

## Drying Out Wet Soils – Using Plants as an Alternative to Fill

Due to the wetland nature of the Swan Coastal Plain, many areas within the Shire of Serpentine Jarrahdale experience seasonal water inundation or waterlogged soils. This physical feature of the landscape can become problematic for landowners, as it may conflict with their desired land use. Many seek permission to fill in their properties with additional fill to try and combat this. In many cases, this will not be permissible due to the adverse impact this action will have on the amenity, environment and water resources of neighbouring properties. Fill can block the natural water path, interrupting the flow and diverting it to sit in larger volumes in the adjacent landscape. If the Shire has refused or approved less fill than you applied for, an effective and environmental beneficial activity you can undertake to alleviate some of the waterlogging issues you face, is to plant local native trees and shrubs to help soak up some of the unwanted water from the soil.

### Groundwater and Surface Water

Increased surface water levels are closely linked to the clearing of vegetation within wetland catchments. This removal of the native plants leads to elevated groundwater levels, which then sit perched at the soil surface. When vegetation is removed it also increases the rate of surface runoff and can result in rising groundwater levels – often saline. This occurs because with no plants, there is no drawdown through evapotranspiration.

### Things you can do from an environmental perspective

Soil saturation is a natural occurrence in low-lying areas, where in winter time the groundwater sits close to the ground's surface. Before land clearing occurred, these swamp zones were naturally filled with native vegetation which acted to filter and absorb the water within an ecological cycle, alleviating the waterlogged environment. Replanting these species back into the wet areas of your property is a long term sustainable activity that can not only ease the issue of water inundation, but help create healthier, more capable soils throughout the year. Strategically planted vegetation, either in strips along fence lines or in vegetation patches within paddocks and yards can help combat waterlogging. Prolonged inundation leads to a lack of oxygen in the soil. Plants help aerate the soil, letting it breathe. Paddocks benefit greatly from wind breaks planted at right angles to prevailing easterly winds. They protect the top soil from being degraded via wind erosion, provide shade and shelter for livestock, and reduce ground surface temperature during summer, thus creating a modified 'microclimate'. Vegetation also adds beauty and landscape amenity, increasing the aesthetic and monetary value of a location.

### Knowing your soils

In the Shire, there are three types of soils present on the Swan Coastal Plain, sitting west of the Darling Scarp. These are

- the Pinjarra Plain complex - (Beermullah, Guildford and Serpentine River soils),
- the Bassendean Dunes - (Bassendean sands, Southern River and Bassendean swamps), and
- the Foothills soil type located at the base of the Darling Scarp (however these tend to drain well)

Knowing the soil type on your property is invaluable for general land management, and especially when selecting plant species for a revegetation project.

*(These soils descriptions are abridged excerpts from 'Keeping it Local', a Landcare SJ and SJ Shire joint publication.). Map: Jodie Wood*

## Contact Us

### Enquiries

Call: (08) 9526 1111

Fax: (08) 9525 5441

Email: [info@sjshire.wa.gov.au](mailto:info@sjshire.wa.gov.au)

### In Person

Shire of Serpentine Jarrahdale

6 Paterson Street, Mundijong WA 6123

Open Monday to Friday 8.30am-5pm (closed public holidays)

