



Science insights to enable rural New Zealand to succeed

19 July 2022

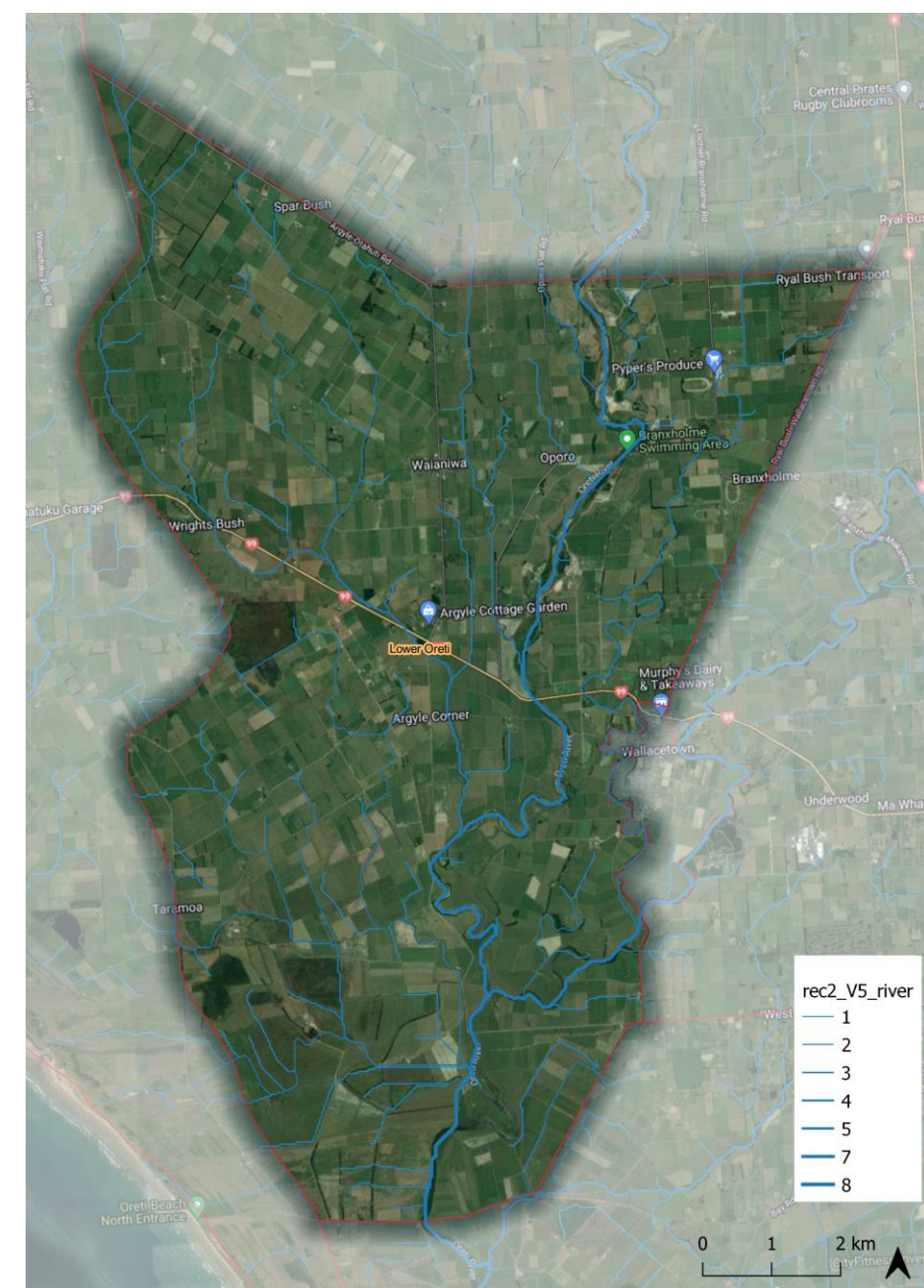
Lower Oreti Catchment Group

Catchment area encompasses ~ 10,577 ha's.

Across the catchment there are many small streams that drain into the Oreti and Makarewa Rivers.

The main monitoring sites Environment Southland have on the Oreti river, along with NIWA sites, do not really inform you about the local surface water quality from the many small streams within the catchment group area.

