

FACT SHEET No 5: RANGELANDS REHYDRATION

RANGELANDS REHYDRATION WORKS ON LCDC STATIONS



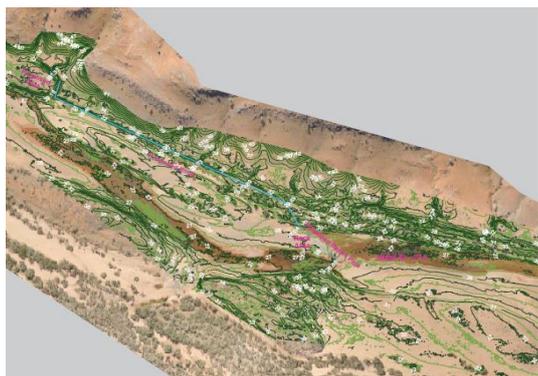
DE GREY LCDC
DE GREY LAND CONSERVATION DISTRICT COMMITTEE
— PILBARA —

Soil erosion on pastoral properties in the De Grey LCDC area is mainly caused by water movement in extreme weather events - heavy rain and flooding that is often related with cyclones. Dealing with water flow is the challenge to stop and reverse soil erosion.

Eroding landscapes cut into country as gullies and increase soil drainage, drying out landscapes that would have naturally held soil moisture for a longer amount of time. Erosion also dries out wetlands that are natural floodplain filters, resulting in less plant growth, leading to more erosion.....

Rangelands rehydration is a term being used to describe both addressing soil erosion and management of surface water to build and retain soil moisture and healthy landscapes. The key principles of rangelands rehydration are slowing rainfall runoff, increasing water infiltration into soil, increasing groundcover plant density/regrowth, and restoring natural water movement patterns.

DE GREY STATION has completed earthworks across floodplain creeks to control erosion caused by floods, to slow water flow and spread water across the floodplain. De Grey Station also had an aerial drone elevation survey completed to identify if it was feasible to divert floodwaters out onto the floodplain in a controlled way to rehydrate the floodplain and encourage plant growth. The survey results were interesting but concluded that a pump and a long pipe would be required to divert floodwaters as there was not a significant drop in the floodplain elevations to support using a short pipe through the river bank using gravity alone for water to flow onto the floodplain in high river flow situations.



An aerial drone survey near Mt Grant on De Grey Station produced contour images along the De Grey River and covering the river channel and out onto the adjoining floodplain. Contours were produced in 10 centimetre intervals in AHD, and showed height differences between the river channel, the top of the river bank, and ground levels on the floodplain. The survey also identified that slowing and diverting natural runoff from Mt Grant directly onto the floodplain was more feasible than trying to divert water from the main river channel.

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Mark Bettini and Peter Andrews discussing both earthworks and the important role that a diversity of plants play in managing water movement and landscape health. Peter Andrews and Darryl Hill have both visited LCDC stations to guide and demonstration earthworks for rangelands rehydration.

Photo: Bill Currans

LIMESTONE STATION has completed earth banks at strategic locations that were first identified by Peter Andrews, and also identified and mapped by Tim Wiley during Landscape Function Analysis mapping using Google Earth. Darryl Hill was contracted by Limestone Station to provide some training and guidance on using a grader to construct banks to manage water flow and soil erosion, and Grant Brooks from Limestone Station then spent a number of days constructing earth banks, following through with the Darryl Hill's training.



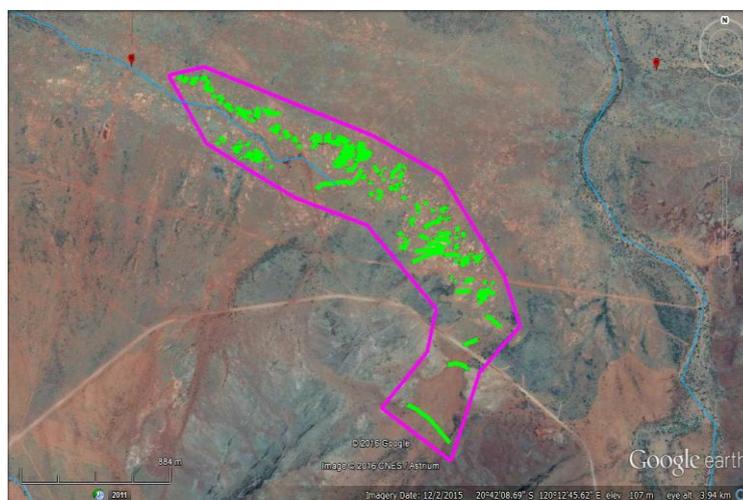
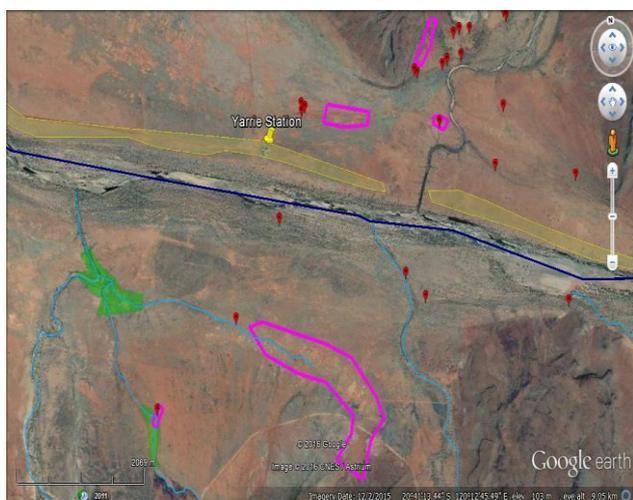
Darryl Hill operating Limestone Station's grader, demonstrating earth bank design and construction to Grant Brooks, while Grant videos the demonstration to refer back to later.

Photo: Cam Brooks

*"We have a huge opportunity to mitigate further erosion on Limestone and make headway repairing water damage that has already occurred. Darryl's knowledge has empowered us to take the necessary actions".
Grant Brooks, Limestone Station, May 2016*

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YARRIE STATION has completed staged rangelands rehydration earthworks over a number of years, continually learning and refining the location and bank construction techniques. Peter Andrews literally guided Annabelle Coppin and Alex (Alic) Dorrington to peg out and grade banks to divert runoff from steep country, and to slow and manage water flow on the floodplain. Yarrie Station has had an ESRM plan prepared by Richard Glover with funding provided by Rangelands NRM. As part of the ESRM plan, Richard Glover mapped sites for rangelands rehydration earthworks and provided detailed bank construction diagrams to follow, which Annabelle Coppin found to be very helpful when constructing banks for rangelands rehydration. Coordinated with Limestone Station, Darryl Hill provided some on-site training and bank construction using Yarrie's grader as part of the continuous learning involved in rangelands rehydration.



Google Earth images above showing the location of earth banks on Yarrie Station in area marked with pink lines. The image on the right has banks marked in green – this area has around 126 separate banks constructed to slow water movement, control erosion, increase soil moisture and plant growth.

Yarrie Station manager, Annabelle Coppin, said the project is about trying to improve the health of the whole De Grey River catchment.

"The floodplains are reduced from what they were a couple of hundred years ago and obviously the land was overstocked with sheep, there's no denying that. We want to try to improve the country as best we can and make it more robust and less fragile than it was before any livestock came through. That's the big picture aim, it's also really important to do the best that we can as land managers to try to improve what we've got."

The De Grey LCDC would like to thank the support of the funders and sponsors: Rangelands NRM and the National Landcare Programme.