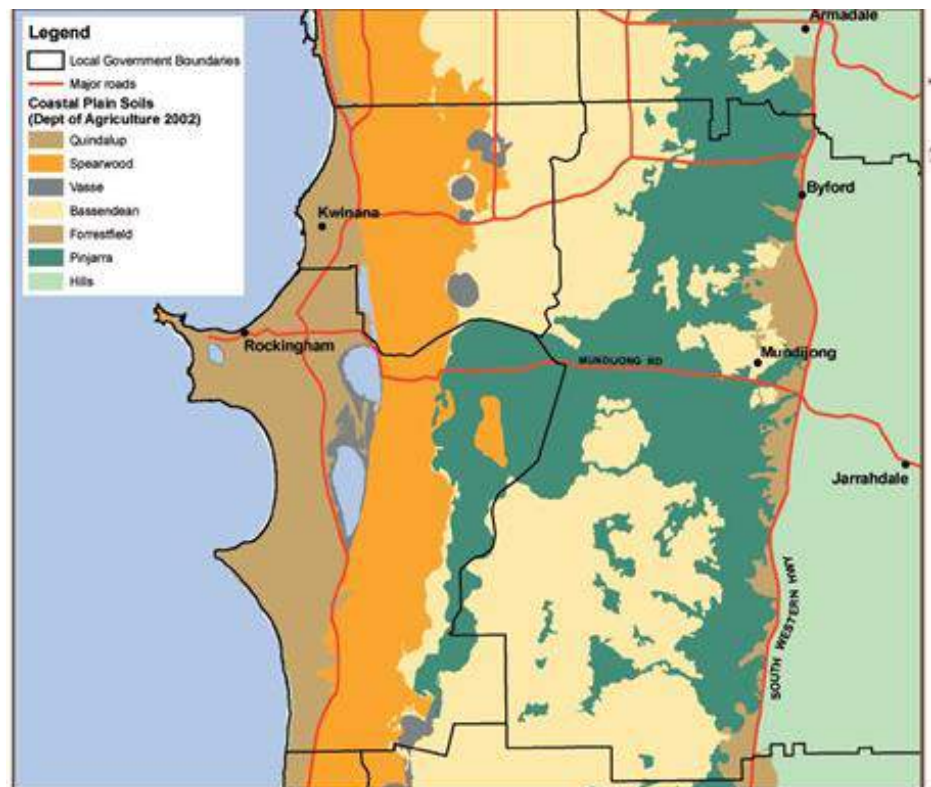


[www.sjshire.wa.gov.au](http://www.sjshire.wa.gov.au)



**Pinjarra Plain:** This complex group of alluvial soils comprises fertile clays and loams made up of different soil ages, deposited off the scarp and further east, by rivers and streams. Guildford soils consist of a duplex profile, usually sand/ loam over clay. Beermullah soils are prone to becoming saline and waterlogged. Serpentine River soils can be found south of Cardup in flat, poorly drained plains. The natural vegetation type of these soils is reflective of a wetland environment with sheoak and paperbark or marri and flooded gum woodlands. Poorly drained flats of both the Beermullah and Guildford complexes give rise to shrublands, herblands and sedgelands.

**Bassendean Dunes:** These sands make up the oldest dune system on the Swan Coastal Plain. The nutrients have largely been removed by years of water leaching through the profile, leaving infertile pale grey/yellow sand, which can be acidic and lacking organic matter. The natural vegetation of this soil type is open banksia woodland with a very diverse understorey. The Bassendean swamps in the low-lying areas of the dunes have a dampland environment which contains woodlands of paperbark and, in the higher areas, flooded gums, marri and holly-leaf banksia. The soil is black and peaty. Southern River soils are characterised by aeolian sand over alluvial clay, and so in higher ground the Southern River soils are similar to Bassendean sands and along the drainage lines similar to Guildford soils.



### A local native plant list

Provided is a list of local native species that are found in low-lying to swamp areas naturally in the locality. This list has been collated from the larger catalogue, the 'Keeping It Local' publication, which can be found on the Shire's website. Alternatively, you can ring or email Landcare SJ, (08)95260012 or [info@landcaresj.com.au](mailto:info@landcaresj.com.au), if you would like a hardcopy to be posted to you. It is important when planning a revegetation project that you consider the impact livestock can have on survival rates. Livestock can cause soil compaction and increase nutrient levels through their effluent. The erection of fencing is critical to protect your newly planted seedlings from grazing and trampling, and prevent possible ringbarking of existing trees. When planting in wet areas it is important to note that plants will drown unless they have a part of their roots above semi-permanent water levels, try using ripping and mounding to enhance seedling chances of survival. If you would like further advice regarding ground preparation for revegetation, the contact the Landcare SJ.

### References

Mike Allen. January 2000. **WN3 Water Notes - Wetland vegetation**. Water and Rivers Commission

Johanne Garvey, Sietske Hunn, Kristy Gregory, Dr. Penny Hollick. **Keeping It Local**. Serpentine-Jarrahdale Community Landcare Centre



