COMMITTEE ON NATURAL RESOURCES SUBCOMMITTEE ON WATER, OCEANS, AND WILDLIFE REMOTE OVERSIGHT HEARING
October 20, 2021 11:00 a.m. ET

Oversight Hearing on "*Colorado River Drought Conditions and Response Measures – Day Two*."
Questions for the Record for Ms. Taylor Hawes, Colorado River Program Director, The Nature Conservancy

Question from Rep. Jim Costa, CA
1. *In the hearing you noted that TNC is working on multiple projects to address the groundwater issues in California. Please share a list of those projects.*

Groundwater reliance and over-pumping are a concern in California as well as across the West such as in Arizona, Nevada, and Utah. As surface water supplies decline, water users often turn to groundwater pumping. Many groundwater sources are non-renewable or recharge very slowly and pumping can outpace recharge rates. This can lead to subsidence, saltwater intrusion in coastal areas, and can negatively impact groundwater dependent ecosystems and springs that are critical to wildlife in the arid west. While you asked about projects in California, I have included projects in neighboring states to highlight a broad array of proven solutions to address groundwater sustainability.

CALIFORNIA GROUNDWATER PROJECTS
California is at a critical stage of implementing groundwater reform, known as the Sustainable Groundwater Management Act (SGMA), enacted in 2014. Under SGMA, local groundwater sustainability agencies (GSAs) must develop groundwater sustainability plans (GSPs), with plans due in 2020 or 2022, depending on the status of basin overdraft. These plans must consider impacts of groundwater conditions and planned groundwater management on all beneficial users of water, including disadvantaged communities and groundwater dependent ecosystems.

To assist GSAs in developing their plans to address impacts to nature and disadvantaged communities, TNC has partnered with a coalition of NGOs to provide technical assistance on how to meet the requirements to address beneficial users. TNC's efforts include developing tools and science, including mapping of groundwater dependent ecosystems, all of which are freely available at www.groundwaterresourcehub.org. With our partners, we are also reviewing and providing comments to local agencies on their draft plans[1], which are due to the state in 2022. The 2022 plan review builds on efforts by TNC individually, and as a member of a coalition, through which we provided comment letters on draft and final plans that were due in 2020, some of which can be found here.

In addition to SGMA planning, TNC is helping agencies implement sustainable groundwater management by addressing both groundwater supply enhancement and demand reduction, both through nature-based solutions.

To increase groundwater supply, we are advancing multi-benefit recharge projects. This includes completing a pilot project with Colusa Groundwater Agency to demonstrate recharge that provides seasonal bird habitat, located within a disadvantaged community. In addition, we are advancing multi-benefit recharge in partnership with the Department of Water Resources (DWR's) Flood Managed Aquifer Recharge (FloodMAR) program, with a goal to develop projects that achieve recharge, bird habitat and flood risk reduction. Pilot projects are being planned in the Sacramento Valley.

To address demand reduction, TNC is working with willing landowners to develop a program to strategically retire irrigated agricultural lands and restore them to arid upland habitat, with a goal to permanently reduce groundwater pumping while potentially helping to recover imperiled species. TNC developed a formal partnership with Lower Tule Irrigation District to plan and pilot the program. These efforts are timely, as the state

[1] Letters on draft plans can be accessed from the Department of Water Resources (DWR) SGMA Portal/All Submitted GSP Initial Notifications – then click on the comment bubble on the far right under the "Action" column to view letter.

has allocated $50 million for land repurposing, which includes retirement and restoration, in the recent Water and Drought Resilience package, which will be administered by the Department of Conservation.

TNC is also addressing demand reduction by advancing groundwater markets to enable farmers to more efficiently manage limited supplies. With Fox Canyon Groundwater Management Agency, Ventura County Farm Bureau and California Lutheran University, TNC helped develop and launch the first groundwater market under SGMA, designed to provide farmers flexibility as they reduce pumping by approximately 40%.

Finally, in recognition that storage is a critical component of the achieving groundwater sustainability, TNC is supporting conjunctive use projects that strive to jointly manage groundwater and surface water supplies. Under the State's Water Storage Investment Program, which is funding storage projects with state bond funds, TNC is providing support for the Harvest Water Program by the Sacramento Regional County Sanitation District along the Cosumnes River and the Willow Springs Water Bank Conjunctive Use Project by the Southern California Water Bank Authority.

