

# Urban Water Insecurity: A Case Study of Homelessness in Phoenix, Arizona, USA

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## RESEARCH QUESTION & METHODS

In this research project, we engage with the misconception that all people in the U.S. enjoy water security by examining the case of people experiencing homelessness in the city of Phoenix, Arizona in the southwestern United States. Following previous findings about the usage of water in hidden landscapes among this population,<sup>1</sup> we ask the question:

**In what ways is the homeless population in the Phoenix metropolitan area water insecure?**

Our data was collected using archives, participant-observation, focal follows with water distributors that serve homeless populations, and expert interviews with 14 diverse service providers. We analyzed this data using methods for thematic coding. MAXQDA software was used to thematically code the audio and textual data.

**“We have a lot less open public space here in Arizona than we do in other places... [In] the parking lot of a shopping center there will be signs at the front that say no trespassing-- you can't hang out in the shopping center parking lot. You can't go under the awnings outside a row of businesses in a strip mall. Almost all of the city space that is not a park in any Arizona city is going to be private property. Even the municipal property--so public buildings--you can't lounge around outside public buildings. You can't be laying down outside the library because it is all private or restricted space. So you are left with the parks... to be fair to the cities it is a two edged sword because you are trying to serve different communities. The property owners of that city do not want the park to be full of 200 homeless people who are waiting for dinner... But also that's the only place for them to be.”** –Service provider (1)



