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Historic First: San Antonio Zoo's Center for Conservation & Research Achieve Groundbreaking Success with Imperiled Oklahoma Cave Crayfish

San Antonio, TX - With yet another groundbreaking accomplishment, the Center for Conservation & Research at San Antonio Zoo (CCR) is proud to announce the successful births of 47 critically imperiled Oklahoma Cave Crayfish (Cambarus tartarus), the first births ever in caretivity (the care of man). This historic-first achievement comes from their relentless efforts and unwavering dedication to conservation.

Joined by esteemed partners, including the United States Fish and Wildlife Service, the Ozark Plateau National Wildlife Refuge, The Oklahoma Department of Wildlife Conservation, the Nature Conservancy, the Tulsa Regional Oklahoma Grotto, the Subterranean Biodiversity Project, and the University of Alabama in Huntsville, the CCR team has achieved remarkable milestones in unraveling the mysteries surrounding this rare species and its urgent need for conservation.

The Oklahoma Cave Crayfish, known as one of the rarest crayfish species in North America, faces grave threats due to pollution sources such as commercial chicken farms, sewage effluent, and surface development runoff, leading to the deterioration of water quality. Compounded by its limited range – the species is confined to several caves in a single county in NE Oklahoma, its vulnerability reaches critical levels.

As the Oklahoma Cave Crayfish undergoes review for possible inclusion on the Endangered Species List by the United States Fish and Wildlife Service, it has already been designated as "state endangered" by the state of Oklahoma. NatureServe classifies it as "G1," critically imperiled, while the International Union for Conservation of Nature lists it as "critically endangered" on their "red list."

Since 2000, Dr. Fenolio, Vice President of CCR, has spearheaded the collaborative effort. Together, the team embarked on a capture-mark-release-recapture project to determine population size, longevity, and habitat use. Employing innovative methods, scientists marked wild crayfish with small, harmless acrylic elastomer tattoos that reflect under black light,

enabling them to identify individuals and conduct crucial population ecology studies, ultimately guiding conservation measures.

Moreover, CCR has successfully established a small colony of the Oklahoma Cave Crayfish in their lab, where they study reproductive biology, longevity, and develop husbandry and breeding protocols. In a groundbreaking first, the lab bore witness to the deposition of eggs by a female and the subsequent successful hatching of these eggs. This unprecedented event signifies the first-ever maintenance of this species in a controlled environment and only the second instance of breeding a blind, white, and "cave-adapted" crayfish.

"I couldn't be more proud of the team," said Tim Morrow, President & CEO of San Antonio Zoo. "Their unwavering dedication and passion have propelled them to achieve remarkable milestones in their projects and research, surpassing all expectations. This team, our conservation partners and the entire zoo crew are literally working around the clock and relentlessly to save species and our planet."

The invaluable knowledge and best husbandry practices garnered from this project will be meticulously documented and published, equipping wildlife authorities with an essential tool in instances of emergencies or environmental disasters. By bringing wild animals into the lab and applying existing husbandry and breeding protocols, these practices can be instrumental in safeguarding imperiled species.

Dr. Danté Fenolio, Vice President of the Center for Conservation & Research at San Antonio Zoo, expressed his immense pride in the team's accomplishments, stating - "Once again, they have accomplished something with an imperiled groundwater species that many people thought unlikely. The time, effort, and skill sets necessary are considerable. I just can't say enough about these fantastic people working so hard to conserve imperiled species."

Dr. Fenolio went on to emphasize the project's significance, stating, "This species really needs our help. Very little is known about how subterranean crayfishes make a living. Learning about the reproduction of this species will tell us a lot about how resilient or not wild populations are. It will help us inform conservation policy. This is a significant accomplishment and conservation action step."

Matt Fullerton, United States Fish and Wildlife Biologist, applauded San Antonio Zoo, remarking, "The successful captive husbandry, and now reproduction, of the Oklahoma cave crayfish by the San Antonio Zoo is an amazing success story. As a species currently undergoing a species status assessment by the U.S. Fish and Wildlife Service, this accomplishment is very important in furthering our understanding of this cryptic, state-endemic species."

San Antonio Zoo remains unwavering in its commitment to conservation and research, playing a pivotal role in safeguarding imperiled species and advancing scientific knowledge.

*More Quotes from Our Partners:

“The recent successful breeding of *Cambarus tartarus* by Dr. Fenolio with San Antonio Zoo, is a milestone accomplishment. Our little beloved crayfish, found in a tiny watershed, has hope for long term survival.”

Keith Andy Harris
Vice Chairman
Tulsa Regional Oklahoma Grotto

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“I am delighted to hear that Dr. Fenolio and his team have finally been able to achieve this crucial step towards the conservation of the Oklahoma cave crayfish. Cave fauna are notoriously difficult to breed in captivity, making them even more challenging to protect. Kudos to Dr Fenolio (and the SA Zoo) for paying attention to, and pioneering, the conservation of these animals who live hidden from us below the surface, and yet are the bellwethers that report on the health of our environment and the planet.”

Daphne F Soares, Ph.D.
Associate Professor
Biological Sciences
New Jersey Institute of Technology

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“This truly is a remarkable and historic accomplishment for the conservation of not only the Oklahoma Cave Crayfish but for groundwater crayfishes in general. The knowledge being gained with respect to reproduction, life history, and captive breeding will be transferable to help save the many other imperiled species of groundwater crayfishes in North America."

Matthew L. Niemiller, Ph.D.
Associate Professor of Ecology
Department of Biological Sciences
The University of Alabama in Huntsville

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“Successful husbandry and captive propagation of such a rare and cryptic species, that is endemic to Oklahoma, is a huge milestone. Understanding the life history traits of this species opens up many opportunities to help us ensure the future conservation of the Oklahoma cave crayfish.”

Curtis Tackett
Threatened and Endangered Species Biologist
Wildlife Diversity Program
Oklahoma Department of Wildlife Conservation

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“The Oklahoma cave crayfish is one of the rarest species we have in the Ozarks, and very little information is available about how this species lives and reproduces. However, this information is crucial to understand how we will manage habitats where this cave crayfish occurs and will help facilitate future conservation activities associated with this species. The Center for Conservation & Research team at San Antonio Zoo has developed deep expertise necessary for successful captive husbandry projects with North American cave species, and this knowledge will be applicable to other species should the need arise.”

Mike Slay
Ozark Karst Program Director
The Nature Conservancy

About San Antonio Zoological Society
San Antonio Zoological Society was established in 1929 and is a nonprofit organization committed to securing a future for wildlife. The society operates San Antonio Zoo, Will Smith Zoo School, Edutainment, Center for Conservation and Research at San Antonio Zoo, and Kiddie Park.

Website www.sazoo.org

About San Antonio Zoo
San Antonio Zoo®, operating since 1914, is a nonprofit zoological facility committed to securing a future for wildlife. Through its passion and expertise in animal care, conservation, and education, the zoo's mission is to inspire its community to love, engage with, act for and protect animals and the places they live. The zoo welcomes more than a million visitors each year and is open year-round. San Antonio Zoo operates the largest nature based preschool in the country, Will Smith Zoo School, the Center for Conservation and Research, and Kiddie Park. San Antonio Zoo is accredited by the Association of Zoos and Aquariums, the Zoological Association of America, and Humane Certified by American Humane.

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