Physical condition of soil

> **Surface soil condition can almost never be used to predict subsoil structure. An inspection hole must be dug.**

Physical condition of soil is an integrated assessment of soil structural issues covering surface and subsoils, which is achieved by combining the *Physical condition of surface soil* and *Structure of subsoil* datasets. This attribute highlights areas where limitations are likely to exist (due to poor soil structure) to root penetration and seedling emergence, to the free movement of air and water, and to the ease of cultivation and other surface management operations.

Land assessment in southern South Australia

This assessment indicates the location and type of soil structural problems that can potentially affect land use. It should be viewed as a guide only, and does not define specific occurrences of particular conditions. Classes take account of available knowledge (which is extrapolated over similar soil landscapes) for soil texture, aggregation, strength, dispersiveness (sodicity), and carbonate content. Subsoil structure limitations of moderate, high and very high define 'poor subsoil structure' in this assessment. Land which is non-arable due to waterlogging, salinity, rockiness or steepness has also been considered. Management practices can affect some soil properties that contribute to structural condition (e.g. bulk density, porosity, organic matter, aggregation) however this assessment is based on most likely inherent properties.

Soil properties can vary across the landscape in a subtle or dramatic fashion. Mapping at a regional scale is not able to display this level of variability.

Further information can be found in Assessing Agricultural Land (Maschmedt 2002).

Poorly structured clay subsoil restricts the movement of water, air and plant roots

Area statistics

Physical condition of soil (legend category)	Area	Cleared land
No significant soil structure problems (A)	69.93%	70.08%
Sandy / friable surface with poorly structured subsoil (C)	9.19%	10.47%
Hard setting / sealing surface, but subsoil structure is not a significant limitation (D)	4.26%	5.49%
Hard setting / sealing surface and poor subsoil structure (E)	3.68%	4.91%
Too wet and / or saline for cropping	5.54%	5.38%
Too rocky or steep for farm equipment	6.95%	3.00%
Not applicable	0.46%	0.66%
TOTAL HECTARES	15,765,460	10,439,300

