Ecosystem services of 'terrestrial' rivers of the Anthropocene

Abstract:

Intermittent rivers and ephemeral streams (IRES) are watercourses that stop flowing at some point in time and space, creating shifting mosaics of aquatic and terrestrial habitats. Arguably Earth’s most widespread type of flowing water, IRES are increasing in prevalence where Anthropocenic climates grow drier and human demands for water escalate. Many are becoming more 'terrestrial', while some more 'aquatic'. These ecosystems tend to be undervalued by society and pose challenges for management and monitoring, jeopardising their restoration or protection from human impacts, and in turn, their provision of ecosystem services. Unfortunately, the provisioning of ecosystem services by IRES is poorly understood. Here, we conceptualise how flow intermittence may govern ecosystem service provision and transfers during flowing and non-flowing (aquatic) and dry (terrestrial) phases. This provides a socio-ecological perspective for assessing impacts of altered flow regimes and comparing strategies to manage IRES in the Anthropocene, along with their ecosystem services.