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► To cite this version:

Louise Biville, Coline Clergeau-Laurans, Manon Delègue. What are the vectors of social reconnection to a dried-up urban watershed?. International Symposium of LabEx DRIIHM 2022, Jun 2022, Nantes, France. , 2022, 10.34972/driihm-2c56c2 . hal-03716552

HAL Id: hal-03716552

<https://hal.science/hal-03716552v1>

Submitted on 7 Jul 2022

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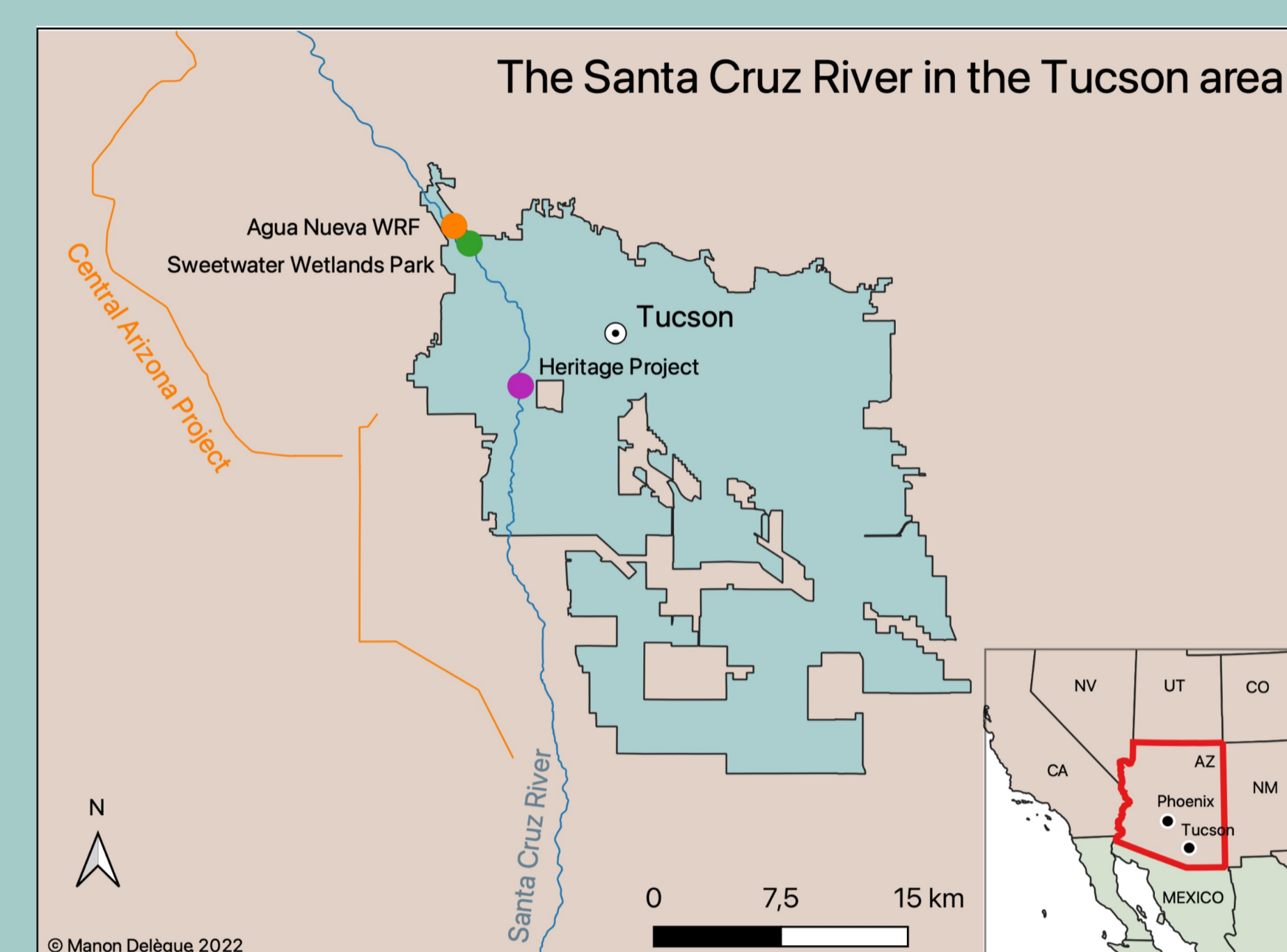
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What are the vectors of social reconnection to a dried up urban watershed ?

