Picture book portrays a 'hoppy' future for endangered frogs

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ASU microbiologist and author Elizabeth Davidson offers kids (and their parents) a pollywog hero and a forum for global environmental solution-building in "The true adventures of Cheery, a Chiricahua Leopard Frog." Credit: Five Star Publications Inc.

Move over Kermit, there's a native frog rising in the West.

With a big green puppet in hand, Arizona State University microbiologist Elizabeth Davidson has young children imagining the life cycles and life challenges of a threatened frog species in Arizona – and cheering for the underfrog.

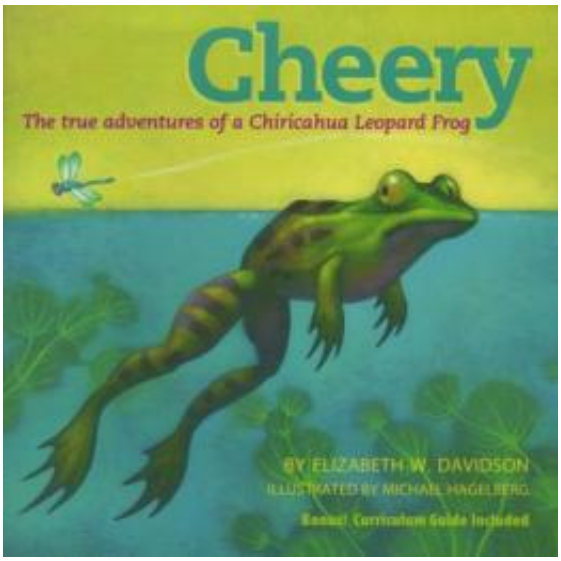
"Cheery: The true adventures of a Chiricahua Leopard Frog," is a picture book written by Davidson and brought to life by graphic artist Michael Hagelberg. Published by Five Star Publications, Inc., the book was

developed with support from the Heritage Fund, funded by Arizona Game and Fish Department, and was officially designated an Arizona Centennial Legacy Project by the Arizona Historical Commission.

In the tale, a Chiricahua (Cheer-a-cow-ah) pollywog, Cheery, grows up with a very uncertain future. "Round and fat and pale green with brown spots" makes tadpoles good eating for voracious introduced, non-native species in waterways and ponds. Crayfish, bait fish and bullfrogs, used as bait and discarded by fisherman, native snakes and birds are all predators of native pollywogs and young frogs.

Who knew that growing to an adult frog is so full of challenges in the Southwest?

If that wasn't enough, amphibians are threatened by microscopic predators. In this case, an infectious disease is decimating frog populations in Arizona and worldwide. More than one-third of all amphibian species (frogs, toads and salamanders) are now extinct or threatened with extinction. This is the real-life science that Davidson studies and teaches about in ASU School of Life Sciences, in addition to her work with infectious insect diseases, and mentoring of high school and undergraduate life science students.



The picture book "The True Adventures of Cheery, a Chiricahua Leopard Frog" was penned by Arizona State University microbiologist Elizabeth Davidson. Credit: ASU

"Children need a way to relate to things that are important in the environment, because they are important in ways that no one could even guess," says Davidson. "This book helps them learn a bit about biology, about predator-prey relationships, about lifecycles, about ecology and about overcoming obstacles."

The book also offers teachers tools and scientific information interesting for older children. "Not to mention, frogs are just appealing. Look at Kermit!" she adds.

In Arizona, more than 80 percent of the sites where leopard frogs were once found are now empty of them. Organizations like the Sonoran Desert Museum in Tucson, Arizona Game and Fish Department, the Phoenix Zoo and U.S. Fish and Wildlife Department have worked together to develop conservation and captive breeding programs.

ASU alumnus Mike Sredl, now a biologist with Arizona Game and Fish, is very active in a breeding and reintroduction program like the one described by Cheery. The Phoenix Zoo supports tanks and a program to breed disease-free leopard frogs. Ponds are then renovated, pools deepened, and non-native predators are removed, before tadpoles and froglets (young frogs) are reintroduced to their former homes in the wild. The breeding facilities are typically closed to the public, but Davidson was invited to visit and some of the book's illustrations are based on photographs that Davidson took on her visits.

How does the future look for Cheery's relatives in the wild? Davidson's book readings with her frog puppet, most recently with the children in ASU's Mary Lou Fulton Teacher's College Preschool and Arizona Game and Fish Department's Open House, have created a great deal of enthusiasm for the heroic frog and interest in building solutions and a future for the frogs in young hearts.

After the readings, the kids were ready to go to the zoo and help, Davidson says. "They know now that they shouldn't release their pets or bait in nature. That this is how the diseases of salamanders get spread. Maybe they can teach Mom and Dad too!"

Davidson believes that children, and ASU students that she mentors, need a way to relate to things that are important in the environment, because they are important in ways that no one could even guess.

For example, some of Davidson's scientific colleagues and others have recently found that chemicals on the skin of frogs inhibit human immunodeficiency virus (HIV-AIDS) and many other diseases.

"What would we do without frogs? They eat harmful insects, they teach us lessons about life, and hold secrets for human health, and not just as research organisms or models." Davidson says. "Hopefully our children

and grandchildren pay attention and we continue to support organizations like Arizona Game and Fish, U.S. Fish and Wildlife, The Phoenix Zoo and other groups building practical solutions to our environmental challenges. It's important."

Provided by Arizona State University