

River floodplain and floodplain pocket systems

Factsheet



A pond in a healthy floodplain system.



A floodplain in which an incision has formed, and the damaging effects of grazing are visible.

A river floodplain is a flat or gently sloping area adjacent to a river or creek, formed by the stream's sediment deposits and subject to periodic flooding. Floodplain pockets are similar, however they are typically found in upland valleys. They are characterised by fertile soils that support dense vegetation like grasses, sedges, and rushes.

What is the hydrological function of a floodplain or floodplain pocket?

These are depositional parts of the landscape which play an important role in capturing and cycling carbon and other nutrients. These areas are closely connected to the underlying groundwater. They act as natural sponges that absorb floodwaters, and then slowly release them, thereby maintaining moisture levels and supporting diverse ecosystems.

What are indicators of a healthy floodplain?

- Hydrological connectivity: there are natural surface and sub-surface connections between the river and its floodplain (both laterally and longitudinally), allowing for regular flooding and exchange of nutrients.
- Natural stream form: there is a meandering main channel interlinking with secondary and tertiary flow paths that are braided or have a chain-of-ponds structure.
- Diverse vegetation.
- Stable soil and banks.
- Water quality: clear, clean water with low levels of pollutants and sediments.
- Rich biodiversity.
- Groundwater recharge: effective infiltration of water into the ground, replenishing aquifers.

What are indicators of a floodplain being degraded or unhealthy?

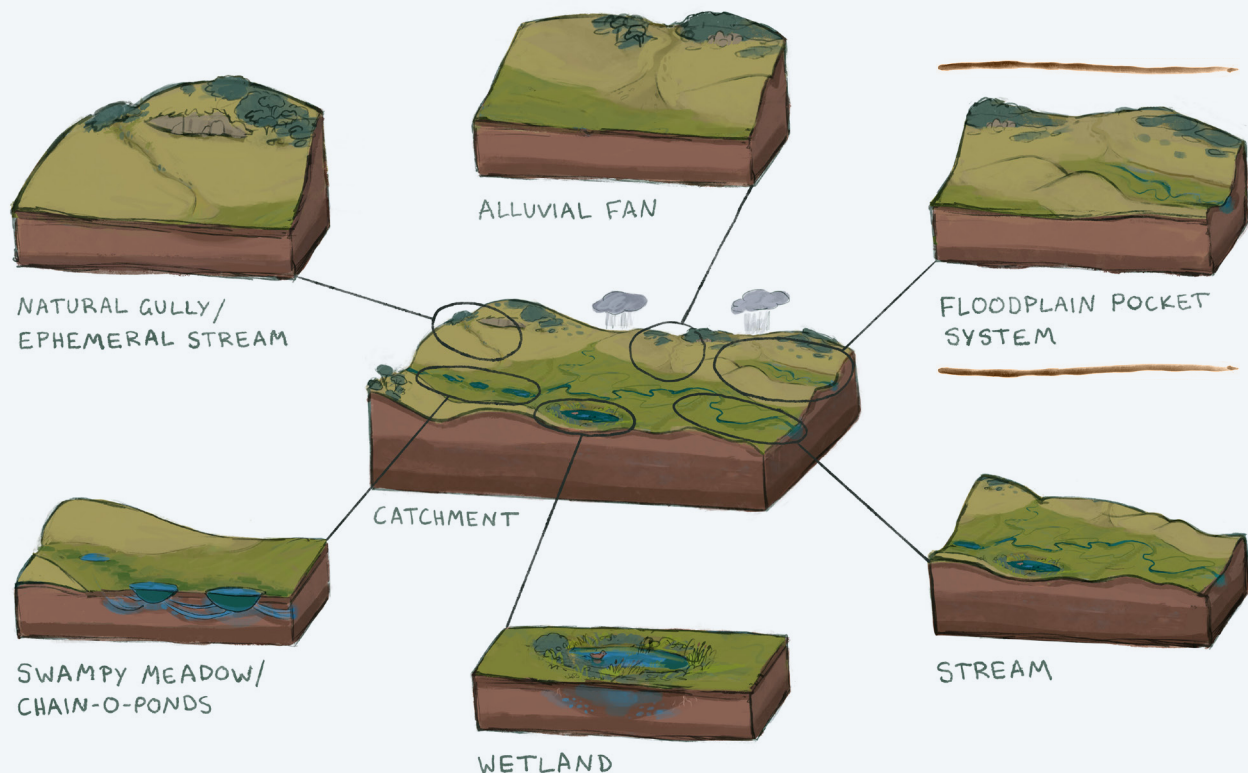
- Single, continuous, linear channel.
- Severe incision resulting in stream surface water levels well below the adjacent floodplain surface.
- Erosion of floodplain sediments.
- Poor water quality.
- Loss of vegetation.
- Reduced biodiversity.
- Disconnected hydrology from floodplain.

What are common risks to consider?

- Placement of farm infrastructure.
- Intensive agricultural practices.
- Pollution.
- Water drainage, extraction or diversion.
- Feral animals.

What are the signs of positive change?

- Improved water quality.
- Stabilised bed and banks.
- Enhanced downstream flows.
- Reduced high flow peaks.
- Extended baseflow periods.
- Reduced cease-to-flow events.
- Increased biodiversity.
- Healthy vegetation.
- Enhanced habitat.
- Ponds maintain their level during dry periods.
- Increased greenness of floodplain vegetation.



Catchment landscapes are mosaics of features, each with a unique way of managing water. When undertaking projects to repair and regenerate landscapes, it is important to understand the underlying hydrological functions of each site. Developing this understanding helps us to:

- Bring a whole-of-catchment perspective to projects
- Assess how well water, nutrients, and carbon are cycling through the landscape
- Assess how well the landscape can dissipate energy from the sun and water under gravity
- Recognise ways to support and enhance nature's self-healing processes

Hydrological functions are the processes and interactions that govern the movement, distribution, and quality of water within the environment, including on the surface of the land, in the soil and underlying rocks, in the atmosphere, and in relation to living things.

This factsheet has been developed by Mulloon Institute to increase understanding of the movement, storage and cycling of water in different areas of the landscape. It was jointly funded through the Australian Government's Future Drought Fund, WaterNSW and The Ian Potter Foundation. Artwork by Tilda Joy. © Mulloon Institute.

The full fact sheet series includes:

- Catchments
- Natural gullies / ephemeral streams
- Alluvial fans
- Streams
- Wetlands
- River floodplains and floodplain pocket systems
- Swampy meadows / chain-of-ponds

E. info@mullooninstitute.org
W. mullooninstitute.org