

An innovative approach combining environmental variables using LiDAR, Satellite Imagery, and GIS

Lavanya Gopal | Masters In GIS Applications | Vancouver Island University | lavanya.gopal@my.viu.ca

Background

Riparian ecosystems are found near the shores of lakes & streams. They fulfil ecological functions such as regulating water quality, water temperature, filtering pollutants etc. However, they are threatened by land-use modifications and climate change. To preserve these areas, we need to define and protect riparian zones.

Did You Know?

Over 75% of BC's animal species use riparian zones

Research Problem

Lack of riparian vegetation is linked to water temperature fluctuations, poor water quality, and decline in fish population. Traditional 10m fixed-width buffers do not consider surrounding environmental conditions and may be inadequate to fulfill ecological functions. There is a need for innovative strategies combining environmental conditions to define riparian zones.

Objective

Develop a workflow to analyze topographical, hydrological, and ecological variables influencing riparian zones and delineate variable-width Hydroecological Riparian Zone.

Methodology

Riparian ecosystems are influenced by water accumulation, flooding, high moisture, hydric soil, dense vegetation etc. Below is the workflow that integrates multiple environmental factors to delineate a riparian zone:

