



KEY PRINCIPLES AND STEPS IN CATCHMENT REPAIR IN ARID LANDS

Many land managers in arid lands are faced with issues of erosion, soil loss and declining productivity.

These problems are wide spread across the landscape and are often inherited, leaving land managers overwhelmed and unsure of how to improve catchment condition.

The following points are key steps in planning and implementing catchment repair.

1. Gather aerial photographs and/or satellite images to plan a flight over the area of interest and its surrounds. Use this information along with photographs taken during the flight to plan your groundtrutting trip;
2. Synthesise the information gathered and record your assessments of key features on a clear overlay over a satellite image or contour map;
3. Determine what part of the catchment the area to be repaired is within: headwaters, middle, lower, coastal or salt lakes. Is this area the main catchment or a tributary to a bigger system?
4. Locate and map drainage bottlenecks, channel junctions and rock bars;
5. Map gully heads and major rill heads. These features are critical points to be stabilised in any repair

project because they are active and continually getting worse;

6. If a floodplain, pan or lake is involved, determine if it has become perched above effective recharge;
7. Establish whether these surfaces have changed from grassland/ sedgeland into shrubland. Identify the indicators of a drying change (e.g. common Acacias);
8. Determine base-levels at key drainage points ("critical control points") to be stabilised and repaired, that will return flooding back to normal inundation;
9. Identify the floodout and exit points of floodwaters;
10. Map or sketch the landscape pattern (aerial view) and site cross-sections. Identify depth of channels, position of river pools, condition and impacts of threats;
11. When a whole drainage unit is to be addressed always start at the head or source of that unit and work downstream from there to the next tributary junction or drainage bottleneck;
12. When main rivers or creeks are deeply incised only major rainfall events will floodout adequately. For more frequent flooding valley-side tributaries are of great importance;

13. Assess and map infrastructure impacts: positions of tracks, roads, fencelines and artificial watering points for the area being repaired;
14. All road/track/pad/fenceline "rivers" are to be redirected to their original drainage pattern. Establish bounds across the eroding "rivers" and help restore natural flows in-between;
15. Take before and after fixed point photographs as a minimum for monitoring.

Sourced from: Tinley, K. & Pringle, H. (2007). *Key Principles and Steps in Catchment Repair in Arid Rangelands*. Range Management Newsletter, vol 07-2 pp 4&5.

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