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## **New Zealand Soils**

“The soil is only a thin skin covering the land, but it is vital for all life”.

Acknowledgements: Department of Conservation.  
Te Ara.

### **New Zealand Soil Classification**

Organic Soil, Granular Soil, Raw Soil, Melanic Soil, Oxidic Soil, Semiarid Soil, Pallic Soil, Allophanic Soil, Ultic soil, Gley Soil, Recent Soil, Podzol Soils, Pumice Soil, Brown Soil, Mafic Brown Soil.

### **Systematic classification**

Properties of Particle Sizes, Maximum Particle Size, Grading, Particle Shape, Particle Strength/Hardness, Other Material, Colour, Geological Information, Fine Soils – classification, Silt or Clay, Plasticity, Presence of Coarse Material (Sand or Gravel), Colour, Geological Information and Organic Soils.

### **Soil Groups**

- Gravel and Silt
- Clay
- Organic Soil

### **Components of Rock**

- Weathering
- Bedding
- Strength
- Discontinuities (or Defects)
- Orientation
- Spacing
- Persistence
- Roughness
- Wall Strength
- Aperture
- Infill
- Seepage
- Number of Sets
- Block Size and Shape
- Rock Name
- Additional Features and Geological Information





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### **What are soils?**

Soils are the natural materials on the land's surface that directly support plants and bacteria, and indirectly support all animal and human life.

Soils are made up of:

- Topsoil (the dark layer that you can see), which has a lot of microbes and organic matter from previous plant growth.
- Subsoil, which has a variety of colours and textures depending on drainage and past weathering.
- Underlying rocks.

### **How they form**

Soil builds up over time. Through gradual wearing and chemical decay, rock breaks down into smaller particles – gravels, sands, silts and clays. During this process nutrients are released, and become part of the soil. Many New Zealand soils are made from a build-up of fine, wind-blown sediments, volcanic ash or pumice.

### **What soils do**

Soils store water and nutrients for plant growth, and absorb water that could otherwise cause erosion and floods. Soil microbes help release nutrients used by plants. Soils also store carbon, so less carbon dioxide is released into the air.

### **Using the soil**

New Zealand depends on soils for much of its wealth. Irrigation, drainage, and adding fertiliser has made its soils better for growing crops and pasture, and for grazing farm animals.

### **Types of soils**

New Zealand has 15 main types of soil. They include:

- Brown soils, which cover 43% of New Zealand. These form on mountains and hills, and down to moist lowlands.
- Pumice soils, found mainly in the central North Island. The pumice was ejected during past volcanic eruptions, including a huge eruption at Taupō, about 1,800 years ago.
- Some ancient soils, which are more than 50,000 years old, and some very young soils, which have new sediments added every time there is a flood.
- There are a very small area of Anthropogenic (artificial) soils. These are created over landfills, or from other earth works.

Types of soil vary and form patterns across a landscape.

### **Soil Invertebrates.**

Acari (mites)  
Amphipoda (landhoppers)  
Araneae (spiders)  
Chilopoda (centipedes)  
Collembola (springtails)  
Diplopoda (millipedes)  
Diplura  
Isopoda (slaters)  
Insecta (insects)  
Mollusca (slugs & snails)  
Nematoda  
Oligochaeta (earthworms)  
Onychophora (peripatus)  
Opiliones (harvestmen)  
Pauropoda  
Protura  
Pseudoscorpions  
Symphyla  
Tardigrada  
Turbellaria (flatworms)