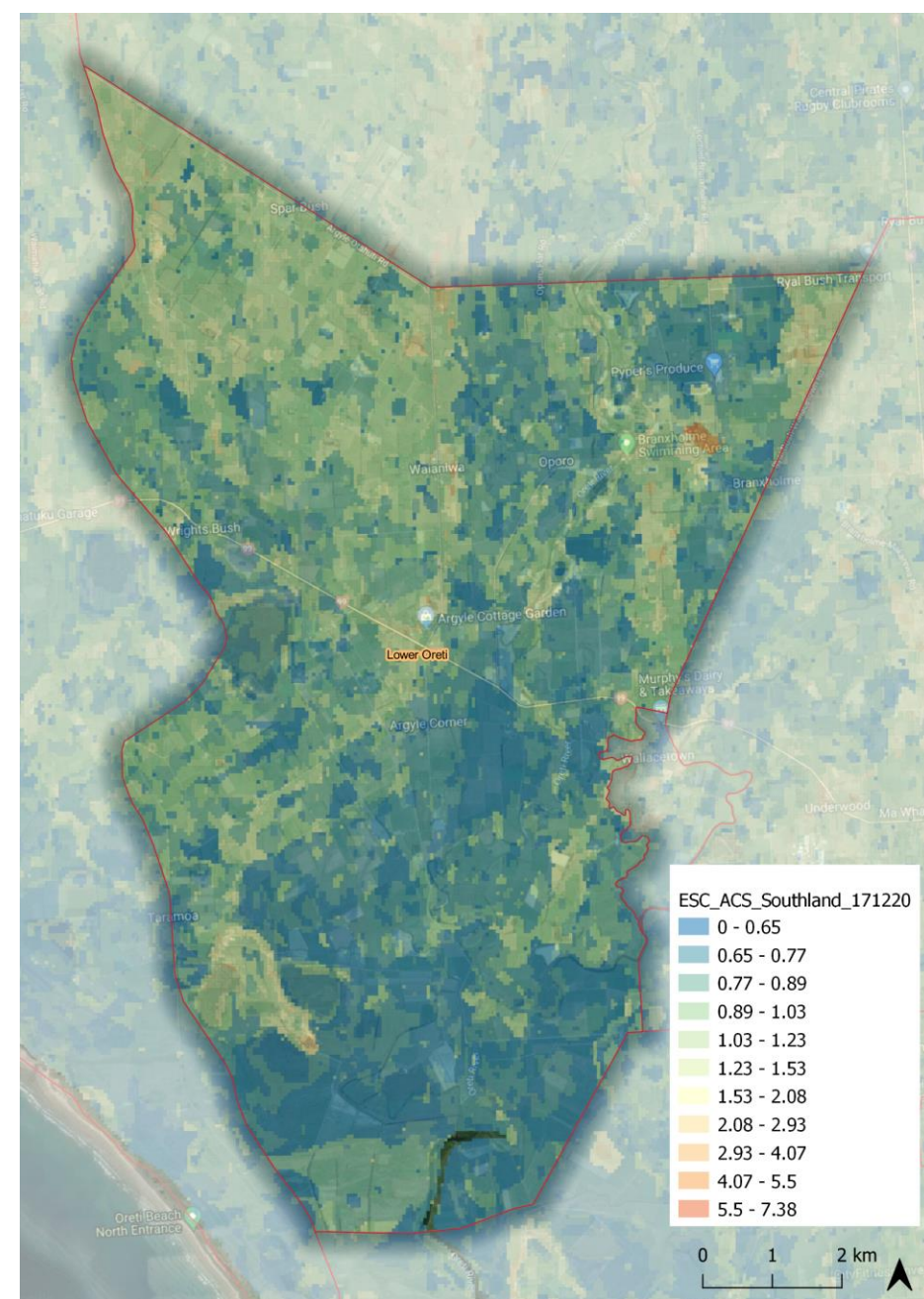
Your local streams and groundwater are a better indicator of local water quality. Local streams are those that originate within your catchment group boundary.



Lower Oreti Catchment Group | Terrain Ruggedness

Terrain Ruggedness Index (TRI) indicates how 'rough' a topography is. Within your catchment the TRI reflects that your area is not that rough, and in fact is relatively flat topography.

Green shading also denotes older landforms or landscapes, and blueish shading denotes younger landscapes.

