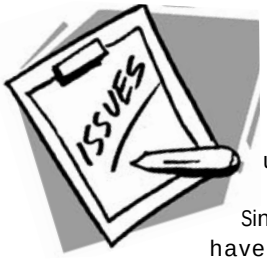
Fact Sheet

10 Dryland Salinity

Land

Dryland Salinity Issues



Salt is a natural feature of the Australian landscape. Until European settlement, this salt remained deep in the soil, below the root zone of native vegetation. This deep-rooted native vegetation used most of the rainfall that it received and little rainfall seeped down to the underlying groundwater.

Since settlement, large areas of native vegetation have been cleared for agriculture and replaced with shallow-rooted annual crops and pastures. This has significantly disrupted the natural balance, as shallow-rooted crops and pastures do not use as much rainfall, so excess rainfall tends to seep down through the soil profile. This excess water recharges the underlying groundwater systems at a much faster rate than was occurring under natural conditions. When groundwater levels rise to within a metre or two of the ground surface, the water evaporates leaving behind salt which then degrades the landscape.

As much of South Australia has received below average rainfall, shallow groundwater levels have been falling. In areas such as Kangaroo Island, which have not been as severely affected by below average rainfall, groundwater levels are still rising.

Dryland salinity has environmental impacts because many plants cannot survive in salty conditions. It also has economic and social impacts because we may lose a lot of our agricultural land and be unable to grow the crops we depend on, thus impacting many rural communities.

Trends

There is a **reduced risk** of dryland salinity in areas which have received below average rainfall since the mid 1990's.

In the Upper South East, there is a **reduced risk** of dryland salinity in the drainage network area.

Saltland area is **increasing** on Kangaroo Island.

"Without intervention, groundwater recharge and surface runoff will increase the salinity of the River Murray."

Dryland Salinity

Responding to Dryland Salinity

Salinity is one of the most significant environmental issues affecting South Australia. It is a priority for government and the community. Many projects have been started to try to address the problem. Some of the things that people have been doing include:

- constructing drainage channels,
- fencing remnant native vegetation,
- revegetation,
- protection of wetland areas, and
- planting salt-tolerant pasture on salt-affected land.

What is the Current Dryland Salinity Situation?

Area of land affected by dryland salinity

Dryland salinity occurs in all of the agricultural districts in South Australia, and is one of the worst forms of land degradation. Current estimates indicate that over 300,000 hectares of South Australia are affected by dryland salinity, with the Upper South East being the most affected area.

Area threatened by dryland salinity

Depth to groundwater is generally used as an indicator of dryland salinity. With lower than average rainfall since the mid-1990s, depth to groundwater trends are relatively stable or falling in the short term. If drier conditions continue then the area threatened by dryland salinity will also decrease. If average or above average rainfall patterns occur again, then groundwater will rise closer to the surface and the area threatened by dryland salinity will increase.

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- constructing drainage channels,
- fencing remnant native vegetation,
- revegetation,
- protection of wetland areas, and
- planting salt-tolerant pasture on salt-affected land.

> **"Dryland salinity can severely limit the farming potential of agricultural land."**

Taking Action for Dryland Salinity

Find out if there is a local environmental group you can join to plant local species of native trees and shrubs to help reduce salinity in your area.

Attention!!

Farmers Tackling Dryland Salinity

Dryland salinity can severely limit the farming potential of agricultural land, but many farmers have taken steps to rectify the problem on their lands. In Mt. Charles, in the state's Upper South East, Trevor Egel's family farm is on soil consisting of sandy dunes over heavy clay flats. Over the years, flooding has been a bigger challenge to the Egels than the extended period of below-average rainfall because of the high watertable. Water on the flats has nowhere to go but into the groundwater, but the Egels have planted lucerne wherever possible to help soak up the water. Part of the planting is based on seed harvested from their own lucerne which has performed the best on their farm. This has lead to a variety of lucerne, nicknamed 'Survivor', which is best suited to the extreme conditions and continues to improve each year.

Impacts of Dryland Salinity

Biodiversity

Dryland salinity has significant effects on our biodiversity, particularly in low lying areas. Salinity is directly contributing to species extinction and a decline in ecosystem health, and is a critical issue for biodiversity in Australia.

Inland Waters

Saline groundwater can discharge into rivers and streams as levels rise, increasing the salinity of these inland waters. Salinity increases in the River Murray may affect Adelaide's drinking water supply and the agricultural industries that depend on this water.

Economy

Dryland salinity has economic impacts from loss of productivity of land. In some cases landowners with dryland salinity problems are unable to keep farming a particular area. In 2003, it was estimated that about $26.1 million was lost in agricultural production. This is expected to rise to $42 million by 2050. Other costs include increasing costs for accessing drinking water and damage to infrastructure.

References

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Barnett, S.R (2000) Extent and Impacts of Dryland Salinity in South Australia. Report for the National Land and Water Resources Audit, Adelaide, Department for Water Resources.

Munday, B. (2006). Of droughts and flooding rain. Salt Magazine. Vol. 15. pg 6-7.

Resources

For more detailed information on the issue and actions you can take see the State of the Environment report for South Australia 2008. This is available at: www.epa.sa.gov.au/soe

Research Ideas

about Dryland Salinity

1 What is meant by 'dryland salinity'?

2 What causes dryland salinity?

3 How has dryland salinity impacted the South Australian environment?

4 How does dryland salinity impact on your community?

5 In what ways can climate change influence dryland salinity?

6 What impact does dryland salinity have on the River Murray?

7 What might happen in the future if things continue as they are?

8 What are government, business and industry doing to address dryland salinity issues in South Australia?

9 What can we do individually, or in communities, to reduce salinity in our environment?

This fact sheet is part of a set of 20 fact sheets about the key environmental issues identified in the State of the Environment report 2008, produced for the Environment Reporting Education Resource. You can access the fact sheets and learn more about taking action for the environment at the Education Resource website: www.epa.sa.gov.au/soe.
For more information call the Environmental Education Unit of the Department for Environment and Heritage (08) 8463 3911.

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