For related questions, please contact:

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ARIZONA GROUNDWATER PROJECTS

The Nature Conservancy is a founding member of the Cochise Conservation and Recharge Network in southeastern Arizona (www.ccrnsanpedro.org), which is a collaborative effort to develop a regional network of groundwater management projects between TNC, the U.S. Army/Fort Huachuca, Cochise County, the Hereford Natural Resource Conservation District, and the cities of Sierra Vista and Bisbee. Together we have already recharged and/or conserved over 40,000-acre feet of groundwater for rural Arizona over the past five years, through eight projects, spanning over 6,000 acres, along 25 miles of the San Pedro River. The projects work together to sustain groundwater levels in the region and preserve flows and habitats of the San Pedro Riparian National Conservation Area, managed by the U.S. Bureau of Land Management. Three more recharge infrastructure projects are planned to convey treated effluent and stormwater runoff to the locations where recharge will benefit the aquifer the most, at an estimated cost of $20 million. If funding for these three additional infrastructure projects can be secured, hydrologic models forecast that flows in the river, and aquifer levels, can be maintained for several decades to come, meeting the water needs of both local and federal interests.

NEVADA GROUNDWATER PROJECTS

The Las Vegas area, Nevada's largest population base, is heavily reliant on Colorado River water, and uncertainties in future water supplies often lead to increased withdrawals and reliance on groundwater. Nevada is the driest state in the nation, so the scarce precipitation can take a long time to replenish groundwater supplies. TNC mapped indicators of groundwater-dependent ecosystems (GDEs) in Nevada in 2019 (see https://arcg.is/qyj0v) and is using the maps along with available data to assess stressors and threats to GDEs in Nevada with expected completion in early 2022. These kinds of assessments can support better integrated management of groundwater and surface water while ensuring protection of GDEs.

The Nevada Division of Water Resources (also called the State Engineer's Office) administers groundwater in Nevada in 256 hydrographic areas across the state. The amount of groundwater available for use is determined according to the perennial yield that was estimated for most basins in the 1960s and 1970s using very basic methods. The Nevada Division of Water Resources will be updating these water budget estimations in all 256 hydrographic areas using the latest science and technology, which would provide more robust, science-based estimations of water availability, enabling better and more sustainable management of groundwater in Nevada.

Groundwater does not adhere to state boundaries, and several groundwater basins in Nevada are shared with other states like California and Utah. In the Mojave Desert, the Amargosa River is a groundwater-fed river that

originates in Nevada and flows into California, terminating in Death Valley. It is sustained by groundwater-fed springs throughout its length, and is an oasis in the desert for plants, wildlife and humans, with extremely high biodiversity. The Nature Conservancy has properties and easements in both California and Nevada to help protect this water resource and those that depend on it. We are concerned about a number of threats to groundwater sustainability in the region that may impact this sensitive ecosystem, including climate change, mining, solar infrastructure, highway infrastructure, and renewable energy transmission. We have several projects to restore and sustain habitat throughout the region and responsible groundwater management plays an essential role, but it is important recognize the threats to cross-boundary groundwater basins.

UTAH GROUNDWATER PROJECTS

Utah is the second driest state in the United States. Some of Utah's largest population centers, such as Salt Lake City, Moab, and St. George, are dependent on water from the Colorado River and its tributaries as well as groundwater. Human populations are rapidly growing. In the St. George area, the population has doubled every decade for the past four decades – with that trend expected to continue in the future – and water resources are diminishing.

TNC is working closely with a large group of stakeholders in Moab, Utah to better understand the limits of groundwater aquifers and the impacts to TNC Matheson Wetlands Preserve, streams and aquifers from current and additional withdrawals. The town of Moab located in southeastern Utah, is a gateway community to numerous national parks. Over 1.8 million visitors recreated in the national parks of Southeast Utah in 2020. With surface waters fully appropriated, water needs to support future development must be met with groundwater resources. A recent USGS study, partially funded by TNC, shows a groundwater outflow of 300 to 1,000 acre-feet per year from the watershed to the Colorado River, leaving little left for future growth or environmental needs. Stakeholders, including the City of Moab, Grand County, and Grand Valley Water and Sewer are interested in employing more flexible water marketing strategies to ensure the health of our wetlands, streams and the Colorado River. TNC is currently working with the Utah Division of Water Rights to refine the water budget calculations and better understand impacts to the environment.