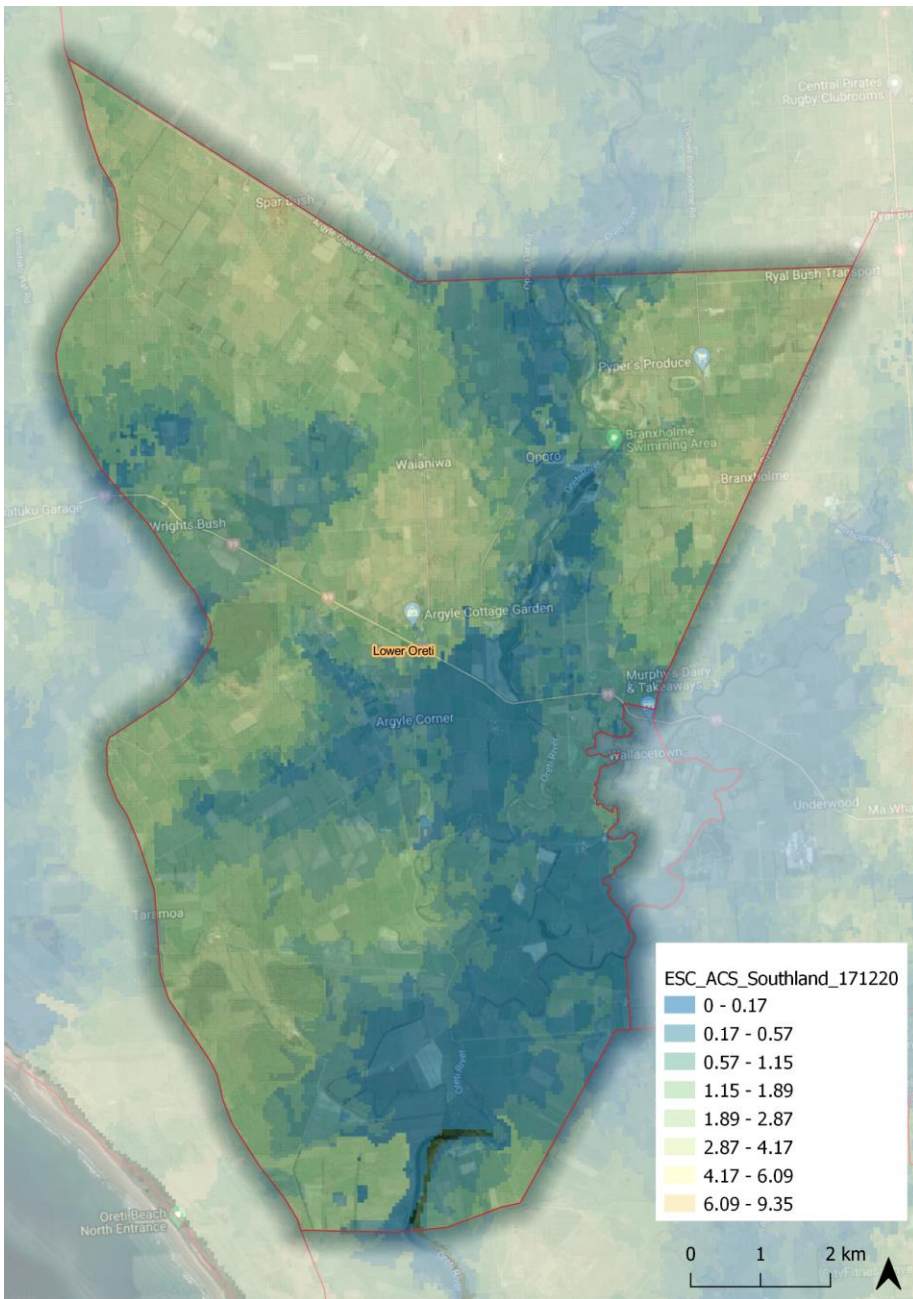


Lower Oreti Catchment Group | Water Table and Drainage

Blue shading indicates where the water table is close to the land surface.

Areas of shallow water table are more prone to runoff and may have a greater number of artificial drains.

Areas where artificial drainage has been installed are important to identify as they are often the main pathways for contaminant loss. There are many options available to reduce contaminant loss from mole-pipe drainage, prior to the water entering a stream.

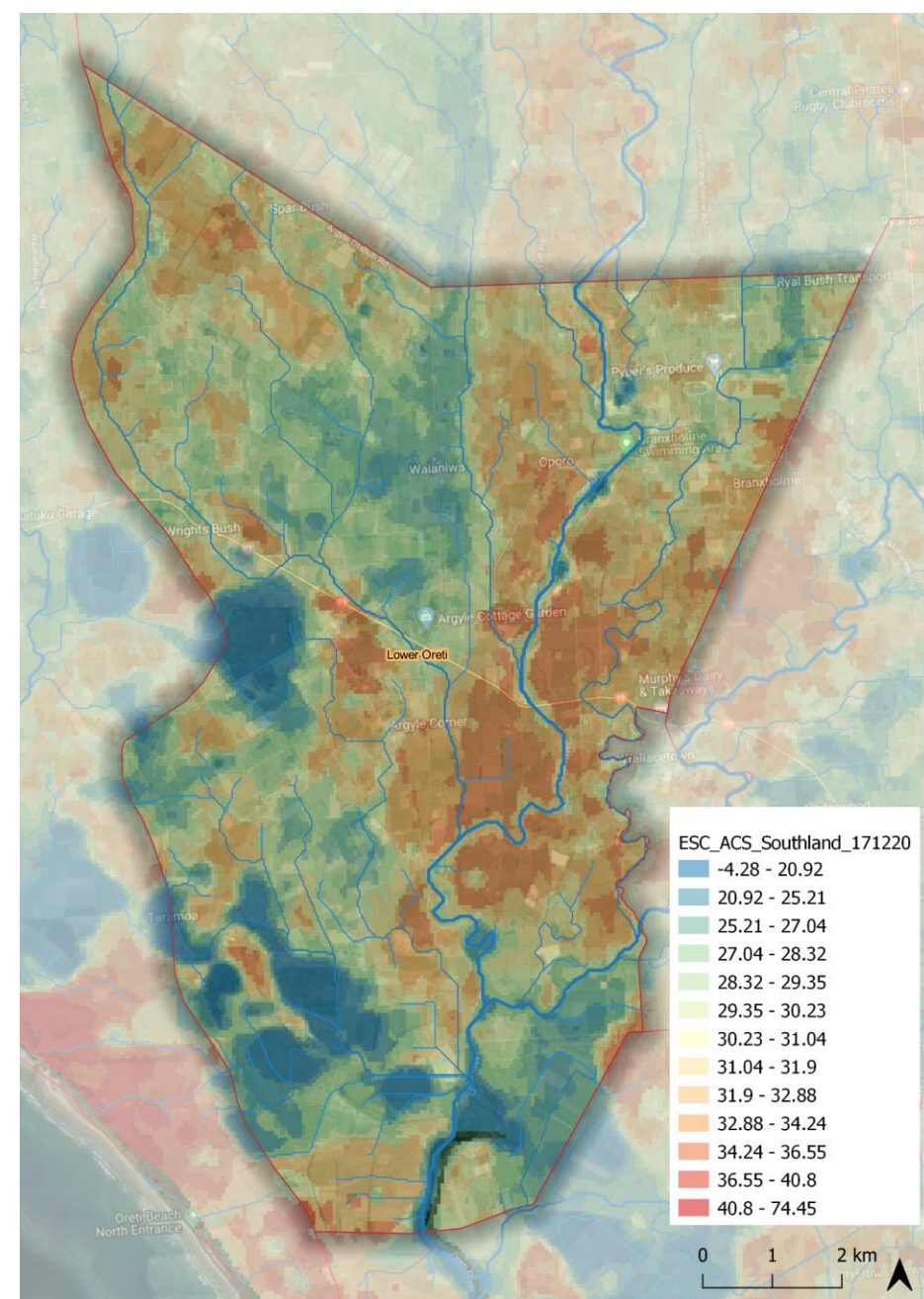


Lower Oreti Catchment Group | Radiometric DOSE

Radiometric DOSE (40 x 40m resolution) reflects radiation the earth naturally emits into the air. The emission levels and strength vary depending on the geology and minerals within the soil.

Well drained soils often emit more radiation (redder areas) than the poorly drained (blue) soils. The dark blue areas coincide with peat wetlands and/or shallow water tables. Green and yellow shades often reflect intermediate drainage class soils. Ground truthing is required to support soil drainage assignment.

Soil variability is a critical factor controlling spatial variability in the type and severity of water quality and soil GHG issues.