Louise Biville, Coline Clergeau Laurans, Manon Delègue. Master 1 Gestion de l'eau et développement local, Université Paris-Nanterre.

Introduction

The research presented on this poster focuses on the Santa Cruz River socio-hydrosystem, a tributary of the Colorado River, located in the Southwestern United States in Arizona. Subject to anthropogenic pressures, the Santa Cruz River is an essential resource for the supply of urban areas, such as the city of Tucson in the Sonoran Desert. In the 1940s, the river dried up and became intermittent, particularly because of excessive groundwater pumping. Only during the rainy season does a surface flow appear. Today, various initiatives are carried out in the Tucson area to "bring back to life" the Santa Cruz River and thus make visible a river that had become invisible. This social reconnection is all the more important as Arizona is currently facing drought and water shortage that is affecting the water supply of its residents. Through the projects studied - social network mobilization, recreational reconnection, socio-cultural reconnection - local actors aim to reconnect residents to the river and to the ecological functioning of the Santa Cruz watershed.



The Santa Cruz River : an effluent-dependent river

In a drought and urban growth context, treated effluents are a sustainable way to recharge diminishing groundwater table levels. On this effluent dominated river, we focus on two groundwater recharge projects led by Tucson Water that recharge groundwater levels and, by reconnecting groundwater and surface water, restore riparian areas, providing wildlife habitat and amenities for the community.

Sweetwater Wetlands Park

This constructed wetlands depends on highly treated effluents to provide wildlife habitat and recreational amenities to visitors. Opened in 1996, the facility is managed by Tucson Water, while non-profits, such as Tucson Audubon Society, organize field trips in this "birding hot-spot".

After moving through the wetlands, treated effluents are sent to infiltration basins surrounding the park to recharge groundwater.



©Manon Delègue, Sweetwater Wetlands Park, March 2022.

Heritage Project

Confronted with excess effluent and in order to reconnect residents to their river, Tucson Water and Pima County chose what can be considered the birthplace of Tucson to discharge effluent and thus revive a portion of the river. Launched in June 2019, the project has attracted a crowd of professionals, enthusiasts and residents. In a short time, this formerly dry area has become an ecosystem again and the site has become a favourite place for various species. Three years after its implementation, the Heritage project remains a popular place, thanks to its loop cycle path, making it a must for cyclists.



©Coline Clergeau Laurans, picture from the riverbed and down the A Mountain at the Heritage Project, March 2022

