

Dryland Salinity Mitigation and Trees

IFA Forestry Policy Statement 5.7

The Institute of Foresters of Australia (IFA) advocates an end to large-scale clearing of native vegetation. The IFA supports the restoration of native vegetation and the establishment of planted forests in catchments where soil-stored salt or water tables currently or potentially could cause land degradation from salinity.

The Issue

Clearing of native vegetation for agricultural purposes has altered the balance between the amount of rainfall and the absorption of rainfall by native vegetation. In many regions this has led to a rise in groundwater tables. Dryland salinity occurs where rising groundwater mobilises salt stored in the soil into the root zone of plants and trees and concentrates it at the soil surface through evaporation. Reintroducing deep-rooted perennial native vegetation can be an effective way to mitigate dryland salinity.

Background

Dryland salinity shows the presence of salt in the soil or groundwater. It can come from a number of sources: from seawater trapped in the sediments during the periods of marine inundation, the weathering of rocks, air-borne salt and from streams flowing into the area.

Negative impacts of dryland salinity are linked to groundwater behaviour. A fine balance exists between groundwater and surface water. A slight increase in the water filtering into the soil from the surface can cause groundwater to rise significantly, bringing salt from deep in the subsoil to the root zone of plants.

Rising levels of salt in the soil or water can affect the growth and germination of most plants and they may die. Animals drinking the water can also become ill or perish. Aquatic ecosystems become degraded, the nature of native vegetation is changed, wildlife habitat is lost, the soil is exposed to erosion, infrastructure such as metallic pipes may corrode and it can damage the foundations of roads, railways and buildings.

Clearing of trees is a major cause of rising water tables. Trees play a key role in maintaining the hydraulic balance of natural ecosystems, particularly in areas where rainfall is limited or absent during part of the year.

Policy

The IFA supports and encourages:

- Promotion of the role of plantations in effectively managing dryland salinity and water quality
- Reforestation options for the management of dryland areas affected by salinity
- Research into suitable species for planting in catchment areas prone to dryland salinity and development of salt-tolerant genetic material for deployment in areas affected by dryland salinity
- Research into groundwater flow systems to support the development of salinity mitigation plans.

The IFA recognises:

- Dryland salinity is primarily caused by rising water tables resulting from over clearing of native vegetation.

The IFA considers that:

- Native and planted forests play a key role in the management of dryland salinity
- Planted forests can deliver multiple outcomes, including dryland salinity mitigation, improved water quality, commercial timber production, carbon sequestration, biodiversity, buffering of remnant native vegetation and enhanced agricultural production
- Ongoing research is needed on dryland salinity, with further assessment of the relationships between land use, land management and water quality.