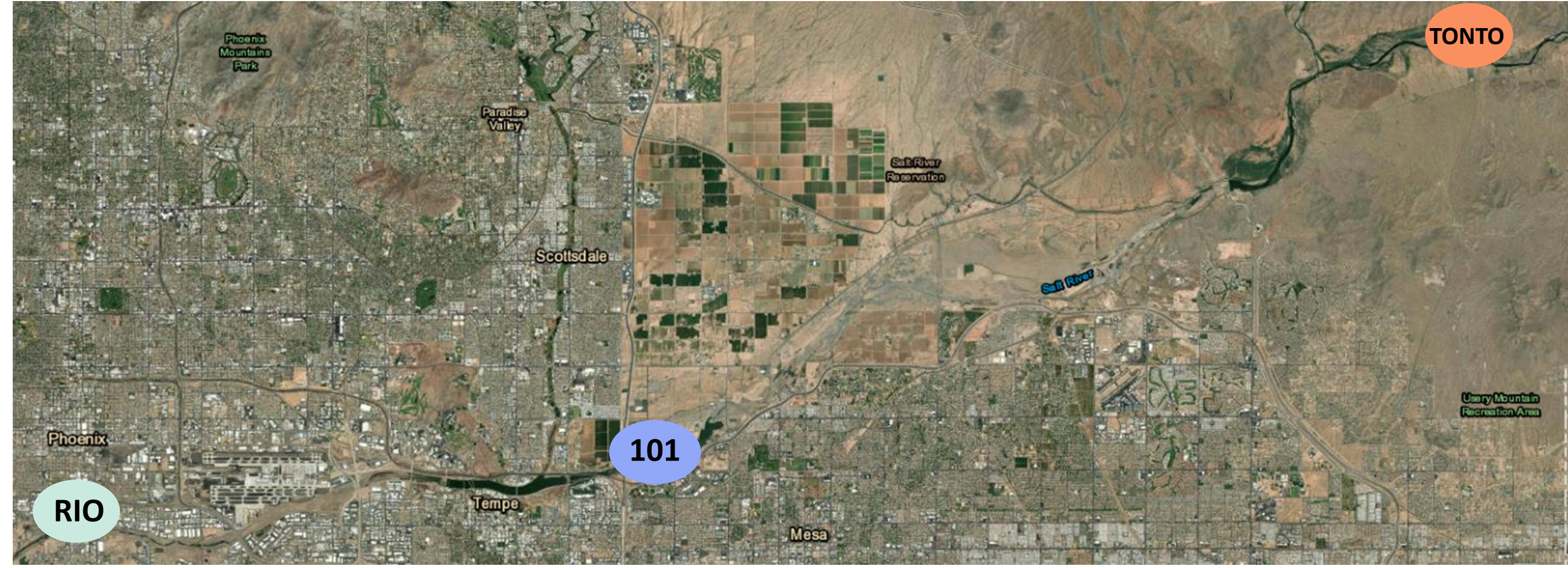


Biodiversity of Accidental and Restored Wetlands of the Urban Salt River

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The Salt River (Onk Akimel) sustains an ecosystem brimming with wildlife and over 4 million people in spite of scarce rainfall and blistering summer temperatures. It provides vital habitat, resources, and ecosystem services for human and non-human residents alike. Humans have used, diverted, and altered the Salt River for over a thousand years, from ancient Hohokam irrigation canals to modern-day hydroelectric dams. Today the Salt is a dry riverbed throughout much of its urban reach, but in several places the flow of the river is perennially sustained by runoff and restoration efforts, supporting lush wetland and riparian communities in the heart of one of the nation's largest cities.



Urban wetlands provide many valuable ecosystem services and functions, including:

- Water quality mitigation and management (Childers 2020; Treese et al. 2020)
- Denitrification (Suchy 2016; Suchy et al 2020) and carbon sequestration (Zedler & Kircher 2005)
- Mitigation for floods (Zedler & Kircher) and contaminants (Handler et al 2016; Palta et al 2016)
- Water, shelter, and heat mitigation for individuals experiencing homelessness (Palta)
- Cultural importance for Indigenous groups such as the Akimel O'odham (SRPMIC, 2022)
- Habitat for diverse native & cosmopolitan biotic communities (Bateman et al 2015; Stromberg et al 2016; Andrade et al 2018)

CAP LTER's **Salt River Biodiversity Project (SRBP)** has been monitoring bird, reptile, and amphibian communities in seven reaches of the Salt River since 2012. Plant communities were surveyed in 2012 and 2022. Reaches include dry riverbed, purposefully restored riparian areas, and accidental wetlands across a gradient of urbanization. **In this study, three of these sites with perennial water flow are examined as case studies of urban wetland biodiversity in an arid region. Shifts in these biotic communities over a decade reveal trends in these ecosystems in response to rapid urbanization and climactic shifts.**

Rio Salado: Restored Wetland

Rio Salado Habitat Restoration Area is in the heart of downtown Phoenix. Completed in 2005, the \$80M joint project of the City of Phoenix and US Army Corps of Engineers removed debris from former dumping sites, restored perennial flow of water by installing groundwater wells, and reintroduced native plant species. The site is managed by the City of Phoenix.



101/Price Rd: Accidental Wetland

At the intersection of Tempe, Mesa, and the Salt River Pima Maricopa Indian Community (SRPMIC), beneath the intersection of Arizona highways 101 and 202, is a three and a half mile stretch of wetland formed by runoff from storm drains, city streets and parking lots, and agricultural development. While human activities sustain perennial water flow to this reach, it is not actively managed.



Tonto National Forest: Urban Periphery

East of the Granite Reef Diversion Dam, the river's flow is regulated by the Saguaro Lake Dam and the area is managed by the US Forest Service. This stretch of the Salt River is not directly adjacent to urban development, but is still exposed to heavy traffic from recreation activities, including tubing, equestrian sports, and fishing. This reach of the river is also home to a growing population of feral horses.

