

GIS Analysis Workflow

Step 1. Describe the spatial question the GIS analysis should answer. Be as specific as you can. Include details such as study area, species of interest, pressure or concern, time frame, and scale. Also identify the audience the results will be delivered to.

GIS Question:

Details	Description
Study Area	
Time frame	
Species of interest	
Pressure or concern	
Scale	

Example

GIS Question: Identify potential pine mushroom habitat areas within the Kispiox watershed. The resulting pine mushroom habitat maps will be verified by field staff to assess the validity of the model developed through this analysis.

Details	Description
Study Area	Kispiox watershed
Time frame	current
Species of interest	Pine mushrooms/habitat
Pressure or concern	Habitat degradation due to forestry harvesting pressures
Scale	1:20,000

Step 2. Research the GIS problem. If the GIS problem needs to define a type of habitat, research specifics on what defines the habitat criteria for the species of interest. If the GIS analysis provides results about a pressure indicator, find references that validate the use of the indicator and/or thresholds applied.

For example, the research article *Ecological Description and Classification of Some Pine Mushroom (*Tricholoma magnivelare*) Habitat in British Columbia* by Shannon M. Berch and Alan M. Wiensczyk would be a great reference to start with.¹

Step 3. Write down the spatial criteria required to solve the GIS problem.

Table 1 from the reference above lists several ecological criteria. Let’s look at the first set of criteria taken from the BC Biogeoclimatic Ecological Classification.

The study plots were found to encompass eight different subzones or variants within five biogeoclimatic zones: Interior Cedar-Hemlock (ICH), Sub-Boreal Pine–Spruce (SBPS), Engelmann Spruce–Subalpine Fir (ESSF), Interior Douglas-fir (IDF), and Coastal Western Hemlock (CWH) (Table 1)

Table 1

Attribute	Plot	Nass	Chilcotin	Bella Coola	Nahatlatch
Biogeoclimatic and ecological classification	1	ICHmc2/01(1)b	SBPSxc/02	IDFww/03	IDFww/01
	2	ICHmc2/01(1)b	SBPSxc/02	CWHds2/01	CWHds1/03
	3	ICHmc2/01(1)b	ESSFxv1/02	CWHds2/03	CWHms1/03

¹ Berch, S.M. and A.M Wiensczyk. 2001. Ecological description and classification of some pine mushroom (*Tricholoma magnivelare*) habitat in British Columbia. Res. Br., B.C. Min. For.; SIFERP. Victoria, BC: Kamloops, BC. Res.Rep. 19.

Step 4. Translate the required criteria into GIS layers and corresponding attributes. In this step you may need to use QGIS to explore various GIS datasets.

The criteria in step 3 is represented in the BC BEC data, available on the ESI warehouse in the vegetation folder.

Step 5. Write out the GIS methodology. You may find QGIS modeller helpful at this stage, but paper and pen will also work just fine.

Step 6. In QGIS build your GIS project and run the analysis.

Step 7. Document your project methodology, data inputs, and references. (You just did this 😊)