act. Find out more about working near water at the following links: https://www2.gov.bc.ca/gov/content/environment/air-land-water/water/water-licensing-rights/working-around-water

https://dfo-mpo.gc.ca/pnw-ppe/index-eng.html

3.6 Water Map - Assess Your Findings – *continued*

Step 4. Have you identified areas where there may be a higher likelihood of erosion due to user impact? If so, please provide detail here.

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It is important to know if your trail travels through habitat used by rare and endangered species. The Federal Species at Risk Act was created to prevent plant and wildlife species from going extinct. This law protects species at risk and their natural habitats. In this section we will look for mapped locations of plants and wildlife in your trail area, and link to a table that will provide more information on the habitat types that these species use.

3.7 Make a Wildlife & Plants Map

Step 1. Your map still probably shows the previous layers that we have added to make the BEC map and Water map, we can turn them off to assess wildlife and plant features by clicking on the Maps & Data Sources tab, then clicking Show Layers, and finally, uncheck boxes beside Administrative Boundaries, contours, and fresh water atlas.

Step 2. To add more detailed wildlife information to your map, click on Maps & Data Sources tab, and then Add Provincial Layers.

Step 3. Click the + box beside Fish Wildlife and Plant Species, and scroll down to click the boxes beside 3 layers: Species and Ecosystems at Risk, Ungulate Winter Range (ungulates are hoofed creatures like deer and moose), and Wildlife Species Inventory Points Nonsentive. (If you see any other layers that might be relevant to your trail area, feel free to check them out, but it might make your map busy). Click OK.

Step 4. If there are any observations of wildlife stored in the provincial database near your trail, they will appear as points. Species and Ecosystems at Risk will appear as large coloured circles. Ungulate Winter Ranges will be beige coloured areas outlined in red. To find out more about any of these areas near your trail, click on the Analysis Tab, then the Point query tool (blue i circle), and then click on the point you are interested in. The results of your query will appear on the left side of the map. Important information about the layer you have queried will appear in the results window (below the name of the layer). You can also click on the blue hyperlinked text to find out detailed information about the point or area. Record at a minimum the species information for any wildlife points and species and ecosystems at risk. You will need to click on the blue hyperlinked text to find out the species for which the Ungulate Winter Range is protected (Species Codes: ODHE = Mule Deer, ODVI - Whitetailed deer, ALAL = Moose, OVCA = Bighorn sheep, ORAM = Mountain Goat).

Step 5. To print go to reports and printing

Step 6. Click on Template options on the right to create a Default Portrait - 8.5 x 11 map, Enter Wildlife and Plants Map as the Map Title, Click *OK*.

Step 7. Click *Open Map*.

Step 8. Click on the tab Reports and Printing and click on Print Map to export this map to your computer. You can change the Title to [Trail Name] Wildlife Map. Click Print and then Open File. Save the file to your working folder (by clicking on the save icon) with the name Wildlife.pdf

Learn more: 152 wildlife species and sub-species in BC are considered candidates for endangered, threatened, or vulnerable status. For more information on species and ecosystems at risk in BC, go to: https://www2.gov.bc.ca/gov/content/environment/plants-animals-ecosystems/species-ecosystems-at-risk

Learn more: Nest trees are protected by law (BC Wildlife Act) and enforced by the Ministry of Forests Lands and Natural Resource Operations: https://www2.gov.bc.ca/gov/content/industry/forestry/managing-our-forest-resources/silviculture/silvicultural-systems/silviculture-and-stand-management-training/stand-level-biodiversity-training/wildlife-trees?keyword=wildlife&keyword=trees

Learn more: Wildlife Habitat Stewardship Program funded by Environment Canada: https://www.canada.ca/en/environment-climate-change/services/environmental-funding/programs/habitat-stewardship-species-at-risk.html

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3.8 Wildlife Map - Assess Your Findings

Are there any Endangered Species and Ecosystems near your trail?

☐ Yes ☐ No

If Yes, please detail

Species name

Description of Location

Species name

Description of Location

Species name

Description of Location

Species name

Description of Location

Did you identify an Ungulate Winter Range on your map?

