

# Groundwater dependent ecosystem pictorial conceptual model 'spring ecosystems of the Surat and southern Bowen Basins – type 5'

Version 1.5

Type 5 Wetlands located within riverine-to-palustrine environments with shallow-to-nil unconsolidated material. These wetlands can form in areas of significant topography (such as the GAB).

Type 5 wetlands are similar to Type 4. However, the wetlands occur within upper catchment drainage lines that have ephemeral surface flow. Their location often coincides with the headwaters of large, more defined watercourses. The significant difference to Type 4 wetlands is that there is no distinct channel within the drainage line, such that the wetlands occur as broad areas of saturation within only minor wetland soil development.

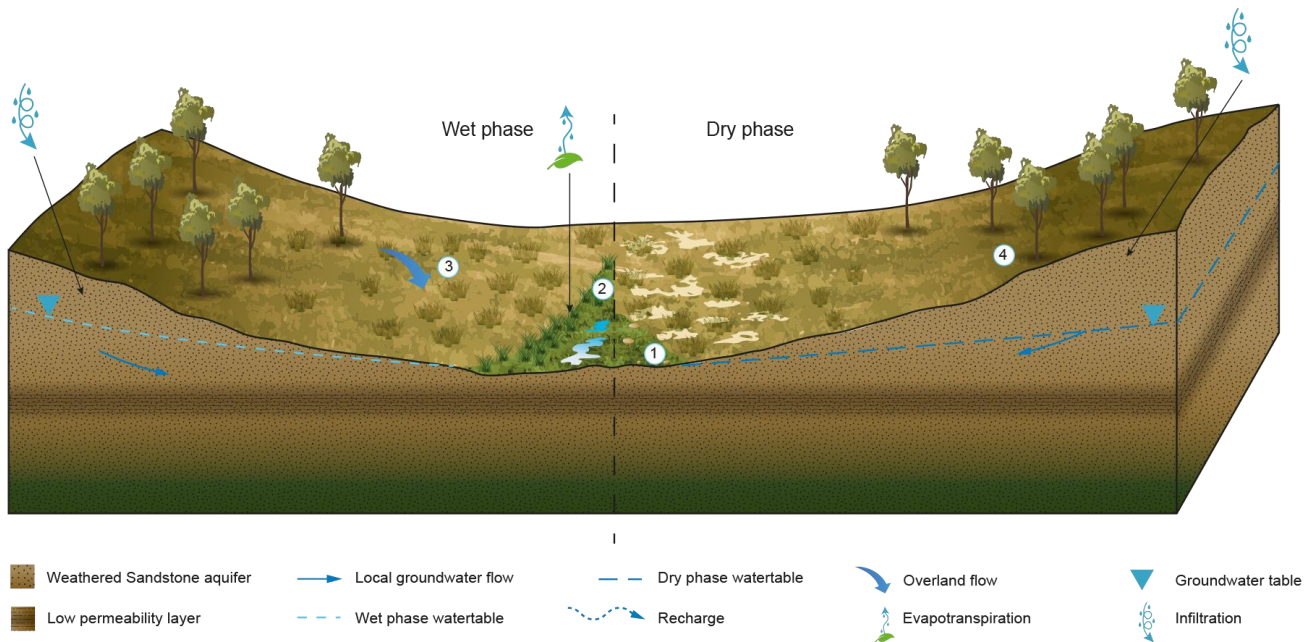
Seasonal changes in the wetlands occur when seasonal recharge increases discharge to the wetland, increasing the wetted area and wetland discharge rate. This is in contrast to Type 4, where any increase in discharge flows directly into the adjacent watercourse with only minor change in wetland area.



Examples of type 5 spring wetlands (Ponies complex)

The wetlands have formed due to a local groundwater flow system overlying a lower-permeability weathered substrate. Lateral gravity-driven flow paths result in point discharge zones (wetlands) within the valley floors. Four focal zones are described that represent the variability across the wetlands driven by the groundwater regime.

1. Permanent zone of groundwater discharge. Dominated by forbs such as *Myriophyllum gracile*, *Eriocaulon scariosum*, *Philydrum lanuginosum*, *Utricularia dichotoma*, the sedge *Eleocharis cylindricus* and other species indicative of permanent or near-permanent inundation.
2. Seasonal areas of groundwater discharge and saturation. These areas are more temporally inundated and dominated by the lawn *Cynodon dactylon* and other terrestrial species with some fluctuating encroachment from the adjacent wetland vegetation in Zone 1.
3. Adjacent bare areas dominated by a sparse cover of terrestrial grasses and sedges including *Juncus* spp., *Eragrostis* spp. and *Bothriochloa bladhii*.
4. Ceased flowing wetlands. During extended wet periods, wetlands can occur temporarily (for many years) higher in the landscape. However, during dry periods, the local watertable drops and the wetlands become disconnected from the groundwater system and cease physically discharge.



## Citation

Queensland Government (2017) *Groundwater dependent ecosystem pictorial conceptual model 'spring ecosystems of the Surat and southern Bowen Basins – type 5': version 1.5*, Queensland Government, Brisbane.