NOTE: For complex soil landscape map units (e.g. dune-swale systems with contrasting components), two or more classes may occur. To ensure a more accurate result, areas of classes have been calculated from the data for each component, however, where two limiting factors occur within the one landscape, areas have been calculated for the most limiting soil physical condition.
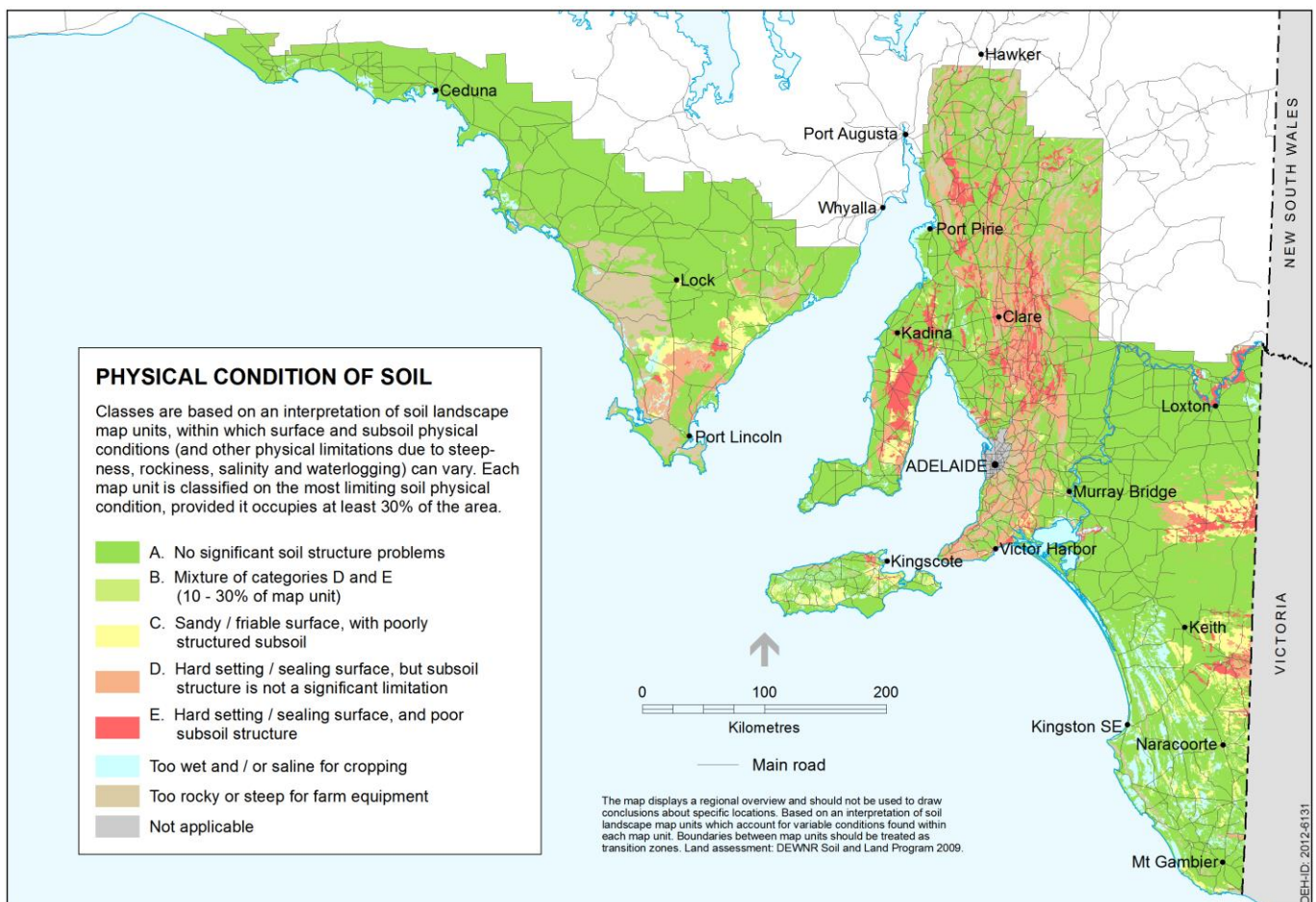
Displaying data in soil maps

Soil and land attribute maps display a simplified version of the underlying data. Mapping classes are based on an interpretation of soil landscape map units within which surface and subsoil physical conditions (and other physical limitations due to steepness, rockiness, salinity and waterlogging) can vary. Each map unit is classified according to the most limiting *Physical condition of soil* class, provided it occupies at least 30% of the area.

Patchy emergence caused by poorly structured (dispersive) surface soil

PHYSICAL CONDITION OF SOIL

Classes are based on an interpretation of soil landscape map units, within which surface and subsoil physical conditions (and other physical limitations due to steepness, rockiness, salinity and waterlogging) can vary. Each map unit is classified on the most limiting soil physical condition, provided it occupies at least 30% of the area.

- A. No significant soil structure problems
- B. Mixture of categories D and E (10 - 30% of map unit)
- C. Sandy / friable surface, with poorly structured subsoil
- D. Hard setting / sealing surface, but subsoil structure is not a significant limitation
- E. Hard setting / sealing surface, and poor subsoil structure
- Too wet and / or saline for cropping
- Too rocky or steep for farm equipment
- Not applicable

The map displays a regional overview and should not be used to draw conclusions about specific locations. Based on an interpretation of soil landscape map units which account for variable conditions found within each map unit. Boundaries between map units should be treated as transition zones. Land assessment: DEWNR Soil and Land Program 2009.

Further information

- View data on NatureMaps (→ Soils)
- Read the metadata for this layer
- Read more about soil attribute mapping
- Contact Mapland

Download from Enviro Data SA:
- Statewide map and spatial dataset
- Assessing Agricultural Lands (Maschmedt 2002)
- Soils of Southern SA book Part 1 and Part 2

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