WIND & WATER EROSION - AN INTRODUCTION

WHAT IS WIND & WATER EROSION?

Wind erosion is a natural process that has assisted historically in shaping Australian landscapes. However, soil degradation by wind erosion has been augmented by inadequate or inappropriate land management practices.

This damage to the soil resource has both on-site (reduced fertility and build-up along fence lines) and off-site impacts (air quality).

Water erosion is the removal of soil from the earth's surface by water. It occurs when raindrops impact the soil surface and displace soil particles and when water flowing over land surface mobilises soil particles.

It occurs naturally at low rates, but can become accelerated as a result of human-induced management changes to the natural landscape. In each case, the same processes operate and the distinction is only a matter of degree and rate of erosion.

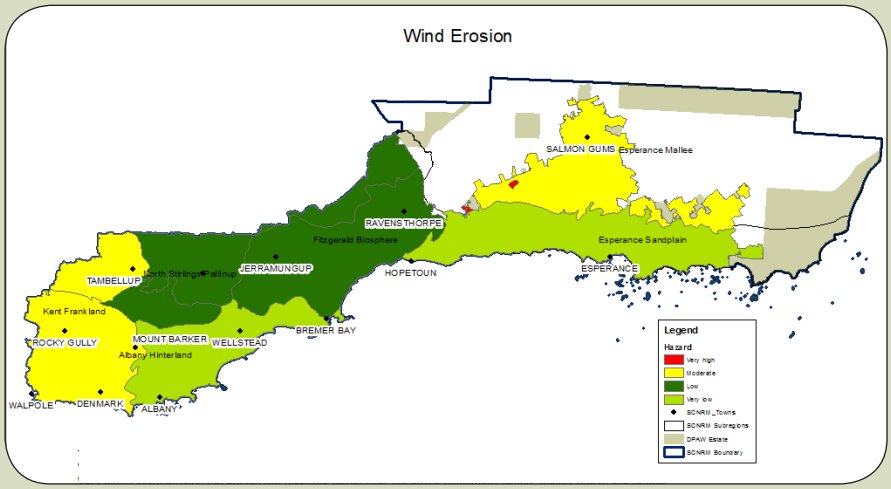
Gully erosion is caused when water flowing over land surface mobilises soil particles. Photo: Peter Morris.

BENCHMARK TARGET

- Maintaining groundcover at greater than 50 per cent across the landscape will mean wind erosion is unlikely to be significant *(Findlater et al 1990).*
- A minimum of 70 per cent intact and anchored groundcover is the recommended target for the prevention of wind and water erosion *(Coles and Moore 2004).*

CURRENT POSITION on the SOUTH COAST

Risk and erosion levels vary year-to-year and are dependent upon the climate. Drier years lead to less groundcover and higher wind erosion risk, while water erosion events are mainly caused by intense, localised summer storms. Due to reliable rainfall and increased levels of stable groundcover, South Coast wind erosion hazard for 2009 - 2012 was generally very low to low, apart from the Esperance Mallee region where wind erosion hazard was assessed as high due to below average rainfall, which limited farmers' ability to maintain protective groundcover.



Summary of wind erosion hazard across the South Coast NRM region.

PRACTICES to ACHIEVE TARGET

Maintaining groundcover is the major factor in reducing wind erosion risk.

Management options to maintain groundcover include:

- Retain stubble.
- Control grazing by stock management appropriate to the season (reducing numbers in drought/low rainfall years).
- Maintain groundcover in pastures by not over grazing paddocks if at all possible.
- Treat salinity, soil acidity and water repellence.
- Add clay or soil binders to sandy soils in intensive irrigated agriculture industries to help hold soil together.
- Use vegetation as natural windbreaks.

Maintaining intact and anchored groundcover is the major factor in reducing water erosion risk.

Management options to maintain groundcover include:

- Crop grazing early in the season to maximise early growth of pastures following the autumn feed gap.
- Pasture cropping to improve groundcover and prevent erosion during seeding and early crop growth.
- Include some summer and winter-active perennial components in pasture mixes.
- Increased use of confinement feeding systems to reduce grazing pressure on stubble and pasture.
- Re-establish or maintain riparian zone vegetation.

PLEASE NOTE:

Unless specifically referenced, the information in this resource information sheet has been summarised from the *Report Card on Sustainable Natural Resource use in Agriculture by the Department of Agriculture and Food WA.*

For more information go to: www.agric.wa.gov.au/soil-constraints/report-card-south-west-western-australia.

Coastal erosion, caused by wave action and currents, drainage or high winds **Photo: Peter Morris**

REFERENCES

- Coles N and Moore G (2004). Runoff and Water Erosion. In: 'Soilguide: A Handbook for Understanding and Managing Agricultural Soils' (ed. G. Moore), Department of Agriculture, Western Australia. Bulletin No. 4343, pp223 – 242.
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- Findlater PA, Carter DJ and Scott WD (1990). A Model to Predict the Effects of Prostrate Groundcover on Wind Erosion. Aust. J. Soil Res. 28, 609 – 22.
- Galloway P and van Gool D (2013). 'Water Erosion'. In: Report Card on Sustainable Natural Resource use in Agriculture, Department of Agriculture and Food, Western Australia.

FURTHER READING

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- Evergraze (2013) Manage Wind Erosion – South Coast Sandplain WA (http://www.evergraze.com.au/library-content/manage-wind-erosion).
- DAFWA (2015) Water erosion - An Introduction (https://www.agric.wa.gov.au/water-erosion/water-erosion-introduction).
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