SOIL TYPES	Bassendean Dunes	BD
	Pinjarra Plain	PP

TREES >8m			SOIL TYPE	EXTRA INTERESTS		
Genus	Species	Common Name		Low Flammability	Dieback Resistant	Screening/Windbreaks
Banksia	ilicifolia	Holly-leaved Banksia	BD, PP	Y		
Banksia	littoralis	Swamp Banksia	BD, PP	Y		
Casuarina	obesa	Swamp Sheoak	PP		Y	
Eucalyptus	rudis	Flooded Gum	BD, PP		Y	
Melaleuca	cuticularis	Saltwater Paperbark	PP		Y	Y
Melaleuca	preissiana	Stout Paperbark	BD, PP		Y	Y
Melaleuca	rhaphiophylla	Swamp Paperbark	BD, PP			
Paraserianthes	lophantha	Albizia	BD, PP	Y	Y	
TALL SHRUBS >3m			SOIL TYPE	EXTRA INTERESTS		
Genus	Species	Common Name		Low Flammability	Dieback Resistant	Screening/Windbreaks
Actinostrobus	pyramidalis	Swamp Cypress	PP			Y
Hakea	marginata		PP	Y		
Hakea	varia	Variable-leaved Hakea	BD, PP	Y		Y
Jacksonia	furcellata	Grey Stickwood	BD	Y		Y
Jacksonia	sternbergiana	Stickwood	PP	Y		
Kunzea	ericifolia	Spearwood	BD, PP			Y
Melaleuca	teretifolia	Banbar	BD, PP			Y
Melaleuca	uncinata	Broom Bush	PP			Y
Melaleuca	viminea	Mohan	PP			Y
Taxandria	linearifolia		BD, PP			Y
Viminaria	juncea	Swish Bush	BD, PP	Y	Y	Y
MEDIUM SHRUBS 1-3m			SOIL TYPE	EXTRA INTERESTS		
Genus	Species	Common Name		Low Flammability	Dieback Resistant	Screening/Windbreaks
Adenanthos	obovatus	Basket Flower	BD, PP	Y		
Aotus	gracillima		BD, PP	Y		
Calothamnus	lateralis		BD, PP			
Calothamnus	quadrifidus	One Sided Bottlebrush	PP		Y	
Hypocalymma	angustifolium	White Myrtle	BD, PP		Y	
Melaleuca	lateritia	Robin Red Breast	BD, PP			Y
Pericalymma	ellipticum	Swamp Teatree	BD, PP			Y



Regelia	ciliata	Mousy Bush	BD, PP			
Verticordia	densiflora	Compact Featherflower	BD, PP			
Verticordia	plumosa	Plumed Featherflower	PP			
<b>SMALL SHRUBS &lt;1m</b>			<b>SOIL TYPE</b>	<b>EXTRA INTERESTS</b>		
<b>Genus</b>	<b>Species</b>	<b>Common Name</b>		<b>Low Flammability</b>	<b>Dieback Resistant</b>	<b>Screening/Windbreaks</b>
Acacia	willdenowiana	Two Winged Wattle	BD, PP	Y		
Astroloma	pallidum	Kick Bush	PP	Y	Y	
Bossiaea	eriocarpa	Common Brown Pea	BD, PP	Y		
Gompholobium	tomentosum	Yellow Pea	BD, PP	Y	Y	
<b>GROUNDCOVERS</b>			<b>SOIL TYPE</b>	<b>EXTRA INTERESTS</b>		
<b>Genus</b>	<b>Species</b>	<b>Common Name</b>		<b>Low Flammability</b>	<b>Dieback Resistant</b>	<b>Screening/Windbreaks</b>
Dampiera	linearis	Common Dampiera	BD, PP	Y	Y	
Lobelia	anceps	Angled Lobelia	PP	Y		
Phlebocarya	ciliata		BD	Y	Y	
Scaevola	lanceolata		PP	Y		
<b>SEDGES AND RUSHES</b>			<b>SOIL TYPE</b>	<b>EXTRA INTERESTS</b>		
<b>Genus</b>	<b>Species</b>	<b>Common Name</b>		<b>Low Flammability</b>	<b>Dieback Resistant</b>	<b>Drought Tolerant **</b>
Baumea	preissii		PP	Y		
Baumea	vaginalis	Sheath Twig-rush	PP	Y		
Ficinia	nodosa	Knotted Club-Rush	PP	Y		Y
Isolepis	cernua	Nodding Club-rush	PP	Y		
Juncus	pallidus	Pale Rush	PP	Y		Y
Juncus	pauciflorus	Loose Flower Rush	PP	Y		Y
Lepidosperma	effusum	Spreading Sword Sedge	PP	Y		
Lepidosperma	longitudinale	Pithy Sword Sedge	BD, PP	Y		
Loxocarya	cinerea		PP	Y		
Meeboldina	cana	Hoary Twine Rush	PP	Y		
Tetraria	capillaris	Hair Sedge	PP	Y		

\*\* Some sedges and rushes can only survive in permanently wet areas, if your property dries up in summer, it would be wise to plant drought tolerant species