REVEGETATION

TALBOT HALL RESERVE REGENERATION PROJECT

Alison O'Dwyer and David Breen

The recent *LFW* Field Day to demonstrate Acid Sulphate Soils in the Avon Valley used a site worked on by the Talbot Brook Land Management Association at Talbot Hall Reserve. We have been working on this site since 1997, in association with the Shire of York, the Department of Agriculture and Ecosystem Management Services. It is a four ha area of Shire of York reserve land adjacent to the Talbot Hall, located 15 km south-west of York. The project was funded with a Community Conservation Grant from the Minister for the Environment.

The area serves as a headwater of the Talbot Brook which flows into the Dale River before draining into the Avon River. The site is bounded by farmland and remnant wandoo woodland in excellent condition, but this location contains a seep and had been severely degraded by water erosion and salinity. The natural gradient of the site caused a sheeting effect that prevented seeds and seedlings from getting a firm foothold. At the time of commencing the rehabilitation project the group had no knowledge of acid sulphate soils and thought they were dealing only with a nasty salt scald and water erosion resulting from surrounding land disturbance.

Portion of degraded site before regeneration work commenced -1996

Portion of site after rehabilitation – 2006.

With today's knowledge, we might have done things a little differently. Our work over nine years has elements of both success and failure, and our experience should help anyone else tackling a similar site.

Aims of the project

The medium term aims were to prevent further erosion and salt spread; achieve soil stabilisation through improved drainage and planting; revegetate the salty area with species appropriate to the current condition of the site and to preserve the existing local plants in the surrounding bush area.

The long term aims were to lower the ground water levels; confine and reduce the salt problem and, somewhat optimistically, to see the return of the surrounding bushland species to the salt affected area.

This project was to serve as a pilot revegetation project to obtain knowledge on plant species suited to hostile conditions and which could be used for subsequent rehabilitation work throughout the catchment area. The project was, essentially, a field trial for plant species that were not necessarily local to the area to ascertain their value in salty and moist situations. The knowledge gained has helped with subsequent projects.

Preliminary work

Management of surface water was achieved by machine digging a contour bank at the high end of the site and hand digging a shallower contour bank at the central point. The culverts at the lower end were cleared and upgraded to allow a free flow of water away from the site. (In light of the new knowledge of the behaviour of acid seeps, we are not sure of the value of some of this work.)

Fallen logs were left where they lay to arrest runoff. Salinity and pH levels were taken at selected sample sites.

What was planted in August 1997

Wetland plant species: 2740 *Juncus kraussii*, 370 *Isolepsis nodosa*.

Approx. 3,200 seedlings of the following species were planted in equal proportions: shrubs: *Melaleuca thyoides*, *M. cuticularis*, *M. uncinata*, *Callistemon phoeniceus*; trees: *Eucalyptus camaldulensis* (Lake Hindmarsh var.), *E. sargenti*, *E. occidentalis*, *E. kondininensis*, *E. sideroxylon*, *E. spathulata*, *Casuarina obesa*.

continued on page 15

REVEGETATION

continued from page 14

Reveg at Talbot Hall

How they fared

The York Community Landcare Coordinator inspected the site in late 1998 and made the following observations: *M. thyoides* and *M. cuticularis* had done well in wet areas with good growth. *E. camaldulensis*, *E. sargenti*, *E. kondininensis*, *M. uncinata* and *C. phoeniceus* had not done well enough to re-order. *E. sideroxylon*, *E. spathulata* and *E. occidentalis* had performed better than expected, preferring drier areas. *C. obesa* had not done as well as expected but try again in drier areas.

What was planted in August 1999

Approx. 3200 seedlings of the following species were planted in equal proportions: shrubs: *M. thyoides*, *M. cuticularis*; trees: *E. occidentalis*, *E. sideroxylon*, *E. spathulata*, *C. obesa*. Also, approx. 200 seedlings of Old Man Saltbush and 200 seedlings of River Saltbush were planted.

The site today 2006

The site presents as a successful rehabilitation project. *J. kraussii*, *I. nodosa*, *M. thyoides* and *M. cuticularis* have grown well along the creeklines and in very wet areas and are absorbing, slowing and redirecting the water flow and stablilising the soil. The sheeting effect that was occurring in the higher ground has been reduced. The melaleucas are more than a metre high and the rushes are forming thick clumps. Samphire volunteers along the creekline are doing well.

Nearby, on comparatively higher ground, (often within metres of the creeklines) the replanted eucalyptus species and *C. obesa* are doing well. Also in these higher areas are a few healthy specimens of species that in 1998 were considered not to be doing well: *M. uncinata*, *C. phoeniceus*. Wandoo and *C. obesa* volunteers are also occurring in these areas.

Seedlings that were planted alongside fallen logs had a good survival rate as they were protected from fast flowing water and the logs contributed some humus.

There remains "the zone of death" – a small area at the higher end of the site where even hardy *J. kraussii* and *M. thyoides* struggle to grow. Saltbush did not cope well with this site. Soil and water testing undertaken during the recent ASS workshop, revealed that acid sulphate soils were present. Interestingly, *J. kraussii* and *M. thyoides* are growing well and forming thick clumps along the boundary of this area.

Recommendations

On the worst areas of acid saline seeps, where there are wet, scalded soils, concentrate on using *J. kraussii* (Sea Rush), *M. cuticularis* (Saltwater Paperbark) and *M. thyoides* (Saltbuster) as these can be placed straight into the scalded soil where they will grow and spread to stabilise the soil, accumulate humus and stop surface expression of the acid. Effectively, this creates a small wetland. [From experience of a similar site elsewhere, I would also add *M. hamulosa* and *Sporobolus virginicus* (Marine Couch) – *Ed.*] Use logs across the contour to help speed up this process.

On areas that are not seeping or scalded, other plants could be selected from our 'successful' list.

Alison O'Dwyer and David Breen are members of the Talbot Brook Land Management Association.

WANT TO GET RID OF BLACKBERRIES?

Contact Paul Yeoh at CSIRO for a Blackberry Rust Kit to help spread the disease.
Phone 9333 6645 or email: paul.yeoh@csiro.au

Big pig!

After the field day at Williams in July, where a major topic discussed was control of feral pigs, Jeff Richardson, District Nature Conservation Officer at DEC Narrogin, sent us this photo taken by Maxine Maguire, a Main Roads officer in Queensland, saying: "You thought you had problems...!" Yoicks!