☐ Yes ☐ No

If so, which ones. Please list here:

Local Knowledge:

Ungulate Winter Range
M-ODHE (Mule Deer)
M-ALAL (Moose)
M-RATA (Caribou)
M-ODVI (White-tailed deer)
M-CECA (Elk)
M-ORAM (Mountain goat)
M-OVCA (Bighorn sheep)
M-OVDA (Thinhorn sheep)

Learn More: Talk to locals, naturalists group and First Nations about their knowledge of the area and detail information missing from the map

Learn more: Find out more about the management of Ungulate Winter Ranges: http://www.env.gov.bc.ca/wld/frpa/uwr/

In this section we will create a table of rare and endangered plant and animal species and their habitat types. We will use the biogeoclimatic (BGC) zone that you determined in an earlier mapping step to narrow our search to the type of BGC zone that your trail is within. If your trail crosses through multiple zones, you can leave this search category unchecked. We are focussing our search on species at risk that are protected by the Wildlife Act (provincial) and the Species At Risk Act (federal). Creating this table will help you to plan your trail to avoid impacting protected habitats used by species at risk.

3.9 Make a Red and Blue Listed Species Table

Step 1. Go to http://a100.gov.bc.ca/pub/eswp

Step 2. Click on the Plants and Animals tab at the top. Go to *advanced search.* Click on *Expand All*. Click on the + sign beside *Forest District.*

Select your Forest District.

Step 3. Under MOE regions – select your region.

Step 4. Scroll further down. Click on the + sign beside *Regional District and Municipality*. Choose your Regional District and Municipality.

Step 5. Scroll further down. Click on the + sign beside *Biogeoclimatic zones* and select those identified on your Biogeoclimatic map in section 3.6.

Step 6. Expand BC List, up at the conservation status tab, click a) Expand BC List and b) Select Red and Blue only

Step 7. Scroll to the bottom of the page. Click on *Search*. The resulting search will be a complete list of Red and Blue Listed Species that could occur in your trail area.

Step 8. On the bottom right hand side of the page, select Export *Details and chose Export to Excel.*

Step 9. Open the file and save as redblue.xls.

Learn more: Species at risk (federal): https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry.html

Species and ecosystems at risk (provincial): https://www2.gov.bc.ca/gov/content/environment/plants-animals-ecosystems/species-ecosystems-at-risk

Important Note: While reviewing the table that you just created online, click on any blue question marks to link to a description of the column heading. And if you would like to read more on any of the wildlife and plant species in your list, click on the Reports folder. The Reports folder provides links to several sources of information on each species. Make use of these resources to develop more community interest in the natural history of your trail area.

3.10 Red and Blue Listed Species - Assess Your Findings

Step 9. The report contains several columns of data. For your purposes, you will only need the Scientific Name, the English Name, the BC list, the Habitat and Kingdom Type.

Step 10. From left to right, delete all other columns then format/ autofit row height row height. Add box lines too if desired. Then sort in alphabetical and Kingdom type.

Step 11. Print/Save your file to a PDF. Under Page Set Up, set page to print one page high by one page wide.

Step 12. Save and close your Excel spreadsheet.

Based on the habitat types listed in your table and considering your knowledge of the trail area, what are the different habitat types that your trail passes through? List all red and blue species that you may be impacting based on this assessment. This will be important when you consider long-term monitoring and adaptive management to reduce potential impacts of trail use on these species.

Please detail any additional local knowledge you can share about the trails area.

Learn more: Talk to locals, naturalists group and First Nations about their knowledge of the area and detail information missing from the map.

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The Mitigation section will help you to identify potential environmental impacts of your proposed trail(s) project before they happen. This section will support the long-term stewardship plan for your trail by applying current trail design and construction standards, and committing to ongoing monitoring for specific indicators of negative effects. The mitigate section will address each of the environmental features and values that you have identified in previous mapping sections.

4.0 MITIGATE

4.1 Water

4.11 Riparian Areas (areas within 30m of a stream, pond, lake, or wetland)

Is your trail within a riparian area?

☐ Yes ☐ No If no, proceed to 4.13

If yes, the following environmental impacts are possible and need to be addressed

Potential Environmental Impact

- Loss of riparian vegetation reduces quality of fish habitat (shade, nutrient inputs: leaf fall and insect drop)
- Trampling of stream/lake banks causes erosion, decreases water quality, and harms fish
- Soil compaction and vegetation removal will encourage introduction of invasive plants

Mitigation Measures

Given these potential impacts, what mitigation measures will you undertake to reduce or eliminate the potential problem?