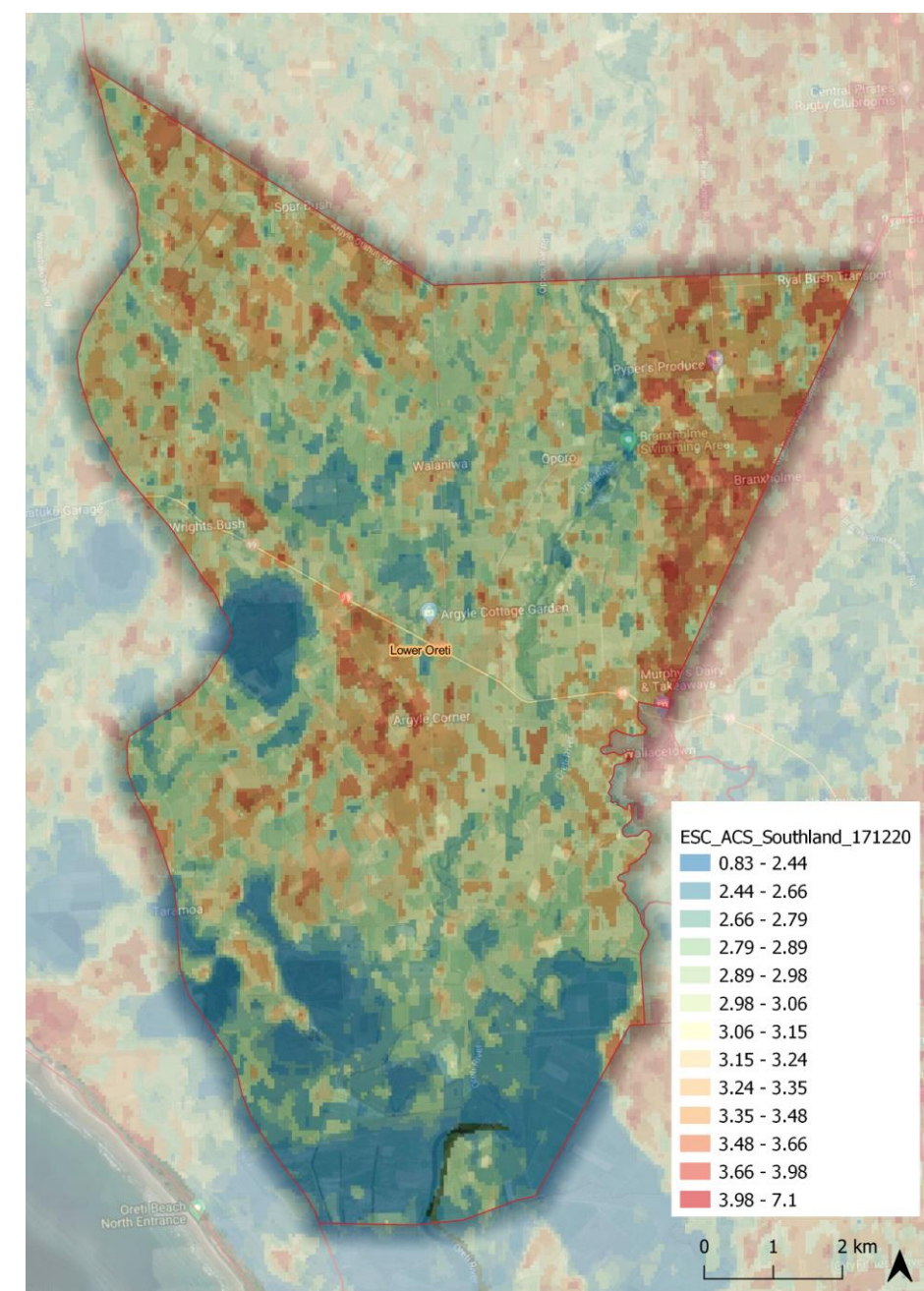


Lower Oreti Catchment Group | Thorium/Potassium

Airborne radiometric also provides a measure of the concentration of thorium (Th) and Potassium (K). The ratio of Th/K is a valuable proxy for soil texture. The darker shades of red indicate coarse-textured areas, and the blue shades indicate a greater volume of fine-textured materials. The Th/K ratio suggests a high degree of variation in soil properties across the Lower Oreti area.

Knowing how your soil type varies across your property is important for informing on where to target mitigation where water quality issues exist.

Unfortunately, current soil maps (1:50,000 scale) are often too coarse to identify variation in soil properties at the scale farmers and growers require to make informed decisions on how best to mitigate water quality and soil GHG related challenges.



