

Managing salinity with vegetation

Salinity is managed by a combination of revegetation and engineering strategies—designed to lower the watertable in salt affected areas.

Vegetation with high water usage can be planted or retained to reduce groundwater recharge and to intercept water as it moves through the soil. Characteristics of the affected site should be considered when developing strategies which should focus on three areas:

- maintaining existing vegetation
- establishing vegetation up-slope of salt prone areas
- establishing vegetation within salt prone areas.

Maintaining existing vegetation

To help manage salinity, the first step is to develop a vegetation plan for the entire property—considering the many benefits of retaining or replanting vegetation including:

- salinity prevention and management
- soil retention in erosion-prone areas
- shade and shelter for livestock, and windbreaks for crops
- timber source
- habitat for wildlife and maintaining biodiversity.

Existing scrub and trees in an upper catchment and in salt prone areas should be retained, as trees extract groundwater from a greater depth than pastures. This helps lower the watertable and reduces water intake into the upper catchment and discharge in the lower catchment.

Check whether clearing is really worthwhile before starting. Land Management Field Manuals or other land resource information are available from the Queensland Government should be checked to determine the most appropriate land-use for different land types. Go to the library catalogue <<http://www.ehp.qld.gov.au/library/>> and search for land management field manuals to view manuals available in your region. The *Vegetation Management Act 1999* (the Act) also controls all land clearing and vegetation management allowed in Queensland. Consult the Act before proceeding with any clearing.

Establishing vegetation up-slope of salt prone areas

Trees and high water-use crops and pastures help prevent salinity in lower areas by:

- reducing the amount of water reaching the watertable in recharge zones
- increasing shallow ground water-use in transmission zones.

Local native species are preferred as they are adapted to the climatic and soil conditions. Encourage natural regeneration of trees. Trees should be planted in clumps or strips directly above salt prone areas, and below dams, to intercept soakage. Trees should be planted in strips at least 100 metres wide on steep slopes, at changes in slope (toe slopes), where soils change from porous to impermeable, along watercourses and above roadways. If possible, trees should be planted on the contour.

Once established, revegetated areas may be lightly grazed. Conservative stocking rates maintain good pasture, helping to lower the watertable, minimise erosion and maintain production levels.

Establishing vegetation within salt prone areas

Vegetation with high water-use characteristics under saline conditions act as pumps to lower the watertable and provide ground cover to minimise water loss by evaporation. In areas with shallow, saline groundwater, trees may not be able to pump significantly more groundwater than a pasture. Select tree species to suit conditions as salt levels can vary across a site. Soil and water tests can determine the degree of salting to assist in choosing plants.

Retain pastures on slightly affected salt areas and plant trees on, and adjacent to, the site. On scalded sites, plant trees above, in and adjacent to, the scalded area as soon as possible to intercept subsurface water flow.

Sustainability of plants in saline areas

There is currently a level of uncertainty as to the long-term viability of planting trees in saline areas. The accumulation of salts in the root zone of trees in saline areas may affect their growth. To ensure long-term survival of trees and pastures planted in saline areas we need to be aware of two important considerations:

- it is vital that site conditions (soil type, depth to groundwater and climate) allow the flushing of salts from the root zone after heavy rain
- select tree species with high threshold salinity levels, even if current soil and water salinity levels are not extreme.

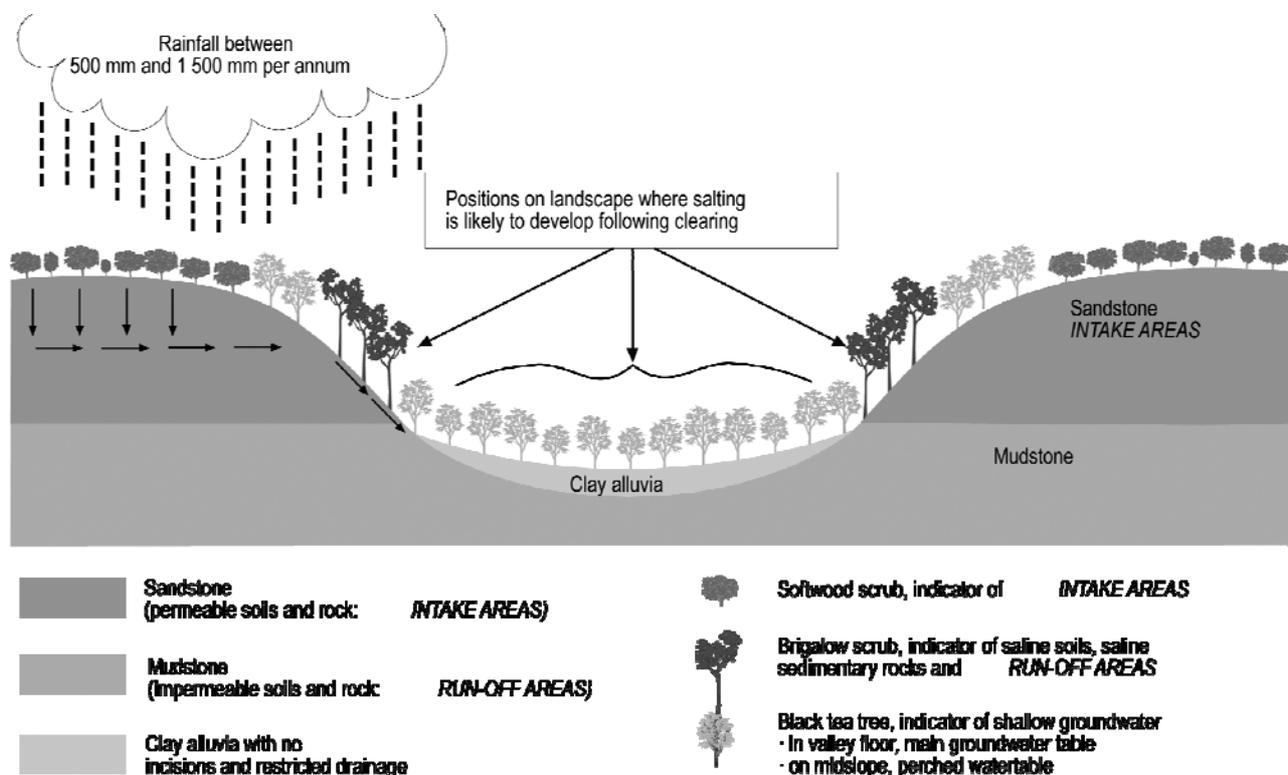


Figure 1. Vegetation on a landscape susceptible to salinity

Further Information

This and other science notes are available from the Queensland Government website www.qld.gov.au – search ‘science notes’. For further information about this science notes series phone **13 QGOV** (13 74 68) – ask for science notes – Land series L54.

For further information on salinity visit <http://www.qld.gov.au/environment/land/soil/salinity/> or email soils@qld.gov.au.