☐ Avoid riparian areas
☐ Minimize vegetation removal within riparian areas
☐ Use existing trails where possible within riparian areas
☐ Avoid trail layout parallel to streams
☐ Conduct invasive plant inventory for baseline information
☐ Use seasonal trail closure signs if wet conditions increase impact
☐ Cross riparian areas at right angles

Please indicate any additional measures you will take.

Links to Legislation and Guidelines

Riparian Areas Regulation: https://www2.gov.bc.ca/gov/content/environment/plants-animals-ecosystems/fish/aquatic-habitat-management/riparian-areas-regulation

4.11 Monitoring - Riparian Areas

Mitigation measures help reduce impacts but cannot always avoid them. Despite the mitigation steps taken, the following potential indicators of negative effects from the trail(s) need to be monitored on an annual basis

- Loss of riparian vegetation
- Increase of invasive plants
- Increased soil exposure
- Evidence of bank erosion and downstream siltation (cloudy sediment-laden water)
- Signs of concentrated run off and accumulated debris

Damage to native wetland plants, and inadvertent spread of seed/ soil, and soil disturbance creates opportunities for introduction of invasive species.

Report invasive species at https://www.reportaweedbc.ca/ and/or notify your regional **invasive species committee.**

Please indicate any additional indicators of negative effects.

How will annual monitoring of these potential negative effects occur for this project?

- ☐ Annual maintenance inspections
- ☐ Trail user forms
- ☐ Record of public complaints

Please indicate any additional monitoring measures you will take.

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4.0 MITIGATE

Corrective Actions - Riparian Areas

In your monitoring program, you need to pre-set the level of impact that will trigger corrective actions. In other words, ask the question "How much impact is too much?". Consider the following limits of negative impact in your monitoring program.

- No unnecessary increase of trail surface within riparian areas
- No loss of native riparian vegetation (understory shrubs) from trampling
- No increase in abundance or distribution of invasive plants

Please indicate any additional limits of negative impact.

The final component of developing a good long-term stewardship plan involves pre-setting the corrective actions. If you observe that unacceptable impacts are occurring on your trail, you must act to correct that impact. Consider including the following corrective actions in your long-term stewardship plan.

- [ ] Increase user education efforts (e.g. Stay on Trail!)
- [ ] Seasonal trail closures
- [ ] Remove or relocate trail surface outside riparian area
- [ ] Invasive plant removal
- [ ] Create rehabilitation plan that presets criteria that are required to re-open trail

Please indicate any additional corrective actions.

4.12 Stream Crossing

Does this feature apply to your trail project?

☐ Yes ☐ No If no, proceed to 4.13

If yes, the following environmental impacts are possible and need to be addressed

Potential Environmental Impact

- Stream bank instability can cause sedimentation and reduce water quality downstream
- Poorly designed bridge crossings can cause debris jams and floods
- Bridge abutments can fill in stream channels and remove fish habitat
- Bridge abutments can change hydraulics and cause scouring and erosion downstream
- Eroded in-stream crossings at locations without bridge

Mitigation Measures

Given these potential impacts, what mitigation measures will you undertake to reduce or eliminate the potential problem? You may need to complete the Section 11 document of the Water Sustainability Act for changes in, and about a stream. You can find more information here: https://portal.nrs.gov.bc.ca/web/client/-/change-approval-for-work-in-and-about-a-stream

☐ Use existing stream crossings
☐ Construct clear-span bridges (follow DFO Operational Statement)
☐ Avoid any in-stream works
☐ Schedule in-stream work within regional fisheries least-impact timing window
☐ Complete Notification forms to Provincial Environment Ministry and Fisheries and Oceans Canada

Please indicate any additional measures you will take.

Links to Legislation and Guidelines

Provincial Water Act Notification: https://www2.gov.bc.ca/gov/content/environment/air-land-water/water/water-licensing-rights/working-around-water

Monitoring - Stream Crossing

Despite the mitigation steps taken, the following potential indicators of negative effects from the trail(s) need to be monitored on an annual basis.

- Failing bridge abutments
- Woody debris collected at bridge crossing
- Increased scouring of banks at or downstream of bridge
- Bank erosion at crossing or downstream siltation (cloudy sediment-laden water)
- Loss of riparian vegetation. Increase of invasive plants

Please indicate any additional indicators of negative effects.

How will annual monitoring of these potential negative effects occur for this project?

- ☐ Annual maintenance inspections
- ☐ Trail user forms
- ☐ Record of public complaints

Please indicate any additional measures you will take.

