

Managing Upper Murray Creeks and Woodlands

Maintaining an intact Chain of Ponds

About Chain-of-Ponds

Many of our creeks in the deeper soil and gentle slopes were like this before settlement - swampy areas of sedges and rushes with some pools and some running sections. The grade from the top to the bottom was fairly gentle following the terrain. This creek in the Upper Murray has seen many changes – clearing for agriculture and clearing for forestry in the upper catchment. In all likelihood this creek has probably eroded in the past and then filled up with sediment again since European settlement.

In general, it was the clearing of land and the resulting increased flow that deepened and widened many of our creek channels. Stock degraded them further and mining and attempts to drain swampy areas and divert water also have contributed to bed and bank erosion.



Above is a similar type of creek but a lot more degraded - the stream has eroded and left an incised (deep) channel.

Below shows a creek in the Mannus catchment that represents what the unfenced creek looks like (on the right). The streambed has not eroded very badly but we can see willows have been planted at some stage, indicating that there was possibly worse erosion in the past. The banks are well vegetated with pasture grasses (this picture is in Spring), but all native vegetation has been cleared and there is not much in-stream vegetation either. On the left is the recovered chain-of-ponds section.



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Fencing and revegetation always the first action

Landholders fenced and revegetated sections of this creek in the early 2000's and the difference is remarkable. No structural works were done because the stream bed was still intact (not 'incised' or eroded very deep) and could still recover. Today, these sections have retained and in some cases gone back to the chain-of-ponds structure with deep pools and swampy areas filled with a diversity of sedges and rushes.



Fencing from stock and allowing instream vegetation to grow back and slow water down can help reverse the trend of stream erosion.

For more degraded streams, In-stream structural intervention may be required to stabilise instream headcuts (those waterfalls you can hear) and stop the deepening (bed erosion) If you do not address this deepening, banks will always remain unstable.

On larger creeks, bed control structures with rocks or logs may be required, but this requires professional design and permits for installation. The larger the catchment, the higher the risk of failure and a risk to the downstream water users .



Revegetation also may help, but planting just on the top of bank is unlikely to influence in-stream erosion much in the short term. Revegetation of shrubs, reeds and rushes planted in the toe of the bank may do more for stabilizing instream erosion in the short term. It is not recommended to plant trees in-stream or in the immediate floodplain pockets - during floods debris catches and they can cause scouring and further erosion.

Where can I find more information

<https://water.dpie.nsw.gov.au/licensing-and-trade/controlled-activity-approvals/guidelines>

<https://riversofcarbon.org.au/>

