Unit 2

Physical Conditions That Impact a Plant's Growth and Survival – Salinity

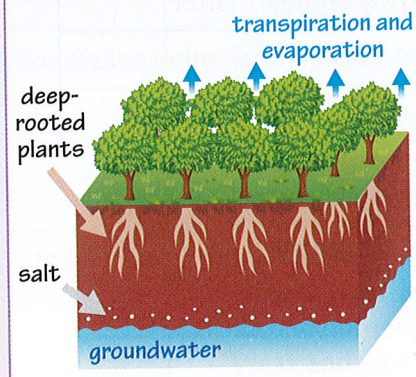
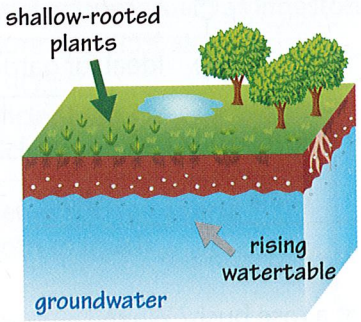
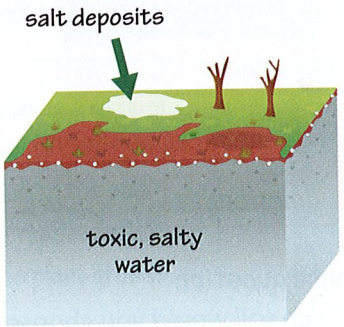
Salinity: *The dissolved salt content of a body of water.*

Large salt deposits occur naturally over vast areas of Australia. The salt is stored deep underground, or as surface salt deposits and salt lakes. However, high levels of salinity have become a serious environmental problem in Australia as well as in other countries around the world. There is widespread evidence in Australia of affected soil, groundwater and river systems. Areas of Western Australia, South Australia and the Murray-Darling Basin display particularly shocking levels of salinity.

When the Europeans arrived in Australia in 1788, salt was safely stored deep within the soil. Over the years following their arrival, land was cleared to make way for traditional European farming methods. Clearing land involves removing large, native plants with deep root systems–such as trees–and replacing them with neat rows of shallow-rooted crops.

Dryland Salinity

Groundwater is water found beneath the soil surface. The watertable is the point where the unsaturated ground meets the saturated ground. Dryland salinity is the movement of salt to the soil surface via groundwater due to the rise in the watertable. It occurs in non-irrigated areas and is known to cause the most extensive damage.

Before Clearing	*After Clearing*	*Result*
		
Deep-rooted plants are able to absorb large volumes of water before it reaches the salt-laden ground. This keeps the watertable low, and allows the salt to remain well below the surface.	When deep-rooted plants are removed and replaced with shallow-rooted crops that use less water, more water is able to move up through the ground, raising the watertable and allowing salt to come to the surface with it.	A rising watertable dissolves the naturally occurring salts found in the ground, causing both the soil and groundwater to become contaminated. Plants extract this toxic, salty water using their roots. The salt remains in their root systems causing a destructive breakdown of cells. Plants suck up less water and soon die. Salt deposits can often be seen on the surface of the land in salinity affected areas.