

# Groundwater dependent ecosystem pictorial conceptual model 'catchment constrictions'

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Version 1.5

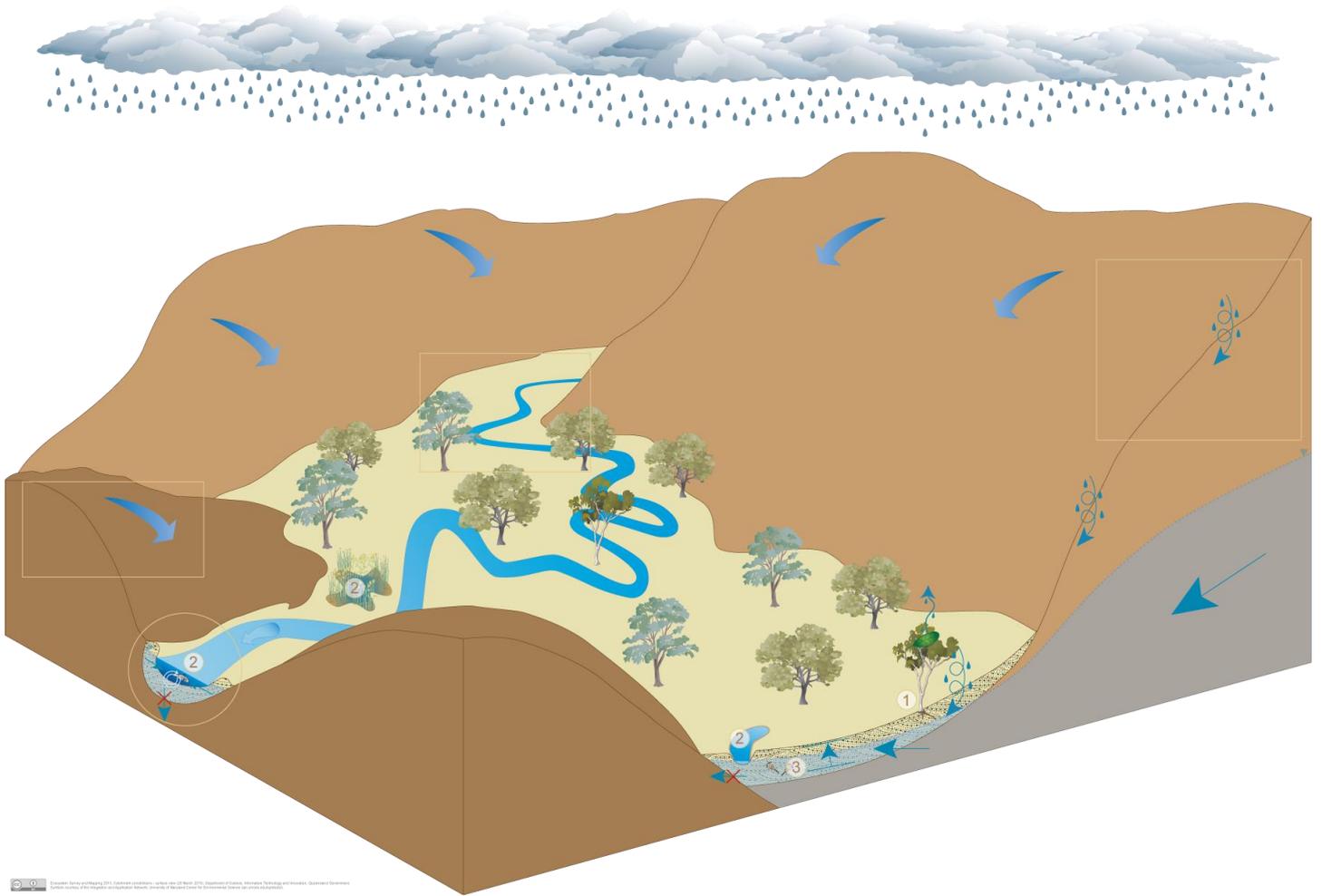
## Catchment constrictions

Catchment constrictions are a narrowing in the width and/or depth of the catchment resulting in the formation of a catchment 'throat' which acts as a bottle-neck. Often groundwater upstream of a catchment constriction is closer to the land surface due to the restriction of groundwater flow through the constriction point. There may also be a widening of the floodplain up-gradient of a catchment constriction due to the restriction of sediment flow through the constriction point.

