Changing 'Glenbrae'

G.S. Ward

'Wooroola', Kelvin Rd, Gunnedah NSW 2380

Abstract. *In 1997 'Glenbrae' was covered with large areas of bare ground. As a result of i) changes in grazing management, ii) deep ripping and iii) seeding with tropical grasses and temperate legumes, the bare areas have become productive again. Results of changes in bare ground along a fixed transect over an 8-year period are presented.*

Introduction

My parents brought 'Glenbrae' in 1994 during a drought. My initial reaction as I was driving up to the old house on the hill was that they were going crazy in their old age – all I could see was bare ground everywhere. The 435 ha property was a worn-out old sheep and farming place with approximately 60 per cent clay pans – hard red pans impenetrable by rain or root. However, one thing which we all liked was that the property was littered with Kurrajongs. Eighty per cent of the property had been ploughed over the years, sown to wheat and oats, so much of the topsoil had been removed by various forms of erosion. What was left had been set-stocked with sheep. Although my parents brought only 40 cows and calves to the property in 1994, there was insufficient feed to sustain them, and the Kurrajongs had to be lopped.

Time to change

My wife and I moved back from North Queensland in 1997. Soon after that, my mother Delsia Ward and I did the Holistic Management course with Brian Marshall. Our whole Nandewar Range Landcare group did this course and it was a real turning point in our lives. It made us start down the road of planned grazing and resting of our pastures. In this system, we manage the worst part of the paddock working on the principle of animals eating a third of the pasture, trampling a third, with a third left behind. We have been using this system ever since. We actually started to focus on what we wanted to grow rather than what we did not want to see growing. The results of this approach are self-supporting – the more you get to grow the more you want to see growing, both in terms of dry matter per hectare and diversity of species per hectare. There is a quote that I remember often… "If you always do what you have always done, then you will always get what you have always got."

When we started our new grazing management practices, we used moveable electric fencing until we decided which way was best to split up our paddocks, and where the troughs should be positioned. We also started to monitor a transect in the worst paddock on 'Glenbrae' with the theory that if we could not make a difference to the hardest and poorest paddock using our grazing management system, then we were wasting our time. The results along the transect showed that we were onto a winner with the amount of bare ground decreasing from 85 per cent in January 1998 to 15 per cent in March 2006 (Figure 1). Plants of all types increased the ground-cover from 3 per cent to 57 per

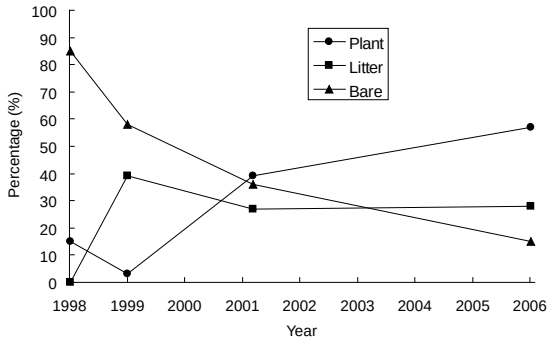

Figure 1. Change in the percentage (%) of plants, litter and bare ground along a fixed transect in a degraded paddock as a result of changes in management imposed from 1998. Assessments were made in autumn.

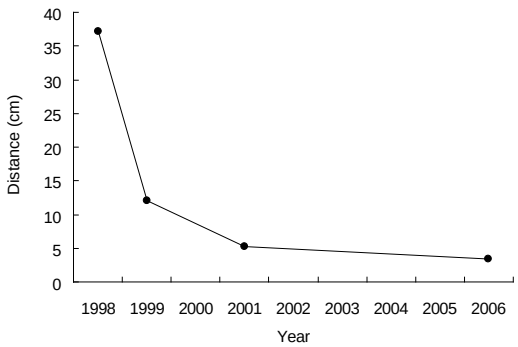

Figure 2. Distance (cm) between perennial plants along a fixed transect since 1998.

