Rangelands NRM
Western Australia

Rangelands Rehydration

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Ecosystem Management Understanding (EMU)™

Managing outback tracks

to fit the landscape "Let it go, let it flow"

This document aims to raise awareness of the widespread and devastating impacts of poorly sited, constructed and maintained tracks and provide guidance on some key considerations in constructing and maintaining good outback tracks.

1. The benefits of constructing good Outback tracks

- Little maintenance required and less cost
- Minimal disruption of natural surface flows
- Easy and safe to use in managing the land/property
- Quick drying and ready for use soon after rain
- Gentle on vehicles and machines, reducing maintenance time and money

2. The costs of poor Outback tracks

The major issue with problematic tracks is they alter surface drainage patterns by "sucking" water out of upslope landscapes, starving landscapes down slope, and discharging high energy "jets" of water at release points.

- Eroded tracks are difficult to use – sometimes even unsafe
- They are bad for your vehicles and machines, more maintenance time and money
- They suck water out of the land

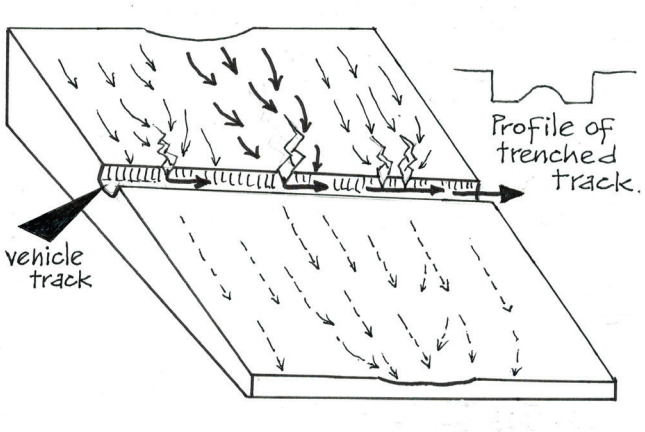

Figure 1: Trench eroded vehicle track or road cutting off downslope flow, and causing gully erosion upslope of it

above them and starve land below them
- They release 'angry' flows in valley floors, exacerbating erosion and spreading weeds
- They can even move water flows from one system to another if a natural drainage boundary is cut through by a 'track creek'
- They can initiate erosion upslope wherever oncoming flows drop into the track base
- They are often slow drying and so unusable for long periods

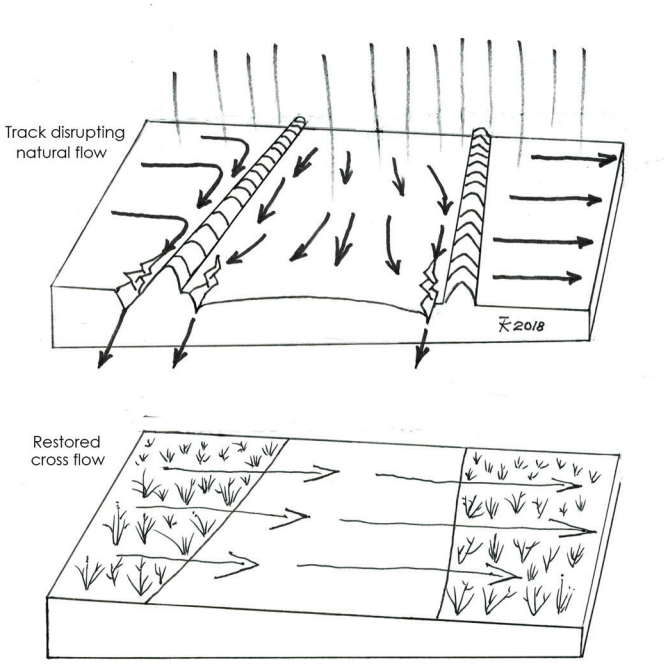

Figure 2: Problems with diverted cross flows and their repair

3. Key "Dos" and "Don'ts" for constructing tracks

"Dos"

- Plan new tracks to fit the shape of the landscape, using contours wherever practical
- Creating tracks higher in the landscape is usually better than lower when locating a new track
- Avoid cutting the soil surface at all so the water crosses in its natural course
- Make tracks wide enough to 'spread' the vehicle tyre impact – and use that width!
- Cross stronger water flows across the oncoming stream so that the water flows across and not along the track
- Avoid wetlands and fragile areas where practical
- Repair track damage quickly before it grows into a headache
- Build whoaboys in places you think might become a problem, making sure they are at least half as wide as the track on each side to avoid water cutting back around or breaching at the track edges