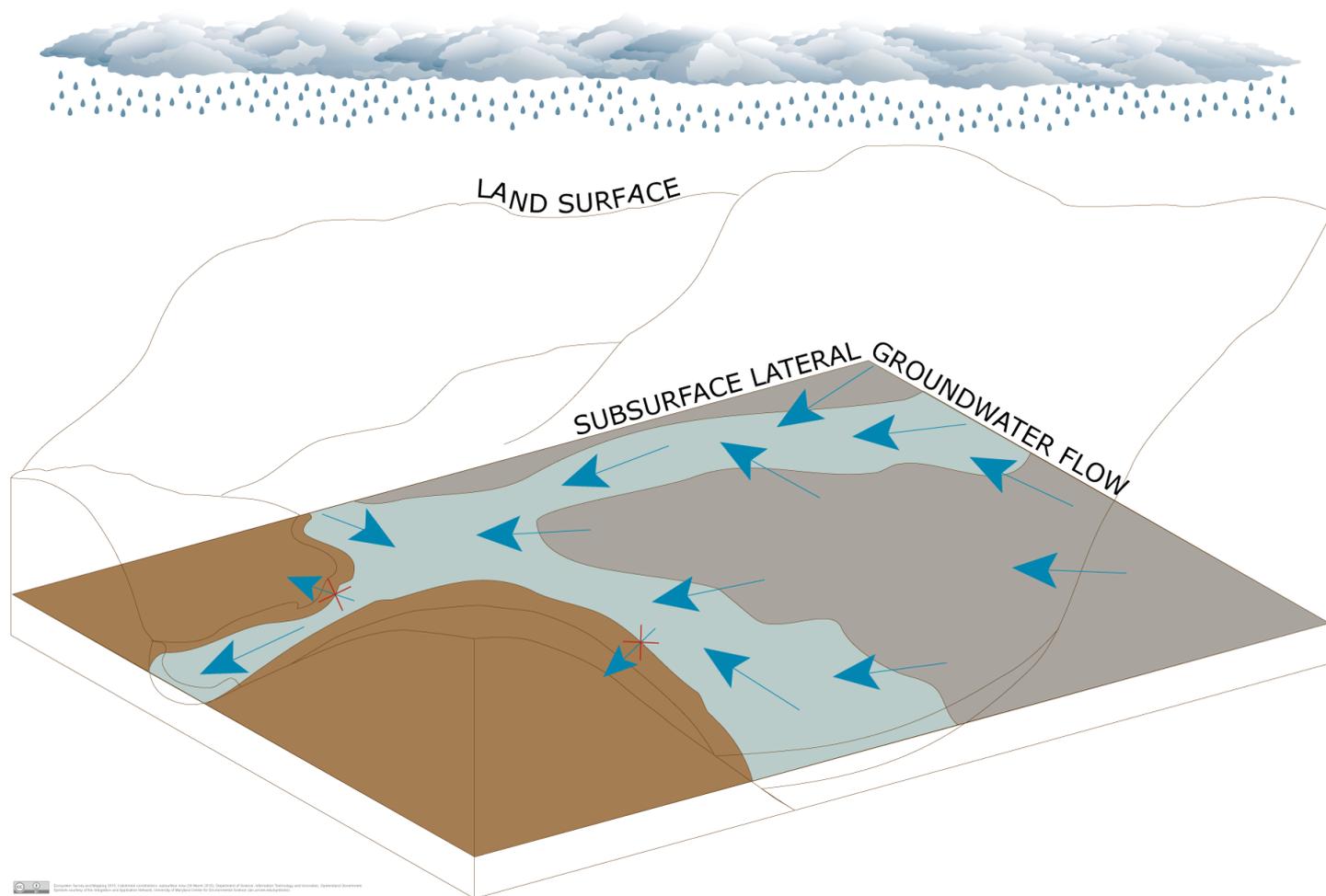
Unconsolidated sedimentary aquifers may provide a range of ecosystems with water required to support their faunal and floral communities, ecological processes and delivery of ecosystem services.

- Palustrine (e.g. swamps), lacustrine (e.g. lakes) and riverine (e.g. streams and rivers) wetlands located up-gradient of a catchment constriction may depend on the surface expression of groundwater from these underlying alluvial aquifers.
- Terrestrial vegetation located up-gradient of a catchment constriction may depend on the subsurface presence of groundwater, typically using deep roots to access groundwater in the capillary zone above the water table of underlying alluvial aquifers.

# Surface view



### Sub-surface view



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### Geology legend



Alluvia  
Unconsolidated sand and clay



Low permeability rock



Moderate to high permeability rock  
Stores and transmits groundwater through void spaces in the rock

## Groundwater hydrology legend



Alluvia (saturated)



Alluvia (unsaturated)



Moderate to high permeability rock (saturated)



Moderate to high permeability rock (unsaturated)



Low permeability rock (unsaturated)



Infiltration and percolation  
Rain infiltrates through the soil to recharge the aquifer below



Groundwater table



Direction of groundwater movement



Negligible groundwater movement



Mixing of groundwater and surface water



Rising groundwater table



Direction of surface water movement in the channel



Direction of surface water movement outside of a channel

## Flora legend



*Corymbia* spp.



*Eucalyptus* spp.



*Melaleuca* spp.



Wetlands



Evapotranspiration  
Process whereby plants draw water up through their roots and move it out through their leaf pores

## Fauna legend



Stygofauna  
Aquatic fauna that live in groundwater



Fish

## Focal elements legend



Catchment throat  
A narrowing in the width and/or depth of the catchment.

## Groundwater dependent ecosystem legend



**1** Terrestrial GDEs  
Regional ecosystems and riverine wetlands may depend on the subsurface presence of groundwater within the capillary zone for some or all of their water requirements.



**3** Subterranean GDEs  
Aquifer and cave subterranean wetlands may depend on the subterranean presence or expression of groundwater for some or all of their water requirements.



**2** Surface expression GDEs  
Lacustrine wetlands, palustrine wetlands and riverine water bodies may depend on the surface expression of groundwater for some or all of their water requirements.

## Citation

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