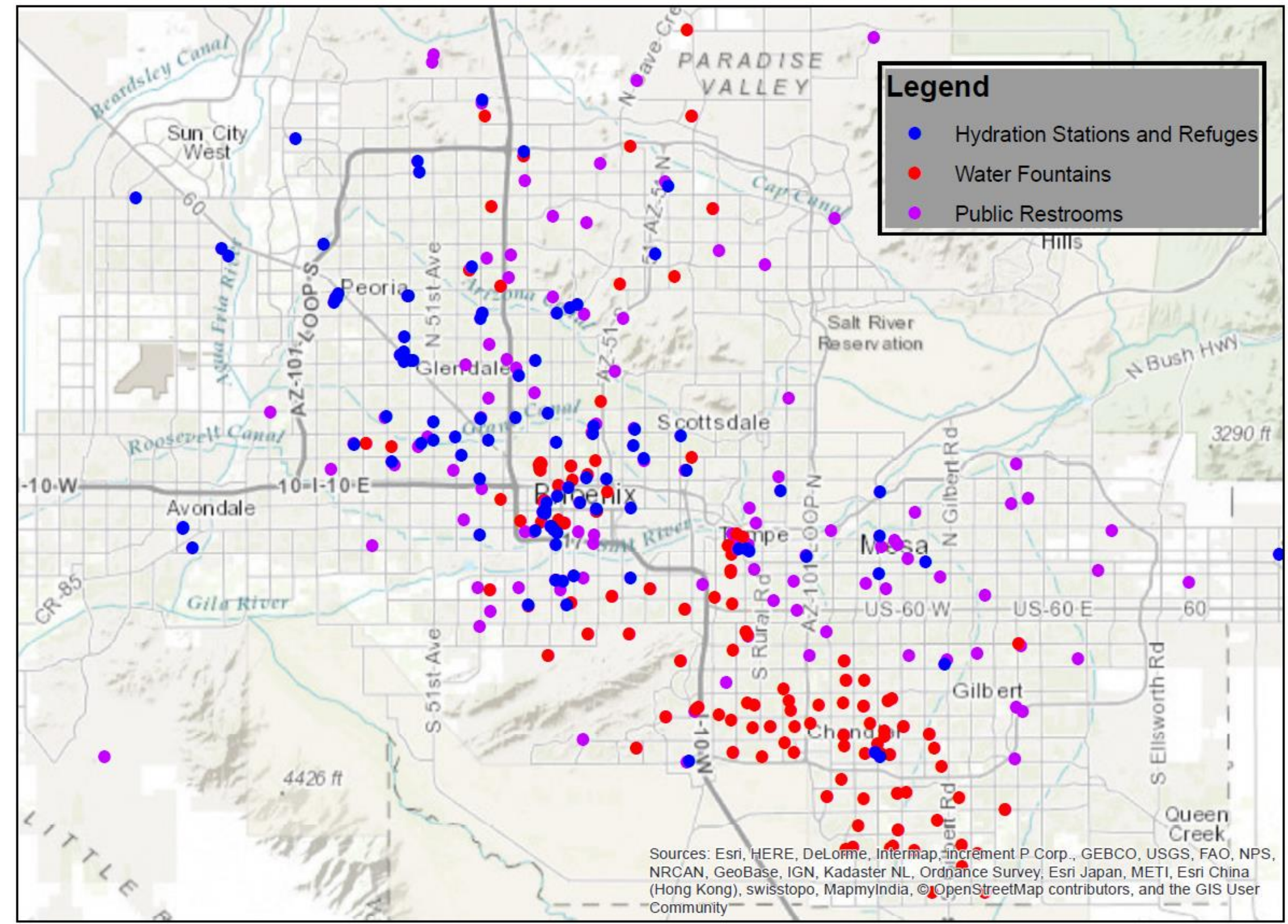
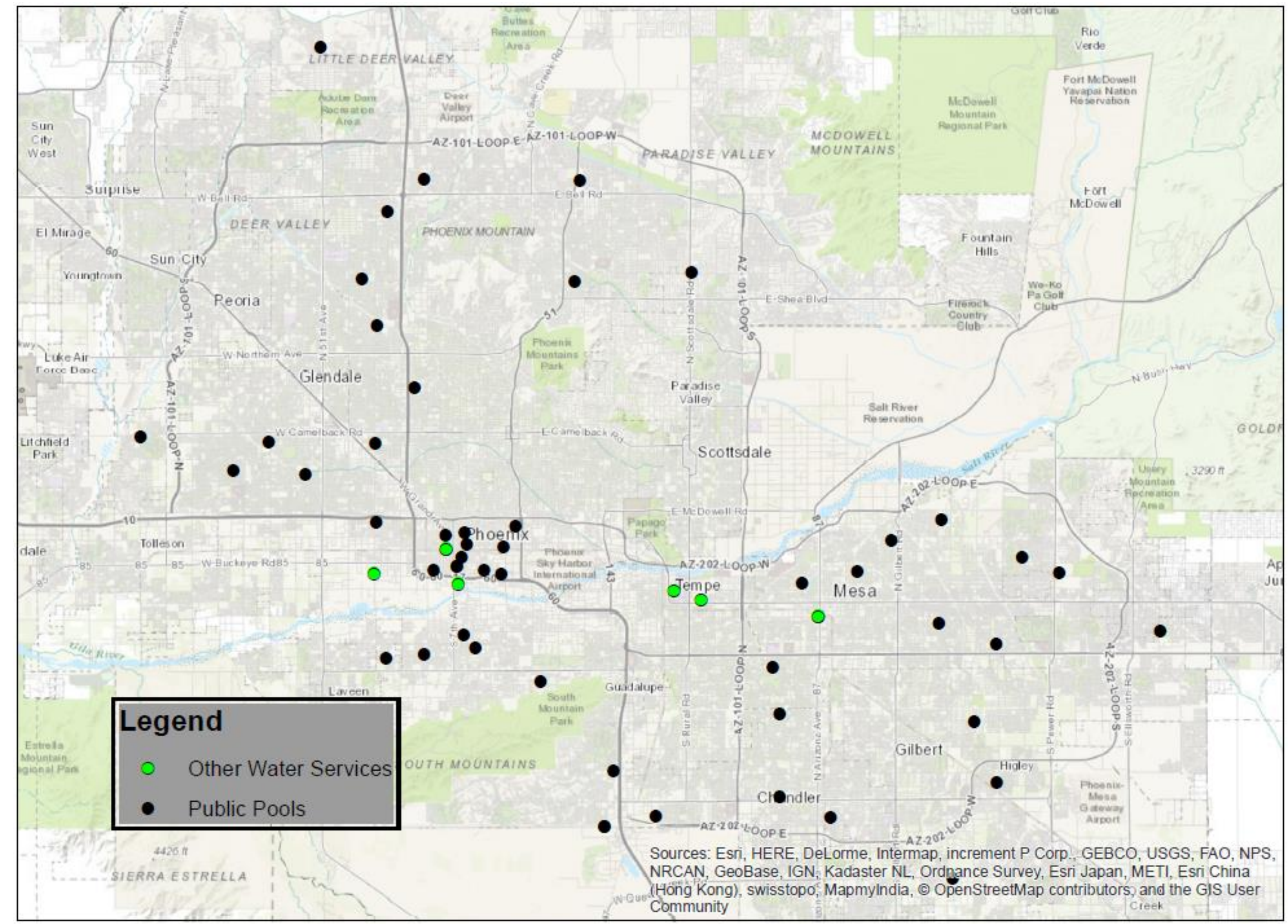
Figures 1 & 2. A camp set up in a hidden area (bottom) behind a wooded waterfall (top) in the Salt River.

