

Dear all,

Well, you have all had a few days off and I guess you are about to have a few more with the New Year almost upon us, so I reckon I can sneak in at least one more Kamarooka watertable graph. You might like to inspect this over a nice full bodied glass of Shiraz. The choice is entirely yours.

The attached image is from numbers I have been collecting from bores in the 2005 plantation over the past couple of years. You have not seen these before. I only pushed the files into shape tonight. The results tell an important tale that NUGians and others need to understand.

We have spoken on many occasions about the battle between trees and deeper groundwater pressures that arise from the hydraulic head bestowed by the catchment above the plantations. We have discussed this on several occasions at bore 9 under the northern remnant vegetation where the deeper bore shows a groundwater level several metres above the adjacent shallow bore. We have understood that in many places the trees pull groundwater off the top of a deeper groundwater system in the underlying bedrock. When we drill bores deep into these systems the water level reflects the general depth that would exist in the absence of the trees. When we drill into shallower sediments at the same sites we see the drawdown established by trees able to extract groundwater faster than it can be replaced.

On several occasions we have also discussed the hydraulics of the groundwater system noting that the highest pressures and shallowest groundwater occurs where the hydraulic gradient of groundwater in the sloping bedrock system gives way to the more subdued hydraulic gradient in the plains. All other things being equal this means more groundwater enters the break of slope than is able to escape it, and a zone of groundwater discharge develops along the junction of the hills and the plains. We have also discussed the coincidence of this zone of higher pressure groundwater with a general reduction of permeability as we move from the bedrock rises to the immediate plains and how this adds to the groundwater discharge/salinity issue.

Unlike the 2004 plantation the 2005 plantation was located immediately over the zone of groundwater discharge at the break of slope. The northern two thirds of the plantation are located over the high pressure discharge area. The southern extremity is located over deeply weathered bedrock at a slightly higher elevation.

Given the greater influence of the catchment on groundwater pressures in the region of the 2005 plantation it comes as no great surprise to see the saline groundwater is not lowered in the same way evident under the 2004 plantations (beyond the zone of high groundwater pressure). In fact the watertable under the 2005 plantations is not much deeper than it is under the saltbush in the hyper-saline areas immediately to the west.

What does this tell us? Well, as far as plantations are concerned the message is location, location, location if you are looking for a watertable response. Interestingly, though, if you just want to grow trees, then as long as this dry climate hangs in trees close to saline land appear to thrive. The 2005 plantation trees are now pushing though 7 metres in height.

The 2005 plantation is admittedly a year or so behind the 2004 trees, and the width of the plantation is not as great, so we probably need to wait to see if the 2005 lot catch up to their mates.

Location image map of bores is also attached.

Interesting numbers....

Happy New Year to you all.

Phil