"Don'ts"

- Do not build long straight roads downslope that can keep harvested water without any exit spilling sections
- Do not cut the new track into the landscape and deepen it with every 'repair'
- Do not build windrows along track sides that act as banks that then release the water at a breach point
- Do not drive exactly the same line everyday creating two wheel rut creeks
- Do not build the new road next to the old one when the 'repairs' have wrecked the old one
- Do not leave abandoned track creeks to develop into even worse water thieves

4. Key considerations in rehabilitating a track creek

The focus of rehabilitation is to: a) restore natural surface flows by getting the incoming flows across the track as close to where it enters as possible and b) get water in the track creek out and spreading downslope. Some sections of a track may be so bad that it is better to close them down and create a new section. Some things to consider are:

- Spread windrows back into the track and create a smooth surface without ledges/

sharp edges, which will help the momentum of inflows to push the water across the track
- Place whoaboys at key places to ensure any harvested inflow is sent back to the land below as nearby as possible
- Stabilise any active erosion cutting up slope

5. Tips in building strong and effective whoaboys

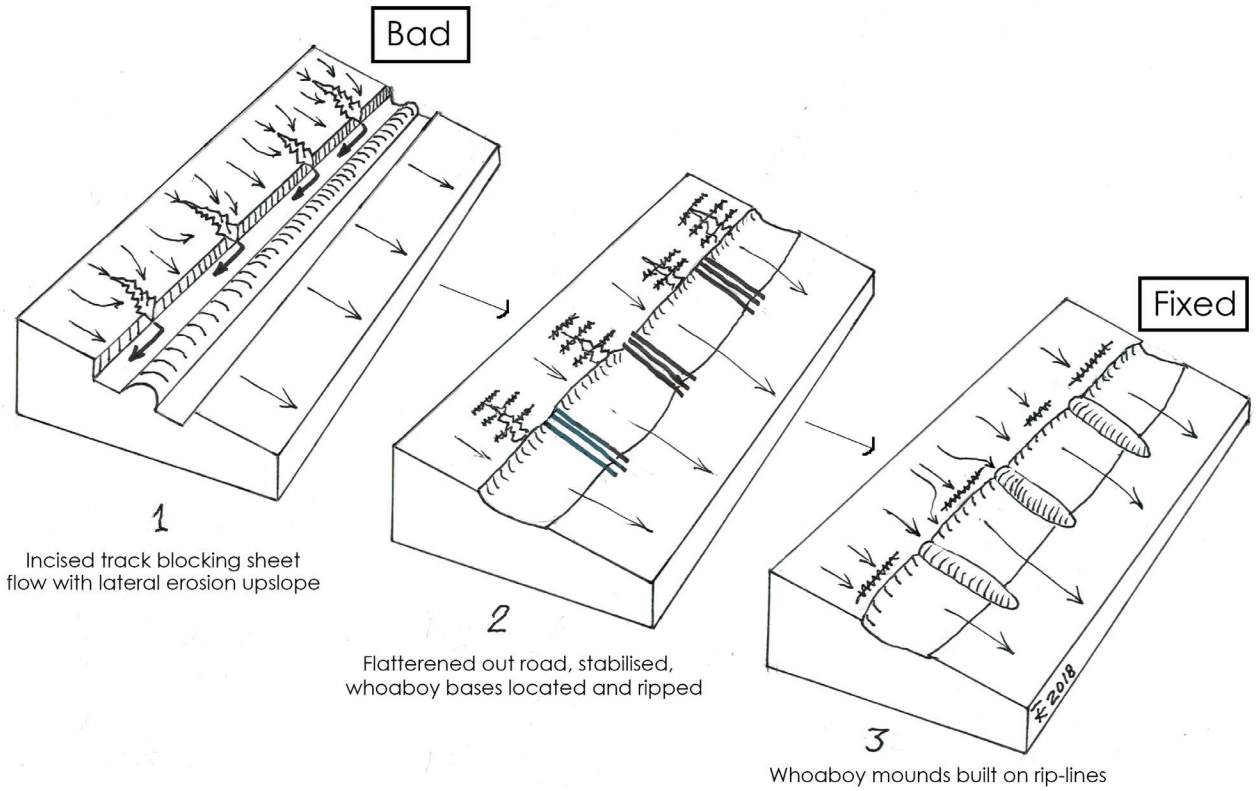

Figure 3: Using whoaboy mounds to restore natural flows

There are several different views on how whoaboys should be built, but what is important is that it works and does no new harm.