## WHAT IS WATER INSECURITY?

The impeded access to an adequate quantity of acceptable quality water for: hydration, hygiene, cleanliness, and cooking. We analyzed water insecurity as a **process** that includes: water sources, barriers, and impacts.

Water sources used	Barriers to water acquisition	Impacts
<ul style="list-style-type: none"> <li>Public water fountain</li> <li>Bottled water</li> <li>Private tap water</li> <li>Surface water</li> <li>Unconventional or Illegal access</li> </ul>	<ul style="list-style-type: none"> <li>Accessibility</li> <li>Ill health</li> <li>Drug and alcohol addiction</li> <li>Hygiene stigma</li> <li>Poor knowledge of available resources</li> <li>Poor knowledge of dehydration</li> <li>Pollution or contamination</li> <li>Economic</li> <li>Infrastructural</li> </ul>	<ul style="list-style-type: none"> <li>Heat-related illness</li> <li>Dehydration</li> <li>Death</li> <li>Mental deterioration</li> <li>Kidney stones/failure</li> <li>Poor bodily hygiene</li> <li>Poor dental hygiene</li> <li>Lowered social status</li> <li>Curtailed job interviews</li> <li>Broken family structure</li> <li>Lack of cleanliness</li> <li>Unclean food prep.</li> </ul>

Figure 3. The process of water insecurity: findings from our thematic analysis



## PEOPLE LIVING IN ENCAMPMENTS

- Includes people who are living in built or modified infrastructures, who are a part of a social network of campers.
- Within the past year the encampments have greatly declined due to an effort to eradicate them. Currently, most of the encampment systems that are left are ones that are hidden in places that include forested areas, abandoned railway lots, and unpopular or hardly accessible riparian areas.
- **The sources of water for people in the “encampment” category are diverse and unconventional, this is a response to the major barrier of increasing physical and social isolation from city resources.**

## PEOPLE LIVING WITH NO ROOF

- Includes people who are living on the streets and are not a part of a larger, social encampment system. These people have to seek publicly accessible environments to eat, drink, rest, and eliminate.
- **For the people in this category, the sources of water are also diverse, this is in response to the extreme heat and the inconsistency and inaccessibility of water sources.**



Figure 6. Kitchen area set up next to a stretch of the Salt River

< Figure 4. Suggestions for future sites for shower services (black) and current shower services (green).

< Figure 5. Current drinking water and restroom resources.

**“We have individuals who live around the wetlands. A lot of individuals do not know if water isn't running, it isn't purifying. If it doesn't have a sand base, its not purifying either. If you're not carrying your iodine or your Tab and you drink that water, a lot of bad things will happen... A lot of the individuals will tell me that they filter their water through their cloth and things like that... [We] took a sample to SRP and the settleable solids were .9 in that water and that's a lot of bacteria and solids that are going into your system. It was actually shady brown, it wasn't clear clear.”** – Service provider (2)

## PEOPLE LIVING IN SHELTERS

- Includes individuals living: temporarily in and out of low-income housing, in a homeless shelter, or in a drug rehabilitation center.
- People in this category who experience water insecurity are living in low-income housing and cannot afford an adequately working air-conditioning or evaporative “swamp” cooler, cannot afford their utilities bills, do not have clean water, or do not trust the running water that is running in their homes.
- **Overall, the sources of water for people in the “shelter” category are relatively dependable, due to more consistent access to private tap water, the major issue for persons in this population is actually the exposure to extreme heat.**

## CONCLUSIONS

- When inconsistent and unreliable access to water is experienced, the reasons are largely social and structural (and not due to physical scarcity or population pressure).
- Water insecurity, among this population, is often not a stand-alone phenomenon, it is intermingled with exposure to extreme heat, preexisting mental health problems, and preexisting drug abuse.
- Many of the impacts of water scarcity lead back to the barriers to water acquisition, causing a cycle of water insecurity or homelessness.

## REFERENCES AND ACKNOWLEDGMENTS

\*Palta, M., du Bray, M. V., Stotts, R., Wolf, A., & Wutich, A. (2016). Ecosystem Services and Disservices for a Vulnerable Population: Findings from Urban Waterways and Wetlands in an American Desert City. *Human Ecology*, 44(4), 463-478. This material is based upon work supported by the National Science Foundation under grant number DEB-1026865. The manuscript for this material is currently under review in *Environmental Justice*.