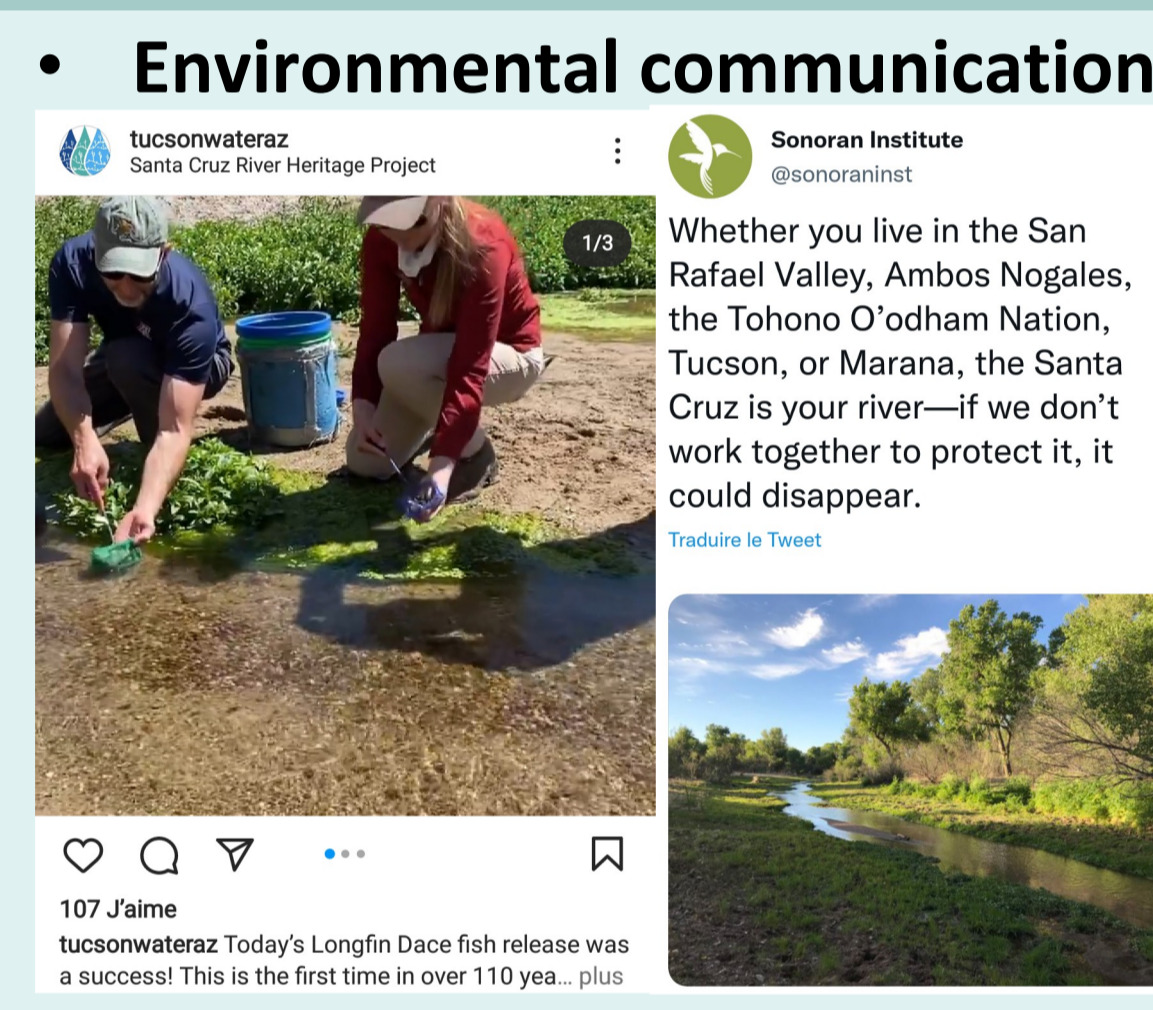
Methods

- Semi-structured interviews with managers, non-profits, scientists.
- Participatory observations : seminars, bird-watching field trips, exhibitions, workshops, collaborative worksites.
- Counting and analysis of the frequentation of the studied sites.
- Online participatory observations and social medias analysis.

Mobilizing social medias

"Environmental influencer"

"I didn't even wanna do social medias, and then I thought, oh yeah, the stories are actually very useful for communicating!" (M. Bogan, 2022).