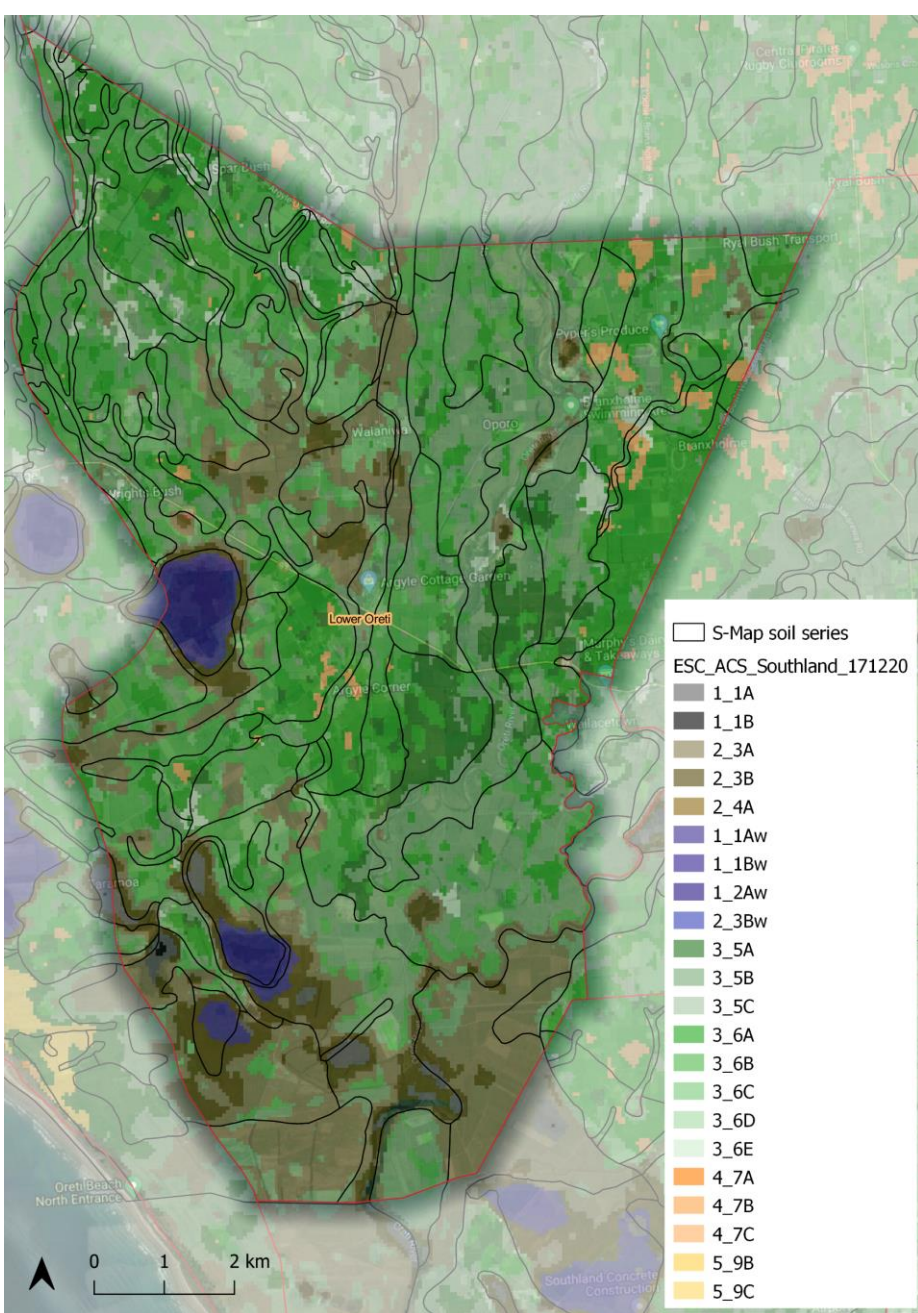
Lower Oreti Catchment Group | Soil Classifications

S-Map soil series are 1:50,000 scale (i.e., coarse) and often have ‘low’ confidence factors and can therefore be misaligned to what soils are actually present.

The airborne radiometric soil classification shown here is ‘data driven’, and when coupled with ground-truthing can provide greater insight into property scale variation.

Ground truthing is required, however the ‘family’ classes in the legend to this figure correspond to different degrees of soil drainage. Dark grey denotes poorly drained soils (none reflected in your catchment), and lighter yellow shade denotes relatively well drained soils. Green shades are intermediate soils, spanning moderately drained to moderately well drained soils. Dark purple areas denote organic or peat soils.

The brown coloured soil family is most prevalent across lower part of the Lower Oreti area, where imperfectly drained soils coincide with shallow water tables. This part of your catchment is likely to be susceptible to runoff.



We hope
this was
helpful.