TEST

Trail Environmental Screening Tool

4.0 MITIGATE

Corrective Actions - Stream Crossing

In your monitoring program, look for the following negative impacts at a stream crossing:

- Evidence that bridge deck is restricting stream flow and creating debris jam
- Evidence of bank erosion at crossing
- Loss of native riparian vegetation (understory shrubs) from trampling.
- Increase in abundance and distribution of invasive plants

Please indicate any additional limits of negative impact.

If one of the limits is observed, one of the following corrective actions will be taken to mitigate the observed negative impact.

- [ ] Increase user education efforts (e.g. Stay on Trail!)
- [ ] Seasonal trail closures
- [ ] Remove or relocate stream crossing
- [ ] Invasive plant removal
- [ ] Create rehabilitation plan that presets criteria that are required re-open trail

Please indicate any additional corrective actions.

4.13 Sensitive Wetlands

Does this feature apply to your trail project?

☐ Yes ☐ No If no, proceed to section 4.2

If yes, the following environmental impacts are possible and need to be addressed.

Environmental Impact

- Wetland soils are sensitive to compaction and erosion
- Many red and blue listed plants are wetland plants
- Soil compaction and vegetation removal will encourage introduction of invasive plants

Mitigation Measures

Given these potential impacts, what Mitigation measures will you undertake to reduce or eliminate the potential problem?

☐ Redirect trail to avoid wetlands

☐ Conduct sensitive plant inventory (Red/Blue list) and avoid areas where these plants are present

☐ Conduct invasive plant inventory to use as baseline information

Please indicate any additional measures you will take.

Learn more: Find out more about how to identify native plants: http://www.geog.ubc.ca/biodiversity/eflora/

How to manage invasive plants: http://www.bcinvasives.ca/

Report invasives species at Report A Weed: https://www.reportaweedbc.ca/ and/or notify your regional invasive species committee: http://bcinvasives.ca/about/partners/bc-stakeholders/

Monitoring - Sensitive Wetlands

Despite the mitigation steps taken, the following potential indicators of negative effects from the trail(s) need to be monitored on an annual basis.

- Loss of wetland vegetation
- Increased soil exposure
- Increase of invasive plants

Please indicate any additional indicators of negative effects.

Learn more: Find out more about wetlands: https://www2.gov.bc.ca/gov/content/environment/air-land-water/water/water-planning-strategies/wetlands-in-bc

How will annual monitoring of these potential negative effects occur for this project?

- ☐ Annual maintenance inspections
- ☐ Trail user forms
- ☐ Record of public complaints

Please indicate any additional measures you will take.

4.0 MITIGATE

Corrective Actions - Sensitive Wetlands

In your monitoring program, look for the following limits of negative impact.

- No evidence of soil compaction or loss of wetland vegetation outside of trail bed

Please indicate any additional limits of negative impact.

If one of the limits is observed, one of the following corrective actions will be taken to mitigate the observed negative impact.

- [ ] Increase user education efforts (e.g. Stay on Trail!)
- [ ] Seasonal trail closures
- [ ] Remove or relocate trail outside of riparian area surrounding wetland
- [ ] Invasive plant removal

Please indicate any additional corrective actions.

4.2 Wildlife

4.21 Red/Blue Listed and Species at Risk Wildlife

It is difficult to determine for certain whether a particular wildlife species is living in your trail area, however we can use the information that you compiled in the Wildlife Map and the Rare/Endangered species table to assess whether the habitats that support these wildlife species are in your trail area. This information combined with local knowledge and observations of wildlife can help you design your trail to avoid destruction or abandonment of important habitat. Take some time to read any reports that you come across so that you will understand the habitat needs and seasons of use by wildlife in your trail area.

Based on your tables, consideration of habitat types in your trail area, and local knowledge, are there Red/Blue listed and Species at Risk wildlife that you will need to be aware of?

☐ Yes ☐ No (if no proceed to section 4.3)

If yes, the following environmental impacts are possible and need to be addressed.

Environmental Impact

- Increased proportion of encounters resulting in an alarm response (movement by animals to safer locations)
- Declining wildlife inventory trends in trail area
- Damage to rare/endangered wildlife habitat can trigger a violation of the BC Wildlife Act and the federal Species At Risk Act

Mitigation Measures

Given these potential impacts, what Mitigation measures will you undertake to reduce or eliminate the potential problem?

