ECONOMIC VALUE OF BIODIVERSITY

FARM LAND AND BUSH CARE - AN EXPENSE OR AN INVESTMENT IN PRODUCTIVITY?

Kennedy Miller

I began my farming career in 1978, with a very small equity, after the dissolution of a family farming partnership. My property lies 70 km east of Narembeen, in a 350mm rainfall zone. It is very hilly and, since much of the clearing was done in the 1920s using manual labour, 25% of the area remains covered by native vegetation. Also, during the 1960s my father resisted the 'clear a million acres per year' government policy. At the outset I realised that I had problems with erosion, limited water supplies and unsustainable yields due to lack of rainfall retention, as well as poor soil structure and soil fertility. On the other hand, because of the retained remnants, the erosion wasn't as bad as it could have been, and I had excellent stock shelter.

Our approach was to get control of the water on our hilly land with grade banks, turn erosion into productivity by storing water where it lands and address soil structure issues, whilst at the same time ensuring maintenance of the bushland. I got a lot of inspiration from the book "Water for Every Farm" by P.A. Yeomans, from which I realised that I had to have a whole farm approach to integrate all of the features and issues. Having done this now for over 20 years - with no grants - and seen farm productivity (and therefore profitability) continually increase, I am convinced that landcare is an investment in productivity.

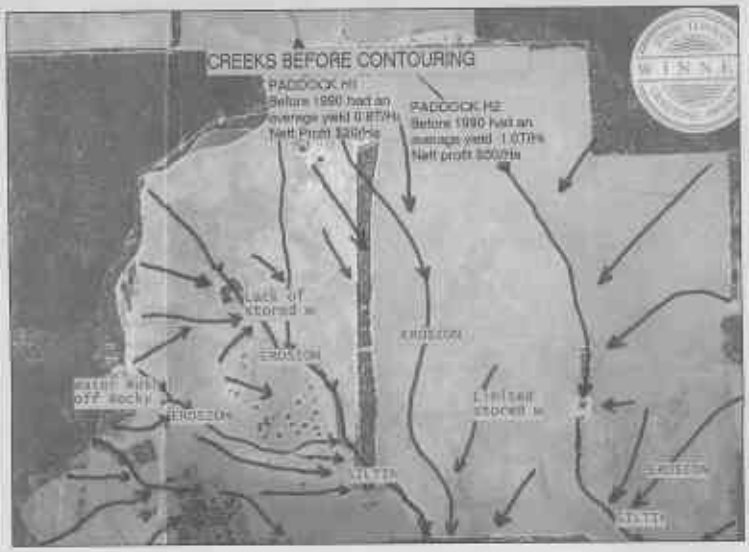

Fig. 1 1990 photo.

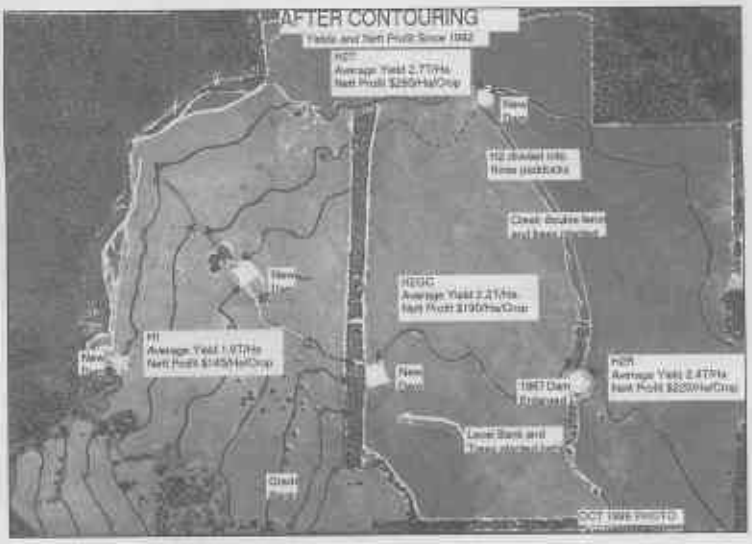

Fig. 2 1999 photo.

Landcare actions

The attached photographs, Figs 1 and 2, illustrate the actions taken in two representative paddocks. Essentially we first developed a farm plan, then contoured (treeing some of the banks), put in new dams, subdivided paddocks, fenced and replanted creeklines, applied gypsum to clays, trialled new pasture legumes and adopted the best, changed to direct drilling, etc. Greater detail of the landcare actions can be found in the paper that I gave to the 2001 State Landcare Conference at Mandurah, pp 461-6 in the Conference Proceedings.

The results? Well, the average yield of wheat has doubled, see Fig. 3, giving very satisfactory financial returns. (Again, for detail, see the Conference paper.) The red loam and morrel soils are now producing a high protein hard wheat and even durum. Our net return on investment since 1994 has been 12%, compared with the national average of 3%.

