

Dry rivers, vibrant with culture and life

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'When the River Runs Dry' is a familiar song in Australia. Some rivers in the arid center of the continent flow only after a stiff monsoon season, and smaller tributaries all over the country commonly shrink to puddled potholes and dry river beds during the dry season. But rivers also run dry in more temperate climes. Much of the upper reaches and feeder streams of the great rivers of North America, and even the mighty Amazon, dry out seasonally.

Dry rivers are more than mere desiccated shells of their robustly flowing incarnations, says Australian ecologist Alisha Steward and colleagues. In the May issue of ESA's journal *Frontiers in Ecology and the Environment*, they contend that dry river ecology is under-researched and under-appreciated.

"I was drawn to dry stream ecology from working on river health monitoring and assessment programs," said Steward, a PhD student at Griffith University in Brisbane, Queensland. "Many potential river monitoring sites turned out to be dry and couldn't be sampled. It was very annoying! It started to get me thinking that 'dry' wasn't necessarily bad or unnatural - some rivers were naturally dry at particular times of the year."

Dry river beds have qualities and inhabitants distinct from their adjacent riversides, as well as from their wet-phase communities, says Steward. They are places of isolation and re-connection: when rivers flow, [aquatic animals](#), plants and microorganisms, [organic material](#), and nutrients flow as well.

Temporary rivers are conduits for biota even when dry, sometimes guiding animals through human-dominated landscapes that lack other continuous habitat. They demand great resilience of their permanent inhabitants, which must be able to survive the swings from immersion to dry land to wet again. Plants, algae, insects, fungi, and even fish have adapted to ride out the dry spells, sometimes seeming to resurrect themselves miraculously from the dust. In the more ephemeral rivers of arid regions, the demands are extreme, the flows erratic, and often separated by years.

But in arid country, dry river beds are oases for animals and people alike. They are sources of water and greenery. Worldwide, human societies use the rich and episodically dry land for vegetable patches, orchards, and pastureland, walking and vehicle paths, hunting and hiking, and herding animals to market. We mine the beds for sand and gravel to build homes and businesses. We park our cars in the beds, and hold races and festivals on the flat river bottoms.

Land use changes, climate changes, and diversions to water projects are transforming historically perennial rivers into capricious or seasonal flows. Impoundment behind weirs and dams can completely dry a river course, or, conversely, turn an erratic flow continuous or cyclical through controlled releases. Steward thinks these are good reasons to learn more about the ecology of intermittent river systems.

"Aquatic scientists seem to ignore dry river beds because they don't contain water, and terrestrial scientists seem to ignore them because they are considered to be part of a river!" said Steward. But they are not typically recognized as "[rivers](#)" by government programs, she said, complicating monitoring programs.

More information: When the river runs dry: human and ecological values of dry riverbeds (2012) *Frontiers in Ecology and the Environment*

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