

Soil name: Riverton

Overview

Riverton soils occupy about 2,600 ha on young active sand dunes along the southern coast between Orepuki and Curio Bay. They are formed into coastal dunes of wind blown sand. These soils have a deep potential rooting depth, moderate plant available water, with excessive drainage and have sandy textures throughout. Present use is limited to pastoral grazing with sheep and cattle where these soils are adjacent to better soils. Large areas are used for reserve and recreation. Climate is cool with prevailing southerly wind. Regular rainfall occurs but with rapid drainage soils are often dry.

Physical properties

Riverton soils potentially have a deep rooting depth and moderate plant available water. The soils are excessively drained due to the rapid permeability of the sand, and may limit the moisture status and effective rooting depth to shallower depths. The soils have excellent aeration. Textures are loamy sands in the topsoil and sand at deeper depths, with a topsoil clay content of <10%. Soils are stoneless.



Riverton profile

Fertility properties

Topsoil organic matter levels are variable but low (about 3%) and P-retention very low <5%. pH values are moderate (low 6s) in the topsoil but increase to over 7 in the subsoil. Cation exchange levels are very low and base saturation high because of the occurrence of salt. Reserve phosphorus levels are low. Micronutrient levels are adequate.

Associated and similar soils

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

- Invercargill: very poorly drained soils, formed in deep peat

Some soils that have similar properties to Riverton soils are:

- Otatara: occur on more stable older dunes and have greater subsoil development
- Otaitai: poorly drained sandy soil, formed in interdune hollows

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 low organic matter, clay content, and P-retention.
Nutrient leaching	very severe	These soils have a very severe vulnerability to leaching to groundwater. This rating reflects the good drainage and rapid permeability.
Topsoil erodibility by water	severe	Due to the low organic matter and clay content, topsoil erodibility in these soils is severe. Erodibility is highly dependent on management, particularly when there is no vegetation cover.
Organic matter loss	severe	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	nil	These soils have a nil vulnerability to waterlogging during wet periods. This rating reflects the very good drainage.

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.

RvU1 (Riverton undulating deep) and RvR1 (Riverton rolling deep)

Versatility evaluation for soil RvU1, RvR1		
Landuse	Versatility rating	Main limitation
Non-arable horticulture	Limited	Vulnerability to topsoil structural degradation and compaction; vulnerability to leaching to groundwater
Arable	Limited	Vulnerability to topsoil structural degradation by cultivation and compaction; vulnerability to topsoil erosion by water.
Intensive pasture	Limited	Vulnerability to topsoil structural degradation and compaction; vulnerability to leaching to groundwater
Forestry	Limited	Vulnerability to topsoil structural degradation by cultivation and compaction; vulnerability to topsoil erosion by water.

RvH1 (Riverton hilly deep)

Versatility evaluation for soil RvH1		
Landuse	Versatility rating	Main limitation
Non-arable horticulture	Unsuitable	Hilly slopes
Arable	Unsuitable	Hilly slopes
Intensive pasture	Limited	Vulnerability to topsoil degradation by cultivation and compaction; hilly slopes.
Forestry	Limited	Vulnerability to topsoil structural degradation by cultivation and compaction; vulnerability to topsoil erosion by water.

Management practices that may improve soil versatility

- Careful management to avoid wind erosion and "blowouts" by preventing overgrazing or cultivation.
- Organic matter levels should be carefully maintained and enhanced
- Long-term intensive cultivation should be carefully managed to minimise structural degradation
- Management of nutrient applications that minimise leaching losses