- Build the whoaboy on rip-lines using whatever you have to rip across the track the width of the bank, this makes banks much less likely to be undercut in a strong flow event
- Build the whoaboy high enough to ensure oncoming water cannot go over it, causing it to break
- Build the whoaboy principally from windrow material (minus vegetation) unless unsuitable soil, carting material in is usually time consuming, costly and unnecessary
- Ensure the spilling area is wide and free of obstacles (particularly near the bank, where they will 'squeeze' flows against the bank
- Surplus soil can be brought in to fill any holes near the bank to avoid ponding on the road
- Make a level ponding sill to release flows onto strongly sloping or slightly fragile ground. The water will fill the 10cm deep pond and then spill out all along its lower level

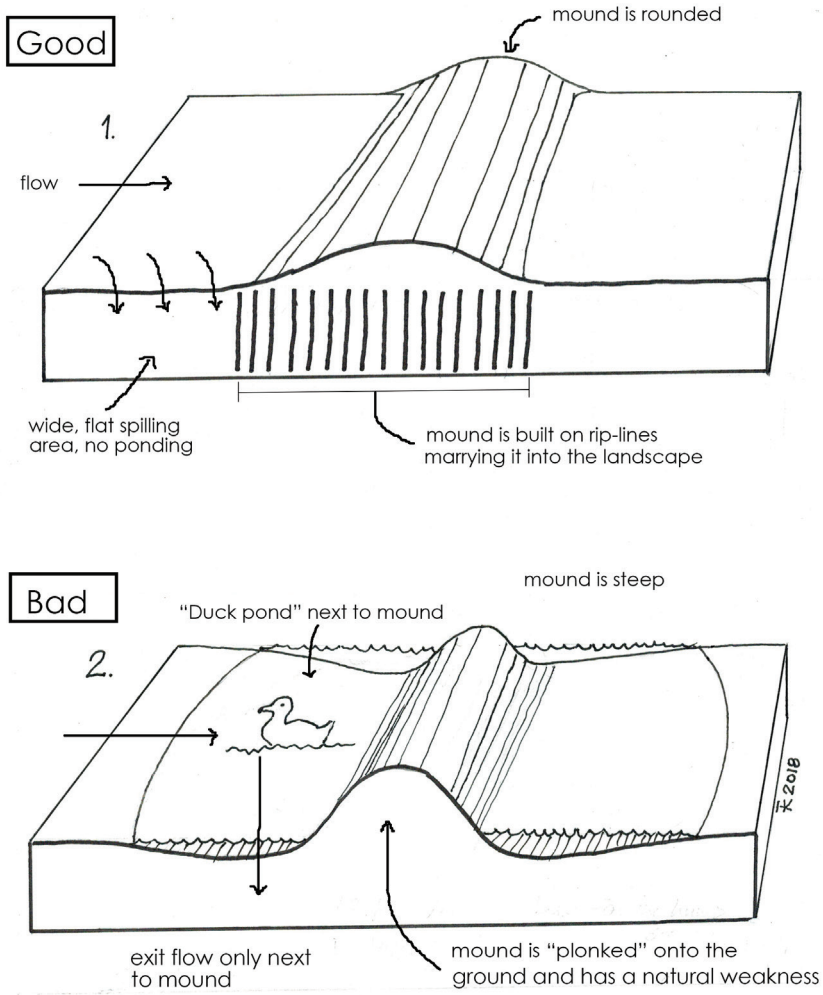

Figure 4: Features of good and bad whoaboy mound

6. Closing down old tracks

If the track is not to be used, the rehabilitation can be more flexible because you don't need trafficable whoaboys. It is advisable to still bring in the windrows, at least near where the banks have been installed to get the water out and spreading down slope. Banks can be pushed up quite quickly if they don't need to be rolled for vehicle use and other materials can be used as long as they are at least as half as wide again on both sides than the width of the track and adequately anchored.

Further information

- Colin Stanton "Water your landscape, not your roads" video https://www.youtube.com/watch?v=WWd_cQ510aU
- Department of Natural Resources, Environment and the Arts (NT) Introduction to Soil Erosion http://www.gascoynecatchments.com.au/assets/7-introduction-to-soil-erosion-2007---edition-2-with-fact-sheets.pdf
- Namibian farm roads manual http://www.gascoynecatchments.com.au/assets/11-planning-and-managing-farm-roads-in-namibia.pdf

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