Recovering Eroded Land in SA's Pastoral Lands

WINNININNIE

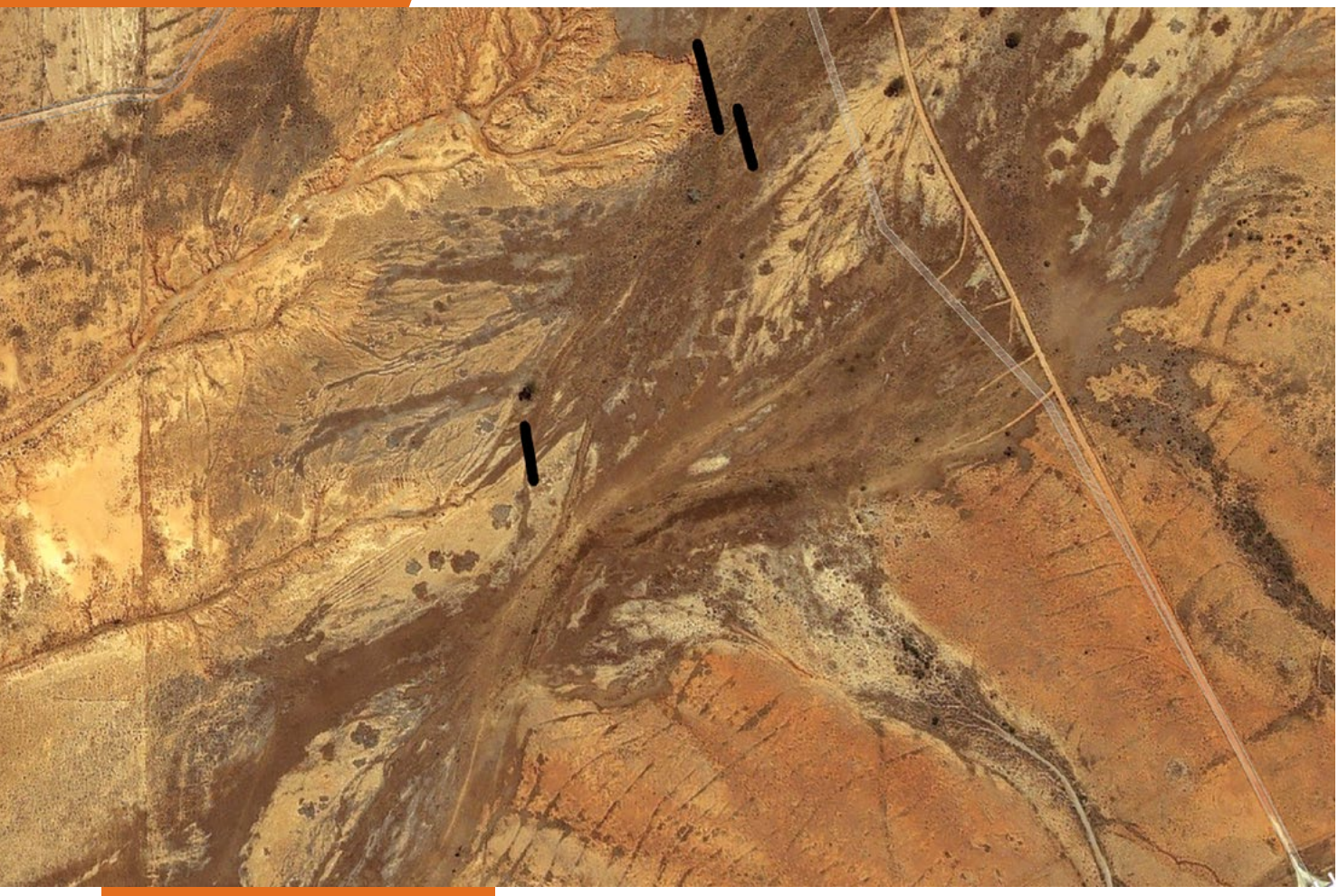
MANAGER
Warren Breeding

LOCATION
North East Pastoral

PROPERTY TENURE
Pastoral Lease

ENTERPRISES
Sheep

Winnininnie is managed by Warren Breeding as part of A.J. and P.A. McBride's Teetulpa property. The McBride family has owned the property for 19 years.



Aerial imagery of Winnininnie Siding paddock. Winnininnie Creek flows from the north-east towards the south-west.

The approximate location of banks are shown by the black bars. The banks direct flows to the south, towards open, gently-sloping land.

The Winnininnie Creek runs through the property, draining a catchment of over 5,400 hectares which can generate a large flood. Warren saw a flood of over one metre height and 500 metres breadth flow through Winnininnie following 125 mm in one day during 2007.

The Winnininnie Siding paddock is regarded as one of the most productive paddocks on the property but has also some of the most severe erosion. Its loam and clay loam soils over a sodic subsoil are quite susceptible to water erosion, particularly gullying in the watercourses.

Aerial view showing position of eastern-most banks above gullied area. Water flows are directed to the land in the left of this picture.

During 2014 and 2015, the paddock was inspected (by ground and air) and mapped by 'Ecosystem Management Understanding' (EMU™) advisers. Sites for earthworks were located, surveyed and pegged. As part of the planning process, approval was sought from the Native Vegetation Council and traditional owners of the land (Ngadjuri people) to undertake earthworks on the property.

The structures were built in 2015 using a bulldozer and grader by contractors experienced in building dams and earthworks in pastoral country.

Photo: Warren Breeding

Battering and levelling gully-eroded area.

Battered, levelled and ripped land behind bank. Levelling and ripping increases water soakage into the soil and encourages regeneration of plants. This in turn provides better protection against erosion.

A series of banks were built to intercept and divert flows away from gully heads towards flatter, well vegetated land. Spreading water over this country will slow its flow, allowing it more time to soak into the soil and boost plant growth.

Given the large catchment above these structures and its capacity to generate a very large volume of water of significant force, there is potential for the banks to be washed away in a flood event. However, their siting and construction is designed so that large floods will flow over or around the structures without damaging them.

Sumps were formed in front of banks to hold water, and ripped to increase infiltration of ponded water into the soil. When the sump is full, it overflows to the left of the picture, away from the gully head and towards the 'flood out' area.

'Flood out' area on southern side of watercourse where diverted water will flow. Shrubs, bushes and grasses on these areas will help slow and hold water in the soil, and benefit from the 'drink'.

Warren says the key to the success of the planning, design and construction of these banks is getting the right people who know what they are doing. Understanding where water flows and knowing how to site and build structures that will slow and spread the flows is crucial.

There has been little rain on Winninnie since the earthworks' construction so the structures are yet to be tested.

Warren is looking forward to realising their benefits of improved land condition and production. The land will also look better as bare, eroded areas start growing bushes, shrubs and grasses and cover up the country's scalds and scars of the past.

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Written by Mary-Anne Young, Primary Industries and Regions SA, with the assistance of SA Arid Lands NRM Board staff. June 2019.

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