

Glossary

Alluvium: Material such as sand, silt and clays which have been deposited on land by waterflow.

Australian Soil Classification: A hierarchical scheme used for the classification of Australian soils containing a framework of order, suborder, great group, subgroup and family.

Bedrock: The underlying zone of rocks formed or altered by deep-seated crustal processes.

Boulders: Boulders are rock fragments greater than 60 cm in size.

Colluvium: Rock fragments and soil that are deposited at the base of a slope by gravity and erosion by water.

Cuesta: An elongate ridge formed on the tilted and eroded edges of gently dipping strata.

Drainage: Drainage is a term used to summarise local soil wetness conditions. It is affected by internal attributes which include soil structure, texture, porosity, hydraulic conductivity, water holding capacity, and external attributes such as evapotranspiration, gradient and length of slope and position in the landscape. Categories are as follows:

- Very poorly drained: Free water remains at or near the surface for most of the year. Soils are usually strongly gleyed. Typically a level or depressed site and/or a clayey subsoil.
- Poorly drained: All soil horizons remain wet for several months each year. Soils are usually gleyed, strongly mottled and/or have orange or rusty linings of root channels.
- Imperfectly drained: Some soil horizons remain wet for periods of several weeks. Subsoils are often mottled and may have orange or rusty linings of root channels.
- Moderately well drained: Some soils may remain wet for a week after water addition. Soils are often whole coloured, but may be mottled at depth and of medium to clayey texture.
- Well drained: No horizon remains wet for more than a few hours after water addition. Soils are usually of medium texture and not mottled.
- Rapidly drained: No horizon remains wet except shortly after water addition. Soils are usually of coarse texture, or shallow, or both, and are not mottled.

Duricrust: Hard resistant surface formed in semi arid climate. Original materials may be cemented by gypsum to form gypcrete; silica to form silcrete; or calcite to form calcrete.

ESP (Exchangeable Sodium Percentage): Calculated as the proportion of the cation exchange capacity occupied by the sodium ions and is expressed as a percentage. Sodic soils are categorised as soils with an ESP of 6-14%, and strongly sodic soils have an ESP of greater than 15% (See [Sodicity](#)).

Floodplain: A level plain adjacent to a river or stream that is subject to flooding.

Gleyed: Is indicative of permanent or periodic intense reduction due to wetness, and is characterised by greyish, bluish or greenish colours generally of low chroma.

Gravel: Mineral fractions of the soil greater than 2 mm in diameter.

Horizons: A layer within the soil profile having morphological characteristics (e.g. colour, texture, and structure) differing from the layer above and or/below it.

Inundation risk: This is an assessment of the flooding from over-bank flow, inundation from local runoff and overland flow.

Inundation class	Estimated frequency (years)
1	Nil
2	1 in >100
3	1 in 50 - 100
4	1 in 10 - 50
5	1 in <10

Land capability assessment: A systematic and rational method of determining the relative ability of different areas of land to sustain a specific land use under a nominated level of management without being degraded or causing any long term off-site degradation.

Land degradation hazard: The degradation of land is a multi-faceted problem encompassing a number of processes, which usually involves the accelerated removal or alteration of soils, or their surface cover as a result of human activities.

Landform element, land unit or land components: An area of land, distinct from adjacent units or components because of specific slope, soil, or geomorphological characteristics, e.g. crest, gentle slope, drainage depression.

Lithology: General characteristics of sediments relating to composition and texture of rock types present in a rock formation.

Mottled: Are spots, blotches or streaks of subdominant colours different from the matrix colour and also different from the colour of the ped surface.

Permeability: The characteristic of a soil, soil horizon or soil material which governs the rate at which water moves through it. It is a composite expression of soil properties and depends largely on soil texture, soil structure, the presence of compacted or dense soil horizons and the size and distribution of pores in the soil.

pH (soil): A measure of soil acidity and soil alkalinity on a scale of 0 (extremely acidic) to 14 (extremely alkaline), with a pH of 7 being neutral. It gives an indication of the availability of plant nutrients and relates to the growth requirements of particular crops. Acid soils are usually deficient in necessary nutrients e.g. calcium and magnesium.

Plain: Any flat area, large or small, having few if any prominent surface features.

Rock outcrop: Any exposed area of rock that is inferred to be continuous with the underlying parent material.

Slope: Landform element that is neither a crest or a depression and that has an inclination greater than 1%. Slope can be broken up into the following categories:

Value range (%)	Interpretation
< 1	Level
1–3	Very gentle slope
4–10	Gentle slope
10 –20	Moderate slope
>20	Steep slope

Sodic: The ESP of the fine earth soil material is 6 or greater.

Sodicity: Is a measure of exchangeable sodium in relation to other exchangeable cations. It is expressed as the Exchangeable Sodium Percentage (see ESP). A sodic soil contains sufficient exchangeable sodium to interfere with the growth of plants, including crops. A soil with an ESP greater than 6 is generally regarded as being a sodic soil in Australia. ESP levels are further classified in the Australian Soil Classification (Isbell 1996).

Soil profile: A portion of a soil exposed in a vertical section, extending usually from the land surface to the parent material. In very general terms, a profile is made of three major layers designated A, B and C horizons. The A and B horizons are those modified by soil development. The C horizon is weathering parent material that has not yet been significantly altered by soil forming processes.

Soil texture: The relative proportions of sand, silt and clay particles in a sample of soil. The field assessment of texture is based on the characteristics of a bolus of wetted soil moulded by hand. Six main soil texture groups are recognised:

Texture group	Approx. clay content (%)
1. Sands	< 10
2. Sandy loams	10–20
3. Loams	20–30
4. Clay loams	30–35
5. Light clays	35–40
6. Heavy clays	> 45

Structure: Describes the way the soil particles are arranged to form peds. Peds are units of soil structure that are separated from each other by natural plains of weakness. They differ from clods that are formed as a result of soil disturbance such as ploughing. Structure is defined by three characteristics: grade, size and type.

GRADE measures the degree of development and the distinctiveness of the peds. It varies depending on the soil water status and can be divided into five groups:

- (i) Single grained; loose and incoherent mass of individual particles (Referred to as structureless);
- (ii) Massive; hardsetting coherent mass of soil (also referred to as structureless);
- (iii) Weak; peds indistinct;
- (iv) Moderate; peds are well formed and visible but not distinctive in undisturbed soil, adhesion between peds is usually firm and when displaced between one third and two thirds of the soil material consists of peds;
- (v) Strong; peds distinct in undisturbed soil, adhesion between peds is firm and when displaced, two thirds or more of the soil material consists of peds.

SIZE is measured and described based on the average least dimension of the peds.

TYPE of structure describes the recurring shape of a soil ped. For example, prismatic, columnar, blocky structure.

A number of different grades and sizes of peds may occur within a horizon. An example of this is when prismatic structure exists that then breaks down to small blocky peds.

Subsoil: The B horizon and its subdivisions, excluding the C horizon.

Texture Contrast Soils: Soil profiles dominated by the mineral fraction with a texture contrast of 1.5 texture groups between the A or B horizons. Horizon boundaries are clear to sharp.