

This Information Sheet describes the *typical average properties* of the specified soil. It is essentially a summary of information obtained from one or more profiles of this soil that were examined and described during the Topoclimate survey or previous surveys. It has been prepared in good faith by trained staff within time and budgetary limits. However, no responsibility or liability can be taken for the accuracy of the information and interpretations. Advice should be sought from soil and landuse experts before making landuse decisions on individual farms and paddocks. The characteristics of the soil at a specific location may differ in some details from those described here.
No warranties are expressed or implied unless stated.

Soil name: Paretai

Overview

Paretai soils occur on the accumulating floodplain of the lower Clutha River. They are formed into moderately deep to deep fine alluvium from dominantly schist rocks. These soils are poorly drained, with deep rooting depth and high plant available water capacity. Texture is variable, but dominantly loamy silt, with coarser textured sandy loams to sands common. Present use is pastoral grazing with sheep, beef and dairy cattle and occasional cropping. Climate is temperate with regular rainfall though summers can be dry.

Physical properties

Paretai soils have a deep rooting depth and high available soil water, although the rooting depth may be limited by poor aeration during wet periods due to the poor drainage and slow subsoil permeability. Texture is variable, but dominantly loamy silt, with coarser textured sandy loams to sands common. Topsoil clay content is about 10%.



Paretai profile

Fertility properties

The Paretai soils were not chemically analysed, but are likely to be similar to the associated Pomahaka soil.

Pomahaka soils have topsoil organic matter levels of 3–4%, P-retention 9–15% and topsoil pH moderate (high 5s). Subsoil pH values are high (high 6s). Cation exchange levels are very low and base saturation high. Available calcium levels are moderate and magnesium and potassium levels low. Soil reserve phosphorus and sulphur levels are low. Micronutrient levels are generally adequate.

Associated and similar soils

Some soils that commonly occur in association with Paretai soils are:

- Pomahaka: well drained soil with no subsoil development on the accumulating floodplain
- Clutha: well drained soil with a weathered subsoil on the slowly accumulating floodplain
- Pukeawa: well drained shallow soil, with less than 45cm to the underlying bedrock

Some soils that have similar properties to Paretai soils are:

- Jacobstown: occurs on slowly accumulating floodplains of southern rivers and streams; formed into mixed greywacke and schist alluvium; typically has subsoil structural development.

Sustainable management indicators

Note: the vulnerability ratings given in the table below are generalised and should not be taken as absolutes for this soil type in all situations. The actual risk depends on the environmental and management conditions prevailing at a particular place and time. Specialist advice should be sought before making management decisions that may have environmental impacts. Where vulnerability ratings of Moderate to Very severe are indicated, advice may be sought from Environment Southland or a farm management consultant.

Vulnerability factor	Rating	Vulnerability compared to other Southland soils
Structural compaction	very severe	These soils have a very severe vulnerability to structural degradation by long-term cultivation, or compaction by heavy stocking and vehicles. This rating reflects the poor drainage, low organic matter, clay and P-retention.
Nutrient leaching	slight	These soils have a slight vulnerability to leaching to groundwater. This rating reflects the slow permeability, poor drainage, and high water-holding capacity.
Topsoil erodibility by water	moderate	Due to the low organic matter and clay content, topsoil erodibility in these soils is moderate. Erodibility is highly dependent on management, particularly when there is no vegetation cover.
Organic matter loss	slight	Vulnerability to long-term decline in soil organic matter levels is partly dependent on soil properties and highly dependent on management practices (e.g., crop residue management and cultivation practices).
Waterlogging	severe	These soils have a severe vulnerability to waterlogging during wet periods. This rating reflects the poor drainage and slow permeability.

General landuse versatility ratings

Note: The versatility ratings in the table below are indicative of the major limitations for semi-intensive to intensive land use. These ratings differ from those used in the past in that sustainability factors are incorporated in the classification. Refer to the Topoclimate district soil map or property soil map to determine which of the soil symbols listed below are applicable, then check the versatility ratings for that symbol in the appropriate table.

PaU1 (Paretai undulating deep)

PaU1vo (Paretai undulating deep, peaty subsoil variant)

Versatility evaluation for soil PaU1, PaU1vo		
Landuse	Versatility rating	Main limitation
Non-arable horticulture	Limited	Inadequate aeration during wet periods; risk of short-term waterlogging during wet periods.
Arable	Limited	Inadequate aeration during wet periods; risk of short-term waterlogging during wet periods.
Intensive pasture	Moderate	Inadequate aeration during wet periods; vulnerability to topsoil structural degradation by cultivation and compaction.
Forestry	Limited	Inadequate aeration during wet periods, potential flood risk.

Management practices that may improve soil versatility

- Pomahaka soils would benefit from flood protection for intensive landuses.
- Cultivation and intensive stocking or vehicular traffic should be minimised during wet periods
- Long-term cultivation should be carefully managed to minimise structural degradation
- Organic matter levels should be carefully maintained and enhanced
- Management of nutrient applications so as to minimise leaching losses.