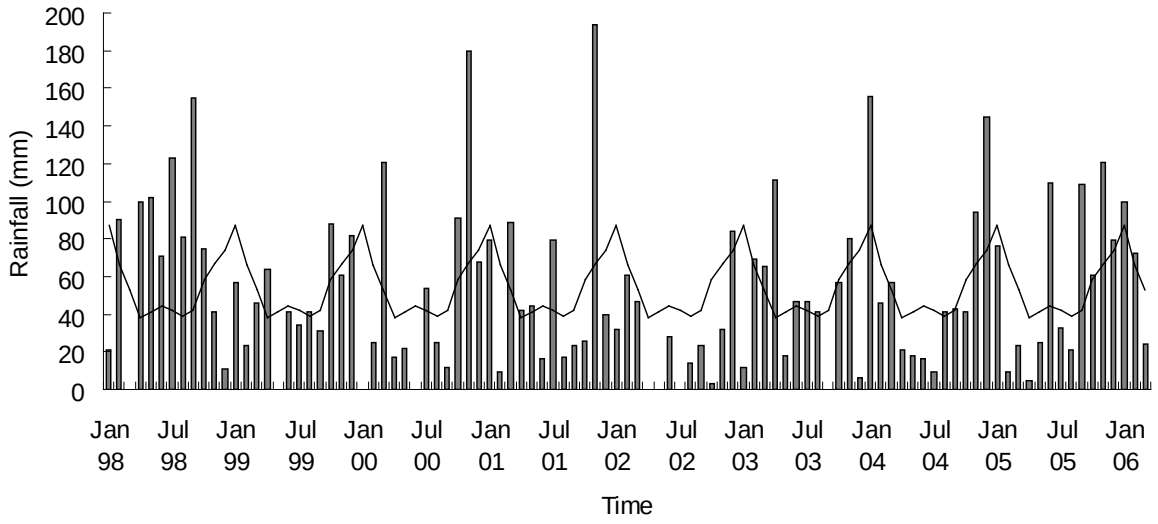

Figure 3. Monthly rainfall (mm, vertical bars) recorded at 'Glenbrae' and long term average for Manilla (122 years, line) from January 1998–March 2006.

cent and the average distance between perennial plants decreased from 37 cm in 1998 to 3 cm in 2006 (Figure 2). This was despite some very dry periods (Figure 3).

We also took photographs from the same position each time we monitored the area. These also show some extensive changes. The first year there was a lot of tap-rooted weeds such as saffron thistles (*Carthamus lanatus*) and Mexican poppies (*Argemone ochroleuca*) and it is a fact that weeds are a sign of soil that is trying to heal itself. The following year there were less weeds and more annual grasses. Every year after that there have been more and more grass species and less weeds. The monitoring area was grazed in the same way as our other paddocks on a rotation – there was no special treatment given.

Our management strategy is to 'manage for what you want to grow, not for what you don't want'. This means that when the cattle have begun to overgraze the fragile areas we move them into another paddock. By doing this we ensure that plants grow and go to seed and the bare ground gets less and less and grass gets thicker and thicker. It is pretty easy if you think about it.

'Glenbrae' was certified organic for about four years between 1998 and 2002 when there was a good premium for organic beef. This is why we went with the low-input system. We are no longer organically certified as there is too much paperwork, auditing and there is no longer a premium for the 60 or so weaners we produce a year. Not having the certification has not changed our management practices and there have been no chemicals or fertiliser applied to 'Glenbrae' since we have began operation. The only change we have implemented has been to grazing management. We did trial fertiliser application on some of the clay-pans prior to 1998 but until you have something growing, fertiliser is ineffective as it just washes away.

We have received some funding from the Liverpool Plains Land Management Committee (LPLMC) to help speed-up the process of getting something to grow on the really bad areas of clay pans. On these areas, we deep-ripped with a dozer which broke up the pans. Yeomans Shankpot seeders were fitted over the top of the rippers, so we ripped and seeded in one pass. The seed consists of a shot-gun mix of tropical grasses, such as purple pigeon (*Setaria incrassata*), Bambatsi panic (*Panicum coloratum* var. *makarikariense*) and green panic (*P. maximum* var. *trichoglume*). Also in the mix were temperate legumes such as lucerne (*Medicago sativa*), arrowleaf clover (*Trifolium vesiculosum*) and subterranean clover (*Trifolium subterraneum*), and sometimes oats (*Avena sativa*). We have tried chisel ploughs and no-till seeders but they do not open the pans enough, and the first rain usually seals over the rip mark again. Ripping with a dozer does leave the paddock very rough but the results are good; being rough it catches grass seed and absorbs all the falling rain. We fence these areas off from grazing for 12 months, sometimes more, depending on the extent of the damage in the area. We leave them until the sown grasses have established and there is a good herbage mass (eg. growth about 1 m high on the tropical grasses). We start crash-grazing until good ground-cover is present and then normal grazing is resumed. A lot of people say that deep-ripping does not work but we have found it effective on red clay pans provided it is followed with good grazing practices. Anyone can get a good germination and grow plants but if the areas

are not managed carefully they will soon return to their original state. We have discovered this the hard way by our mistakes on a couple of occasions.

The future

There is no doubt that 'Glenbrae' is a very different property today than it was 14 years ago. As well as changing our grazing management, we have planted 10,000 trees and plan to keep planting for shelter, shade, timber and wildlife habitat. This has presented a bit of a challenge through the dry years but now a large difference can be seen over the whole property. We have just started doing some biological fertiliser trials with the Namoi Catchment Management Authority and LPLMC which will be monitored over the next four years. The results should be interesting. Depending on the results we may choose a higher input system on our next regeneration area. We are one of four properties in our area doing this trial covering many areas including native grass paddocks, worn out farmed red soil paddocks (this is us), pasture-cropped areas and black soil country. Chemical fertilisers will be applied alongside biological products with areas left untreated for comparison. It is an exciting time to be in agriculture with many changes being thrust upon us; some good, some bad.

One thing is for sure, we have to work with nature rather than against it to survive the increasing costs of production that are inevitably heading our way. We all have much more to learn about our soils and how we can improve them to be sustainable.