☐ Record wildlife encounters, actions taken, and responses of animals
☐ Remain on established trails
☐ Obey all signs and area closures
☐ Do not harass wildlife

4.21 Mitigation Measures – *continued*

- [ ] Do not handle wildlife
- [ ] Do not allow dogs to be at large and harass wildlife
- [ ] Pack out all garbage
- [ ] Yield to wildlife on trails and roads
- [ ] Focus activities in areas and at times of the year when wildlife are least likely to be disturbed
- [ ] Educate users to remain still or retreat when animals are encountered and react to human presence
- [ ] Educate users to stay at distances sufficient to prevent changes to the behaviour of animals (at least 100 m in open areas is the default for large mammals)
- [ ] For alpine trails in high-quality wildlife habitat, develop these guidelines specifically for large mammal species such as caribou, grizzly bear and mountain goat
- [ ] Review list of potential wildlife using area and their critical/high value habitats
- [ ] Conduct cursory wildlife habitat assessment
- [ ] Avoid disturbing wildlife habitat features and trail layout in high quality wildlife habitat
- [ ] Review the list of rare/endangered wildlife species that you prepared and pay special attention to habitat types to ensure you avoid or minimize the impact that increased human presence will create on wildlife behaviour
- [ ] Avoid trail layout near valuable wildlife habitat features such as Nest trees, Mineral licks, Birth sites or natal areas, Cottonwood tree stands, Cliff bands, boulders, and scree slopes

Please indicate any additional measures you will take.

4.0 MITIGATE

Monitoring - Red/Blue Listed/Species at Risk Wildlife

How will annual monitoring of these potential negative effects occur for this project?

- ☐ Maintenance inspections
- ☐ Trail user forms
- ☐ Record of public complaints

Please indicate any additional measures you will take.

Corrective Actions - Red/Blue Listed/Species at Risk Wildlife

In your monitoring program, look for the following limits of negative impact

- No increase in rate of alarm responses of wildlife over time
- No abandonment of habitats by wildlife
- Consult with regional biologists through Ministry of Environment offices to determine acceptable limits of change, especially for species such as Grizzly bear

Please indicate any additional limits of negative impact.

Learn more: Find out more about how commercial backcountry recreation manages wildlife concerns: http://www.env.gov.bc.ca/wld/twg/index.html

TEST

Trail Environmental Screening Tool

4.0 MITIGATE

If one of the limits is observed, one of the following corrective actions will be taken to mitigate the observed negative impact

- [ ] Trail closures
- [ ] Trail relocation outside of prime habitat
- [ ] Consult with species specialists to determine specific thresholds for trail closures ahead of time.

Please indicate any additional corrective actions you will take.

Learn more: Prepare a plant field guide for your trail area: http://linnet.geog.ubc.ca/biodiversity/eflora/WhoisE-FloraBC.html

4.3 Plants

4.31 Red/Blue Listed/Species at Risk Plants

Based on your tables, analysis of habitat types, and local knowledge, are there Red/Blue listed and Species at Risk plants you will need to be aware of?

☐ Yes ☐ No if no proceed to section 4.32

If yes, the following environmental impacts are possible and need to be addressed.

Environmental Impact - Red/Blue Listed/Species at Risk Plants

- Soil compaction can damage native plants and create conditions for introduction of invasive plants
- Many invasive plants thrive in recently disturbed habitats and may out-compete native species. A disturbance from building a trail may provide a competitive advantage for invasive species
- Changes to water flow may also degrade native species habitat.

Mitigation Measures - Red/Blue Listed/Species at Risk Plants

Given these potential impacts, what mitigation measures will you undertake to reduce or eliminate the potential problem?

☐ Conduct inventory within trail area for rare and endangered plants
☐ Avoid rare plant habitats
☐ Conduct baseline inventory of invasive plants

Please indicate any additional measures you will take.

Monitoring - Red/Blue Listed/Species at Risk Plants

Despite the mitigation steps taken, the following potential indicators of negative effects from the trail(s) need to be monitored on an annual basis

- Decrease in abundance or distribution of red/blue listed plants
- Increased soil exposure
- Increase presence of invasive plants

Please indicate any additional Indicators of negative effects.

Corrective Actions - Red/Blue Listed/Species at Risk Plants

In your monitoring program, look for the following limits of negative impact

- No evidence of soil compaction or loss of vegetation outside of trail bed
- No increase of invasive plants in wetland area

Please indicate any additional limits of negative impact.

