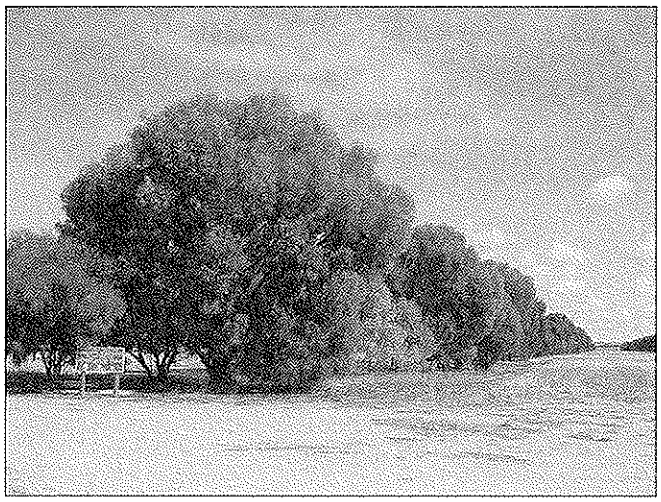
REVEGETATION

ALLEY FARMING IN LOW RAINFALL AREAS - TRY IT - IT WORKS!

Mal Harper

Since the beginning of European settlement with the subsequent clearing of vast amounts of native vegetation, it is estimated that one million hectares of previously arable land have become saline in Western Australia. Salinity tends to occur largely in valley floors, which are normally the most productive lands from an agricultural viewpoint. Also, many small woodland remnants in the valley floors are adversely affected by rising groundwater. Landholders have adopted many techniques, both engineering and plant based, to bring their land back into production by lowering the watertable to at least 2 metres below the ground surface. One of the vegetation systems that has been used is known as the Boundain revegetation system. It derives its name from the locality near Narrogin where the first trial was undertaken. The system is also known as an alley farming system - where normal farming operations are carried out between rows of trees.



Boundain-type trial at South Tammin

At the original Boundain site, watertable levels before planting were approximately 1.5 metres below the surface. After five years, the watertable level had fallen to an average of 2.5 metres in the treed areas and remained constant in the non-treed control area. The measurements were taken from 69 observation wells constructed throughout the trial site. An added bonus is that the rows of trees can be a very effective windbreak for stock if planted so that they are aligned to protect against the prevailing winds.

On a recent *LFW* visit I was shown a Boundain-type trial in the Shire of Tammin - a Shire containing less than 4% remnant vegetation with only 1.6% remaining on farms. It is therefore an imperative to restore perennial vegetation on farms, and for it to be adequately protected.

The site is on a flat saline valley floor that has been cleared for approximately 100 years. The area is prone to waterlogging and occasional flooding and had become saline to the extent that that it was unsuitable for growing introduced crops and pastures.

The aim of the trial was to determine whether planting trees in two or three tree lines, with two and a half metres between each line and five metres between each tree in the line and a thirty-six metre strip where there were no trees planted before the next row of trees, would lower the watertable evenly in the bare strips to the extent that crops and pastures could be grown there. As the site was bare scald it was necessary to grow salt or drought tolerant species. Those chosen were: *Eucalyptus kondininensis*, *E. longicornis*, *E. platypus*, *E. occidentalis*, *E. sideroxylon*, *E. spathulata* and *E. torquata*. The area of the trial was 40 hectares and 8000 trees were planted in 1992, taking up approximately 10% of the area.

After a period of three years it was noticed that the watertable was lower and barley crops could be grown. At the time of the *LFW* visit the site had been cropped for years, the trees were flourishing and being used by a number of birds. Also seen was the cocoon of a swift moth and some blue butterflies, which indicates that the area is regaining health after being saline for many years. As remnant vegetation is very limited in the Shire, these types of plantings are very important for the provision of habitat for native fauna. At this site it would also be possible to create a corridor joining up with a reasonably large reserve, thereby improving the habitat. **It was very obvious that whereas this 40 ha was croppable, the adjacent land was not.** The system therefore combines improved agricultural production with habitat provision.

When the system was designed and implemented, the role of these types of plantings for the use of native species was not appreciated and they were basically used for increased agricultural production. As a result the range of species was limited to mainly salt tolerant

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trees, all eucalypts. This will limit the range of fauna that can effectively use the plantation. Therefore with the advantage of hindsight, having observed the systems for a number of years, some improvements which would give the Boundain type design an increased dual purpose role could be incorporated in any new plantings.

It would be useful for different bird species to have a range of mid-storey shrubs to mix with the taller eucalypts. Some of the species that have some salt tolerance include: *Melaleuca uncinata*, *M. hamulosa*, *M. adnata* and *M. thyoides*. There are also a wide range of *Atriplex* species that could be used. Bluebush is likely to colonise naturally once the site dries out.

Observations at this site indicate that salt land plantings can achieve the dual purpose of improving production and increasing and improving the habitat for birds and some other fauna.

There are still many areas of low-lying land in the wheatbelt where the Boundain system could be effectively employed with positive benefits for both agricultural systems and the maintenance of wildlife habitat. If you've got a site like this, why not try it?

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