

March 2014 in Our Catchment

It has been very pleasant weather this month, but the rain hasn't really complemented the good rain in late February. I thought I'd have a great day's mushrooming on the Saturday of the Canberra Day weekend: no such luck! There were earth stars and thumbtacks and other small ones, but no pine mushrooms yet. The countryside is still taking all the water it can ... someone said the awful words "green drought" the other day. A couple of days of steady rain would be very welcome.

Your Results

Parameter	Where it comes from	How it affects things	Local events
Electrical Conductivity	The ground water and soil determine the EC	Limey soils are naturally more conductive, more dissolved CO ₂ ; waterlogging also increases mineral content.	Many sites have elevated readings (400 $\mu\text{S.cm}^{-1}$ +) but two are especially worth noting: Woolshed Ck has over 2000 $\mu\text{S.cm}^{-1}$ at the present moment, and the change between the input and the pond at East O'Malley is dramatic.
Turbidity	This is how much light can penetrate the water.	Silt and dissolved humus change turbidity	The new wetland in Wright & Coombs is still serving as a silt trap and upstream in Weston Ck is not really much better. Other muddy sites are at North Watson and Chimney Creek.
Oxygen Saturation	Oxygen gets into water through flow, wave action and plants growing.	More than 120% saturation causes embolisms in animals, big or small; below 60% and it is hard for things to breathe.	Several sites have poor Oxygen readings: the bottom of Sullivans Ck as usual, but also North Watson Wetland, Whiskers Ck, Barracks Ck and Googong Ck in the village are at or under 4.0mg.L ⁻¹ .
Phosphorus	Phosphorus is found in small amounts in disturbed soil; the other source is fertilizer.	Every cell needs P to carry its Oxygen: excess leads to rapid growth of planktonic algae.	The Dawes Rd inlet at Norgrove Park has off scale P, but by the time the water has wound its way through the serpentine pools it is all gone! Just what Water Sensitive Urban Design is there for.
Ferals	Introduced fish	<i>Gambusia</i> and European Carp outcompete the locals	The North Watson system has active infestations of <i>Gambusia</i> , and John Bisset warns that there are hungry leeches in the bottom of Barracks Creek.

There is no water in Urila Creek or Scabbing Flat Creek at Kings Highway. There is also no water in the top of the Yass River, or Brooks Creek or in the bottom of Tinderry Creek ... so the soil is very thirsty.

Alligator Weed — a real threat to our waterways

The NCA reported an outbreak of Alligator Weed (*Alternanthera philoxeroides*) in Tarcoola Reach and Yarramundi Reach of Lake Burley Griffin. The authority has a control program in place already. To find more go to www.dpi.nsw.gov.au/agriculture/pests-weeds/weeds/profiles/alligator.

Alligator weed is a very successful self-propagator. It makes plenty of seed. It grows readily from fragments. As it is very common on the coast, we should all be well aware that anyone could be responsible for its appearance in our waterways. A degree of hygiene with vehicles and equipment would help prevent accidental introduction. If you are visiting an area where alligator weed is growing clean up your socks and trouser legs, wash down the mud on vehicles, especially trailers, and be careful that it is not in any vegetable matter or soil you bring home.

Stephen's Last Little Blog

I have found, after much of a life spent studying it, that you do very much better, in the end, by working with it.

We coast dwellers all too easily forget that most of this continent is semi-arid and arid rangeland. The climate is such that drought is the norm. The soil is shallow or barely there. The ground cover has a soil crust and a mosaic of grasses and forbs, seasonal, fragile and scattered in coverage. The main vegetation component is the understorey, a collection of woody and not-so-woody shrubs with leathery or succulent foliage and a capacity to withstand dust storm blasting, driving winds, scorching sunlight, bitter frost and inundation. The canopy is in clumps. The trees in that canopy are small, slow-growing and often many stemmed. The herbivores are numerous but transient. The insects come in plagues. The grazers move through staying while the pick is juicy, moving when the pick gets coarse. In such an ecosystem enclosure (particularly with fencing) appears to be a sure fire method for dramatic and persistent failure.

Here is a useful discussion on enclosure and its history

www.thelandmagazine.org.uk/articles/short-history-enclosure-britain

Enclosure is a very difficult concept and many and deep are the holes in the mire that this concept makes. As I am neither an agricultural scientist nor an agricultural historian I will almost inevitably end up in one or more of those holes very soon. But, knowing that...

In our semi-arid rangeland which stretches almost from Orange to the Pilbara coast, enclosure is proving to be economically inefficient. Right now we are once again negotiating the redistribution of funds from the public purse to provide drought relief for graziers unable to allow their grazing herbivores to 'follow the pick'. We are also still struggling with the tar baby that is *water allocation rights*.