TEST

Trail Environmental Screening Tool

4.0 MITIGATE

If one of the limits is observed, one of the following corrective actions will be taken to mitigate the observed negative impact

- [ ] Increase user education efforts (e.g. Identify red/blue listed plants)
- [ ] Seasonal trail closures
- [ ] Remove or relocate trail away from red/blue listed plant location
- [ ] Invasive plant removal
- [ ] Create rehabilitation plan that presets criteria that are required re-open trail

Please list additional corrective actions.

4.32 Native Plants on Sensitive Sites (Alpine, Grasslands, Meadows)

Does this feature apply to your trail project?

☐ Yes ☐ No

If yes, the following environmental impacts are possible and need to be addressed

If no, please go to section 4.33

Environmental Impact - Native Plants/Sensitive Sites

- Soil compaction and erosion can damage native plants and create prime conditions for the introduction of invasive plants
- Removing standing dead trees along trails for safety concerns removes valuable wildlife habitat (e.g., cavity nesting birds)

Mitigation Measures - Native Plants/Sensitive Sites

Given these potential impacts, what mitigation measures will you undertake to reduce or eliminate the potential problem?

☐ Use existing trails where possible

☐ Learn to identify invasive plants

☐ Inspect clothing, equipment, pack animals and pets for plant parts before and after activity

☐ Incinerate or bag and dispose of collected plant parts

☐ Obey all signs and trail closures

☐ Leave gates as you found them

☐ Restrict use of areas with invasive plants to times of the year when spread is unlikely (e.g., the period from flowering to seed dispersal)

☐ Invasive plants should generally be cut at the ground rather than pulled if pulling is likely to result in dispersal of seed

☐ Pack-in invasive plant-free seed for pack animals

☐ Avoid grazing pack animals in infested areas

TEST

Trail Environmental Screening Tool

4.0 MITIGATE

Please indicate any additional measures you will take.

Monitoring - Native Plants/Sensitive Sites

Despite the mitigation steps taken, the following potential indicators of negative effects from the trail(s) need to be monitored on an annual basis.

- Evidence of unnecessary trail widening/braiding
- Increased areas of exposed soil and native plant damage outside of trail bed (especially at view points)
- Increased soil exposure
- Increase presence of invasive plants
- Pooling water on trail tread
- Compact and displaced soil surface

Please indicate any additional indicators to monitor.

How will annual monitoring of these potential negative effects occur for this project?

- ☐ Annual maintenance inspections
- ☐ Trail user forms
- ☐ Record of public complaints

Please indicate any additional measures you will take.

TEST

Trail Environmental Screening Tool

4.0 MITIGATE

Corrective Actions - Native Plants/Sensitive Sites

In your monitoring program, look for the following limits of negative impact

- No unnecessary trail widening or increased soil exposure outside of the trail bed
- No significant soil compaction
- No increase abundance or distribution of invasive plants

Please indicate any additional limits of negative impact.

If one of the limits is observed, which of the following corrective actions will be taken to mitigate the observed negative impact?

- [ ] Increase user education efforts (e.g. Stay on trail!)
- [ ] Seasonal trail closures
- [ ] Create structures at viewpoints to limit trampling/expansion (e.g., benches, railings)
- [ ] Invasive plant removal
- [ ] Create rehabilitation plan that presets criteria that are required re-open trail

Please list additional corrective actions.

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Trail Environmental Screening Tool

Learn more: Find out more about trail building standards - Rec Sites and Trails: https://www.for.gov.bc.ca/hfp/publications/00201/chap10/chap10.htm

4.33 Steep Hillsides

Does this feature apply to your trail project?

☐ Yes ☐ No

If yes, the following environmental impacts are possible and need to be addressed

In no, proceed to next section (Share)

Environmental Impacts - Steep Hillsides

- Poorly designed trails on steep ground can change drainage patterns and cause erosion
- Erosion will remove organic material from soil and expose roots damaging native vegetation
- Erosion causing sedimentation of streams will decrease water quality and harm fish and fish habitat

Mitigation Measures - Steep Hillsides

Given these potential impacts, what Mitigation measures will you undertake to reduce or eliminate the potential problem?

☐ Follow appropriate trail design and construction standards for slopes

☐ Design trail to avoid stormwater runoff down trail

☐ Design trail to minimize the length of potential run off along trail tread

☐ Ensure 5+cm of organic/woody debris or ground vegitation along both sides of trail corridor

Please indicate any additional measures you will take.

