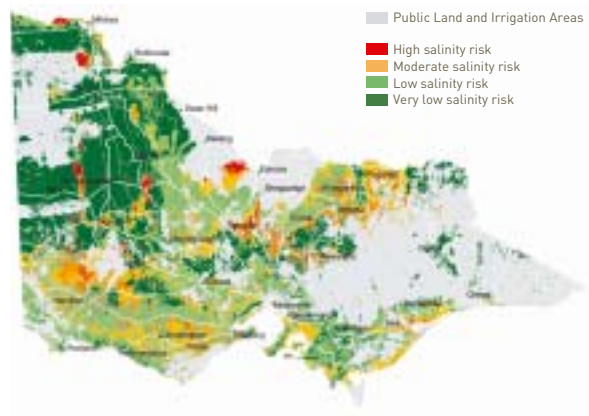


Landscape health and soils

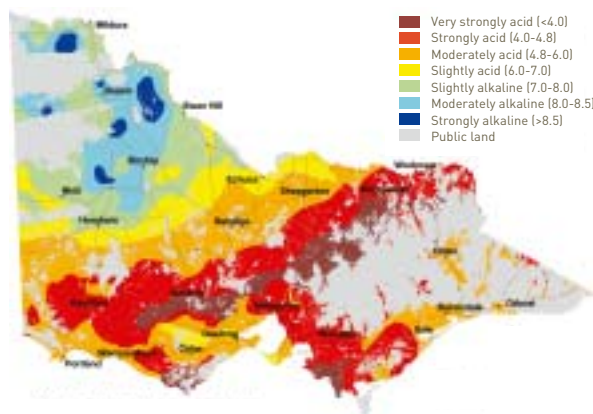
Soil and land health

Soils underpin the landscape in a fundamental way. Healthy soils enable healthy vegetation and ecosystems to be sustained. Two indicators of soil health - salinity and acidity - are especially pertinent to landscape and environmental condition.

Dryland salinity risk 1998¹



Surface soil acidity 1998¹



Source ¹DSE 2005 *Victorian Landscapes*

Dryland salinity

In the late 1980s, when strategies were developed to address salinity issues, the problems of irrigated lands were seen as the most critical area for attention. Subsequent research has shown that dryland salinity is likely to be a significant problem across a much wider area. Like irrigation salinity, it is caused by rising water table levels. However, rather than being caused by over-irrigation, it arises as a result of changed vegetation - particularly the replacement of native species with pasture or introduced crops. In 2000, an estimated 140,000 hectares of irrigated land and 120,000 hectares of dry land in Victoria were affected by salinity.

Impacts of salinity		Impacts of soil acidification	
Agricultural Production	Crop damage Reduced water quality Land loss	Agricultural Production	Known Reduced land production choices Toxicity of acid soils to plant growth Reduced growth of sensitive species Increased loss of fine clay particles affecting soil stability Unknown Improvement of nutrients beyond paddock
Biodiversity	Impact on aquatic species Vegetation decline	Biodiversity	Known Reduced earthworm numbers Unknown Microbial populations & soil fauna Stream pH & aquatic life
Infrastructure	Damage to buildings and roads Corrosion of underground pipes and foundations Deterioration of bricks and mortar	Industry and Utilities	Known Impact on concrete & steel foundations Impact on road structure power generation and water quality

Soil acidification

Soil acidification is a process that can occur naturally, however it can be accelerated through land use activities such as cropping, grazing and inappropriate use of nitrogen-based fertilisers. More than half the affected soils in Victoria are in the north east. Along with central and southern Victoria these areas are predicted to experience the greatest impacts over the next half century.

Remedial actions may include: modifying the grazing system; using perennial species; changing land-use; forestry; or land retirement. The application of lime to change soil pH is an expensive option and generally impractical on a large scale. More practical solutions include the use of crops that are tolerant to such soils (such as canola, lucerne and barley) and the development of deeper rooted plants that can avoid surface acidity.