Enclosure of our rangeland is very frequently socially disastrous...rural households are constantly under monetary and emotional stress, and rural communities in a state of flux.

Enclosure appears to be ecologically ridiculous. In our rangelands herd animals, native and imported, will always follow the pick given the opportunity. If they are restrained from moving they will inevitably eat out the paddock. Could we call this the *Tragedy of the Enclosures*?

The locals appear to have picked this up 59 thousand years ago. It may have taken a few generations to catch on but they found it best to follow the food, and so live with the land, not against it.

Alright, my gum boots are well and truly full, and the seat of my trousers is very damp! That said, we have to have a real discussion of this dilemma, without the (deliberate) pejoratives used above.

Is enclosure the core problem? No. There are genuine benefits to putting boundaries, real or metaphysical, around resources. Nor is it a universal solution.

Let us go back to rangeland management. Humans have developed several different approaches to the exploitation of rangeland: hunting and gathering, nomadic herding, fixed range herding with or without use of the 'long paddock', lot feeding and many others, including mixtures of all of the above. We are an enterprising lot, *Homo sapiens*. Each of the approaches turns out to be at least economically sound where it closely reflects the environmental conditions and constraints. Where such conditions and constraints are overridden or ignored the planet usually brings us up short!

This last short and acute drought is a useful example. A nine to eleven year hammering of the soil and the vegetation followed by two or three floods and then by some of the severest windy, dry weather in two hundred years brought about ground water collapse, soil losses, pasture failure and stock death in quick succession. It wasn't just on the black soil plains. Mr Abbott and Mr Joyce didn't really need to travel far from Canberra to see what was happening. Pulling down the fences would have little use just now. But what about being included in future planning?

Yes, I can hear the slurping in the mire too, but bear with me.

We now have the technology to map pasture condition in real time and so make planning decisions that should tell us what stocking rates can be sustained, where and for how long. Those old cattle kings, with their strings of properties would have been thrilled to have had such technological support. Couple that with some lateral economic thinking about sustainable use of resources, and exchange of land titles for grazing permits and... It is not so much the rigidity of the property boundaries as the rigidity of our thinking.

A drive to Adelaide, Broken Hill or Longreach will quickly show you that rangeland can be used in other ways, at least sometimes. The horizon on the Hay Plain is picked out in the bright yellow of the plastic coating of cotton rolls. I'm told it is also true round Bourke and west of Roma. Cotton farmers like boundaries and levelled, controlled landscapes, but what happens in the fallow? Is it just too avaricious to think that the fallow could be grazed? Do we need some lateral thinking here? Would it even be too revolutionary to have cotton/canola/grain growing permits for land organised so that soil moisture conditions and

availability of irrigation have to be met before permits are activated? Is that too much loss of individual choice? What about the common sense of cropping when the outcome is likely to be economically sound? Alright I'll come out of the mire now!

We are being confronted by the realities of the rangeland ecosystems. We have the technologies to follow the dynamics of the landscape. Catastrophes aside, we have the information to plan well. Can we have the imagination to act flexibly?

Someday, perhaps, the grazier will continuously move his stock across the rangelands in response to ecologically sustainable indicators of available pick and soil moisture. The cotton grower will cultivate one set of paddocks this year and pick up and move across country next year and only grow the acreage that the land can sustain this time. The markets will support this large scale crop rotation and minimized grazing pressure, and the common purse will only be called upon when there is a genuine, unforeseen disaster. The farming community may then be less stressed emotionally, financially and climatically. Where there are fences, they'll be there to preserve special things or, not too rigidly separate us from one-another.

These are my views, not those of the Molonglo Catchment Group. I would just like you to think them through.

Calendar

1 st April	Revegetation Activity, Jerrabomberra Wetlands	9:00am at the Wetlands Office, Dairy Flat Rd.
6 th April	<i>Brushstrokes in the Bush</i> Justice Robert Hope Park, North Watson 10:30am–12:30pm	Contact the Conservation Council of the ACT 6229 3200
11 th and 12 th April	Pamboola Bioblitz, in Pambula.	Visit www.alcw.org.au to find out more, if you are off to the coast!
16 th April	<i>Spotlight the night</i> 5:30pm–7:30pm Mount Majura Nature Reserve	Contact the Conservation Council of the ACT 6229 3200
19 th and 20 th April	Sampling time	Your site

Stephen Skinner

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The operation of the Molonglo Catchment Group is assisted by the Australian Government's Caring for our Country and the ACT Government. Some administrative assistance is provided by the Australian Government's GVESHO program.