Monitoring - Steep Hillsides

Despite the mitigation steps taken, the following potential indicators of negative effects from the trail(s) need to be monitored on an annual basis

- Erosion of trail bed
- Scoured ruts
- Deposition of soil and debris at switchbacks or change in slope
- Sediment-laden water below erosion sites
- Loose stones and gravel left on trail
- Signs of slumps and tension fractures in trail surface

Please indicate any additional indicators to monitor.

How will annual monitoring of these potential negative effects occur for this project?

- ☐ Annual maintenance inspections
- ☐ Trail user forms
- ☐ Record of public complaints

Please indicate any additional measures you will take.

TEST

Trail Environmental Screening Tool

4.0 MITIGATE

Corrective Actions - Steep Hillsides

In your monitoring program, look for the following limits of negative impact

- No sediment-laden water as a result of trail erosion
- Minimal rutting of trail bed from erosion
- No trail widening, braiding or bypassing

Please indicate any additional limits of negative impact.

If one of the limits is observed, one of the following corrective actions will be taken to mitigate the observed negative impact

- Seasonal trail closures
- Construct stormwater control structures
- Relocate trail to avoid steep slopes where erosion is occuring
- Create rehabilitation plan that presets criteria that are required to re-open trail

Please list additional corrective actions.

TEST

Trail Environmental Screening Tool

5.0 CONSULT

WHAT'S NEXT

Now that you've completed the Environmental Trail Screening Tool, what happens next?

This working document is an important component in moving forward with your project. The next steps consist of consulting with key stakeholders, researching legislation and guidelines and sharing with your working group.

TALK TO RECREATION AND TRAILS BC

Talk to Recreation Sites and Trails BC. Now that you've described, mapped, assessed and planned for mitigation of your trail(s), you'll have the information you need to work through the proper process for your project.

http://www.frontcounterbc.gov.bc.ca/apps/app139.html

TELL COMMUNITY STAKEHOLDERS

It's important to share your plans with your community. Here is some information on how to research the groups and organizations in your community.

First Nations Government
(usually through the local Band's Natural Resources Office, or Lands and Waters Office, or their Title and Rights Office). This can include multiple band offices.

https://www.bcafn.ca/first-nations-bc

https://www.aadnc-aandc.gc.ca/eng/1100100021015/1100100021028

https://www2.gov.bc.ca/gov/content/governments/organizational-structure/ministries-organizations/ministries/indigenous-relations-reconciliation

BC Parks
Through your regional BC Parks Superintendent

http://www.env.gov.bc.ca/bcparks/

Ministry of Environment (Province of BC)

Initially through the Section 11 Notification
https://www2.gov.bc.ca/gov/content/environment/air-land-water/water/water-licensing-rights/working-around-water

Department of Fisheries and Oceans
(through the Section 11 Notification above)

Municipal/Regional Districts
Best starting contact will usually be through staff in your Planning, Operations, or Parks and Recreation office – this will connect you with other relevant staff, Mayor and Councils, Regional Directors, Parks Commissions, Greenway Committees

5.0 CONSULT

Civic Info BC
A good resource for finding various government contacts:

http://civicinfo.bc.ca/11.asp

Land Tenure Holder
Land Tenure Holders include Forestry, Range, Mining, Trapping, Other Harvest Licenses, Commercial touris and Recreation tenure holders

Private Land Owners/Local Residents
Even if the trail doesn't cross their land, consult with neighbours to the trail

Other Recreational User Groups
Such as Hiking, Mountain Biking, Equestrian, Trail Running, Nordic Ski, Snowshoe, ATV, Snowmobile, Fish & Game, Naturalists/Conservation Organizations, Camping,Mushroom/Berry Picking

Public Safety
RCMP, Fire Protection, Search & Rescue

RESEARCH LEGISLATION & GUIDELINES

A legislation and guidelines matrix is available and provides a comprehensive overview of the relevant legislations and guidelines, its implications for trail development and its applicability to trail projects.

SHARE WITH YOUR WORKING GROUP

Please archive a copy of your completed form, the maps and the tables. You can re-open the fillable form to update information and resave as needed. Share copies with your working group or planning committee for your trails projects. It forms the basis and becomes an important part of your trail development, long term trail monitoring, and maintenance plans.

Thank You for completing the Environmental Trail Screening Tool.

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