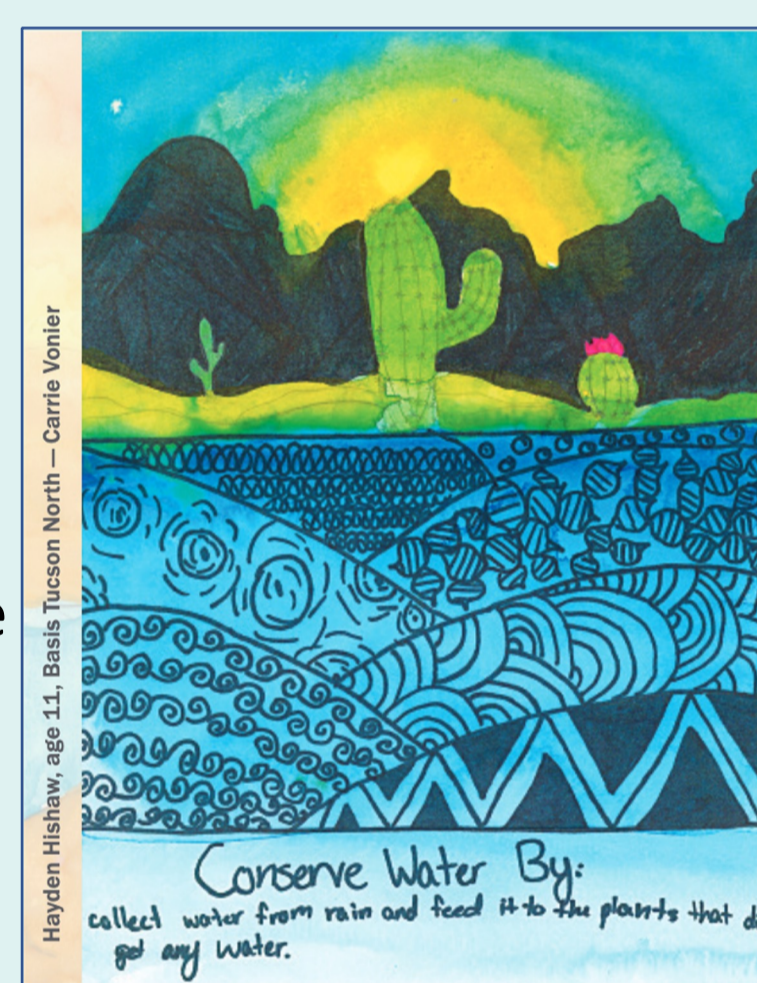


Word cloud from @TucsonWater and @Sonoraninst on Twitter :



Cultural reconnection

- Tucson birthplace** The foot of the A-Mountain (Sentinel Peak) is what the locals consider to be the birthplace of the town, especially with the Hohoham and the agriculture developed around the Santa Cruz River for centuries.
- San Juan Day**, June 24 is for Mexicans the feast of St John The Baptist (according to the catholic tradition), which heralds the beginning of the monsoon. The choice of this date for the inauguration of the Heritage project is particularly appropriate and symbolic.
- The Living River of Words** is an art and science program promoting contact and connection with the Santa Cruz River for hundreds of young people around Pima County's schools.



Recreational reconnection

Recreation activities are deeply linked to the environment and the outdoors due to the unique ecosystem of the region. The Sonoran Desert hosts a rich biodiversity, enhanced by the Sky Islands mountains ranges, connecting people to even more diverse biomes.

The Loop

"By September 2020, about 22,300 pedestrians and 45,500 cyclists will use this stretch of the path" *Living River-2020 Water Year*, Sonoran Institute
The **130-mile** length of this bike path is a great asset to the city, as it connects users to the various rivers that run through Tucson, making it a must for residents.



Map of the Loop, website of the city tucson.com

Bird-watching

The Tucson area hosts a large biodiversity of bird species and offers an **ecological corridor** for migration thanks to the Santa Cruz River's riparian areas. The Sweetwater Wetlands Park is a well-known **hot-spot for birding**.



©Manon Delègue, April 2022, Sweetwater Wetlands, birding with Audubon Society

Dragonflies

It's only few days after the beginning of the Heritage Project that dragonflies have taken up residence where the flow began. It became such an important species that a festival is organized in their honor.



©Louise Biville, March 2022

DunbarSpringNeighborhoodForester.org

Native plants are a big part of the **Tucsonian culture**. Here, **heat mitigation** is a huge deal. Native plants, such as mesquites are praised as they create **shade** and a **cooling effect** without needing irrigation.

Citizen reconnection

Waste removal workshops and initiatives along the Santa Cruz River are promoting a way to restore and preserve the river ecosystem. Volunteers can reconnect to the river's natural resources and its cultural heritage.

Invasive plants removal

Arundo is an invasive specie from Middle East. The **non-profit** Watershed Management Group has initiated **participative restoration** around "**Arundo removal**" to allow native plants to grow. The participants come in the morning at Tanque Verde Creek and they pull out Arundo right from the riverbed.



©Louise Biville, April 2022, Tanque Verde Creek, arundo removal

Citizen science is a way to reconnect to natural resources. WMG organizes **Wet/Dry surveys** with volunteers to track surface flow in the Santa Cruz River watershed. While Tucson Audubon Society promotes the use of **e-Bird**, an online data base of bird sightings.



Castoriando is another **participative restoration program** hosted by RRN. It takes place in Ciénega Creek and participants "think like beavers" in order to build wood dams to **slow stormwater flow**.

Limits and perspectives

- Very artificial restoration and human dependent.
- Green gentrification.
- One of the challenges of water management is the risk of pollution from numerous **landfills**.
- The illusion of an **oasis in the desert** ?