

Salinity in the Lockyer Valley

Identifying salinity



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What causes salinity

All water, including rain, contains salts. Salinity is a natural result of weathering of rocks and concentration of salts by evaporation or plant transpiration. It becomes an issue when the concentration of soluble salts in soil or water increase to levels that affect water quality, soil properties, plant growth, ecosystem diversity or even built infrastructure.

Saline areas are caused by a rise in underground water-tables, which bring naturally occurring salt to the ground surface. These areas typically occur in low landscape positions and are influenced by geology as well as land use change over time.

Natural and man-made features in the landscape that affect the incidence of salinity include placement of dams (Image 1), drainage characteristics of the catchments including where streams meet, and changes in geology or topography (Figure 1).

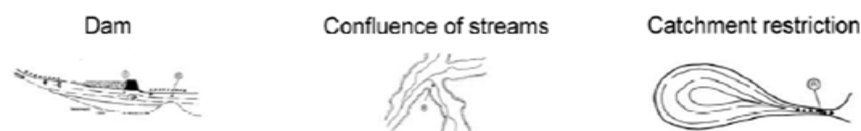


Figure 1: Dam placement and natural features including the confluence of streams or changes in geology that restrict water movement can influence the expression of salinity in the landscape.

Irrigation can also add excess water to some salinity sensitive areas, as well as move salts from the soil zone into the groundwater. Changing land use impacts on the water balance and has an effect on when and where salinity is likely to occur.



Image 1: Dams can have an impact on the water balance and result in rising water tables, concentration of salts and in severe cases bare ground which are more susceptible to erosion.



Image 2: Waterlogged areas (foreground) and tree dieback (background) may be indicators of saline areas.

Identifying Saline Areas:

Saline areas may be identified through land that is:

- Waterlogged (Image 2) or remains wet for extended periods.
- Bare or has a poor vegetation cover.
- Growing salt tolerant plant species such as marine couch, salt bush or black tea-tree.
- Showing signs of vegetation dieback.
- Suffering from poor yields

Salinity in the Lockyer

There is a distinct and recurring pattern of salinity in the Lockyer Valley both in small dryland catchments and the major southern tributaries closely associated with the Winwill conglomerate, part of the Koukandowie geo- logical formation (Figure 2). This geologic formation is very resistant to weathering and has caused catchments with restricted water outflows in both small tributaries and in the larger southern tributaries feeding into Lockyer Creek.

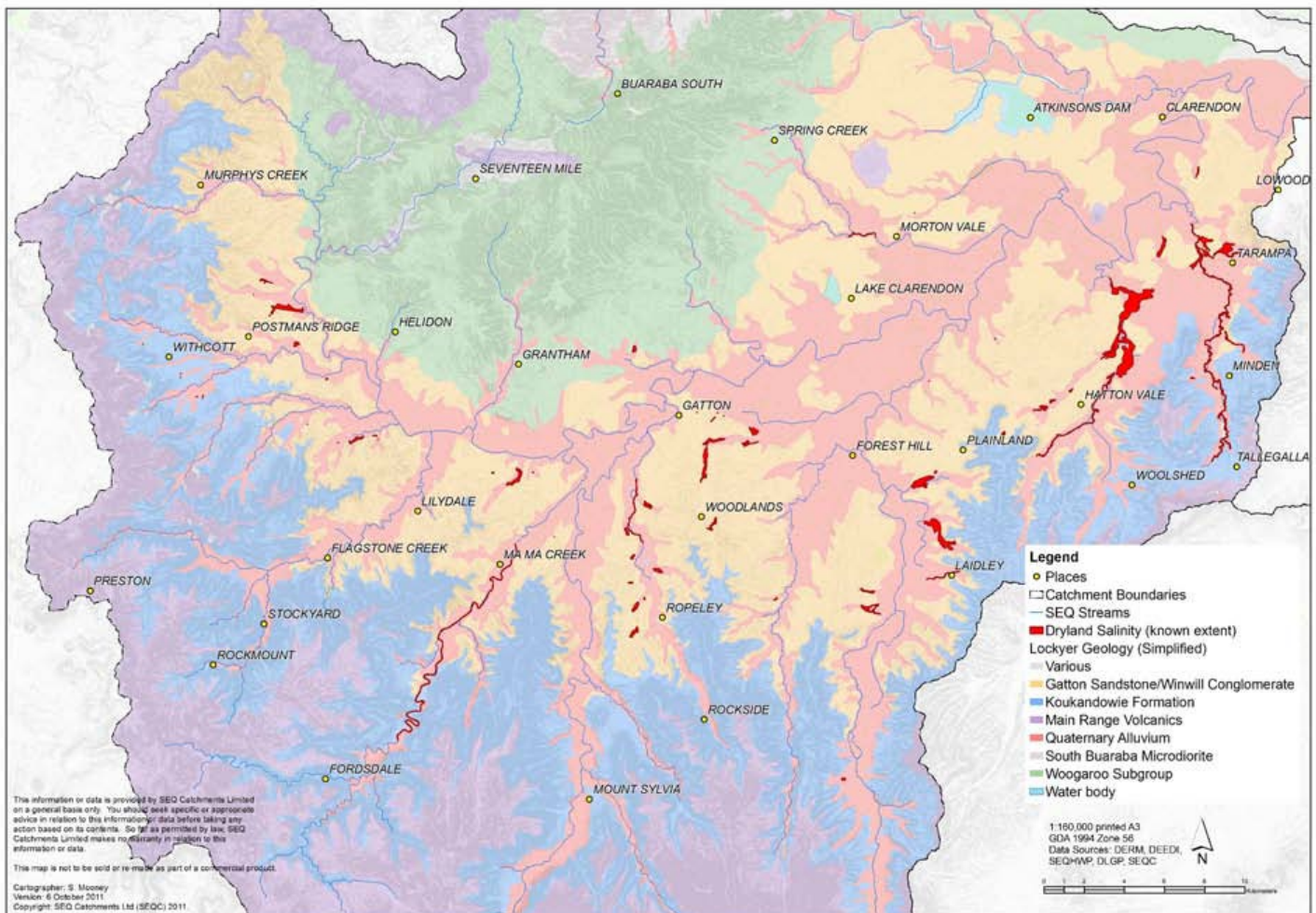


Figure 2: Red areas indicate areas of salinity in the Lockyer Valley in both alluvial groundwater and dryland shallow watertable areas.



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