Bush management actions

The principal bush management cost has been fencing, which has been an on-going programme. We are convinced that the maintenance of this healthy bushland has contributed to our positive financial returns, but it is very difficult to actually fit dollar figures to it. To take some examples from the paddocks illustrated in the photos.

The bushland which surrounds the paddocks on the west, north and east is on rocky, breakaway country. If cleared, it would not be productive farmland. As it is, the bush uses water year-round, and there is some run-off

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from that area, ie: it controls water erosion and is vital for overall farm water balance. The bushland is excellent shelter, even though the sheep are not allowed in it. For example, we have very strong, cold south-west winds, and in paddock H2GC (Fig 2) lambs move to the SW corner in the morning, where they are out of the cold wind yet in a nice sunny spot. Windbreaks are also important in cropping, often enabling you to work in protected areas when wind conditions would mean that activities such as spraying could not be done in unprotected areas. There are also direct effects on the crop. In the photos, a gap (it's a one chain wide gateway) can be see about half way down the central bush strip. After a severe westerly there was noticeable crop damage in H2GC in a funnel shape where the wind had blasted out from this hole.

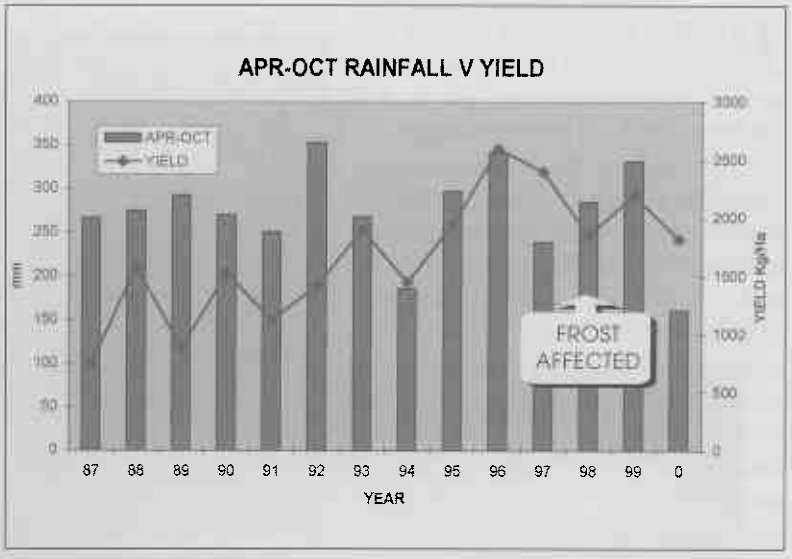

Fig. 3 Apr-Oct rainfall and yield.

It should be noted that grazed bushland strips are not efficient as either windbreaks, stock shelter, or at controlling water runoff. In fact, sheep grazing in remnant bush removes the understorey, compacts the soil, reduces water infiltration and increases water runoff.

Water balance

Another important area is water use. As much as possible of the rainwater that lands on the property is retained by the bushland and the cropped and pastured areas. Any runoff is conveyed to dams by the grade banks and watercourses (we have constructed 17 dams since 1978). Only when the dams are full does any water get into a creek and leave the property. The 25% of remnant vegetation which we have on the farm is obviously an important part of this water use strategy.

Thus, by ensuring that the water is used where it falls, we are helping to limit water table rise and the spread of salinity on our own property and downslope.

Value of remnant vegetation

I believe our remnants are the most valuable trees we can ever have as they are a complete system, almost impossible to replicate, and ensure the survival of the local flora and fauna, as well as being vital for windbreaks, natural pest control and water table management. But under the current commercial, taxation and Shire rate regime, remnants are a major cost to commercial farmers. The current regime encourages a "wait for a handout (grants) mentality" resulting in important bushland work being delayed, by the grant system, which is currently very slow and very expensive to deliver. We really need an effective "reward for effort" rebate incentive through the Shire rating and the taxation system. When these policy issues are addressed, and the whole community is prepared to accept and fund the real cost/value of owning remnant bushland, then there will be a major positive shift in landholder attitude.

One example is the value put on land categories when the land is sold. Only the land's crop/stock productive capacity is given a monetary value. In our area, cleared non-saline farmland sells at $250-600 / ha. Saline land is valued at $0 / ha, and so is bushland. However, if 25% of the land is required to be in remnant or strategic revegetation to control the watertable, and that 25% is therefore seen as protecting the other 75%, then the bushland's value should be THREE TIMES that of arable land. It thus becomes the most valuable land on the property.

In summary

We have addressed erosion, salinity, productivity, sustainable water supply, ecology and economic issues whilst maintaining 25% remnant vegetation and planting over 100,000 trees - all done with no grants. Economically the results have been terrific. We have been able to pay off the previous owners and the bank, educate two boys (away from home) and make some off-farm investments.

My conclusion? Land and bush care is an investment in farm productivity, not a cost.

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(Editor's note: If any reader would like a copy of Kennedy's paper to the State Landcare Conference, contact me and I will send one to you.)