FAQ

How did Romeo and Juliet's first date go? Was it love at first swim?

For Romeo, it was absolutely love at first swim. He immediately went over to Juliet when they were placed in the same aquarium (a new aquarium to both of them). When they were moved to his aquarium, he called for the first time since 2017 in a serenade to Juliet—which was music to our ears because it means he hadn't given up hope! Juliet seemed to like Romeo's company right away, but Romeo definitely seems to be the more smitten of the two.

How are Romeo and Juliet getting along now that they've had their big first date and are living together?

They're getting along great! Romeo follows Juliet around their shared aquarium (which was formerly Romeo's bachelor pad) and he often forgoes his worms so Juliet can enjoy them instead. Romeo is a perfect gentleman and has even been displaying a behavior we've never seen before—rapidly moving the toes on his back feet when he's close to Juliet in what may be a dance to impress her. He's struggling a bit, however, to figure out the correct position for amplexus—the mating position for frogs where the male grasps the female and holds on until he can fertilize her eggs as she lays them. But it's been 10 years, so we can certainly cut him some slack!

So then what happens if Romeo and Juliet can't…click…in that way?
We down a tub of ice cream, watch The Notebook, and then get back to it. We have a number of pairings that we can try between the six individuals we now have for the conservation breeding program, and we have some knowledge about how to breed them based on our success with other water frog species at the K'ayra Center.

We will also work to better understand different conditions in their natural habitat, such as fluctuations in water temperatures, to continue to improve our ability to replicate natural conditions in captivity.

And as a last resort, GWC and the museum will also be working with a lab at Macquarie University in Sydney, Australia on collecting and freezing sperm from Romeo and gametes (eggs and sperm) from the other individual frogs so that we can potentially try in vitro fertilization.

What lessons are Romeo and Juliet teaching us?

First, that love requires patience! We also don't know much yet about the reproductive behavior of the species, so we stand to learn a great deal from them. We have already discovered that the male performs a courtship call before amplexus and seems to do a kind of courtship dance, perhaps to try to impress the female. We hope to learn more about their behavior, how long they stay in amplexus, how long it takes for tadpoles to hatch, how many eggs they lay, etc. It will be the first time we can answer these questions for the species and will help us establish a successful conservation breeding center that may save the Sehuencas Water Frog from extinction.

Why was it so important to find a Juliet?
Romeo's been living in the museum on his own now for more than 10 years. During that time he has called for a mate, but the last time we heard that call was at the end of 2017. We didn't want him to lose hope! But more than that, we didn't know of any other living Sehuencas Water Frog, which means that if we didn't find Romeo his Juliet—and additional individuals to start a conservation breeding program—this species would likely go extinct.

How did you manage to find Juliet?

It wasn't easy! We spent months doing an analysis of historic records of where the species had originally been found and looking at the current threats to those areas. We also spent some time talking to locals. They didn't recognize the species and were amused that we had come looking for a frog. But when we showed them video and photos of the species, they became very interested in Romeo and wanted to learn more about him and other amphibians in the area.

On our second expedition we spent days looking for Sehuencas Water Frogs in protected habitat that seemed perfect—yet we didn't find any frogs of any species. It wasn't until we were just about to give up after a long day that we saw any sign of amphibian life, the first Sehuencas Water Frog that we rescued. We came back after that and found the other four frogs that we rescued, including Juliet!

How do you look for a water frog?
Very carefully! Members of the expedition team walked through slippery rivers on uneven ground looking for the frogs. Sehuencas Water Frogs very rarely come out of the water, so the scientists get used to wearing rubber boots and raincoats. They lifted rocks and looked for the frogs in the water. The expedition team included individuals who have past experience finding Sehuencas Water Frogs in the wild before the population crashed. So they knew what to look for and how to do this. Want to know more about that adventure? Check out this blog post about the expeditions.

If you rescued the five frogs that you found, are you worried about a negative impact on the wild population?

There are likely too few water frogs in the wild for them to retain a viable population over the long-term at this point. Much of their historical habitat has been destroyed and their numbers are badly impacted by invasive trout that eat their eggs and by chytridiomycosis. Chytrid appears to have wiped out all frogs from these streams (not just water frogs), so the highest conservation priority is to rescue the animals for a conservation breeding program so that one day, once the threats have been mitigated, we are able to return this species to the wild. If we don't act now, it will be too late and the species could be lost.

It's a numbers game. Even under the best of conditions, very few frog eggs become tadpoles, fewer become froglets, and a minuscule number become adult breeding frogs. Predatory aquatic beetles, fish, snakes, and birds, to name a few, love to eat eggs and baby frogs. That's why the Juliets of the world have to lay so many eggs! In contrast, nearly 100 percent of eggs, tadpoles, and froglets survive in captivity. This provides much better odds for any genetic resistance to disease that may exist at a low frequency to survive the predatory gauntlet, and will be studied as part of the conservation of this species. And genetic resistance will likely be a helpful tool since we may not be able to find a cure for chytrid—but instead may have to figure out strategies like this to help amphibians survive in the wild *with* chytrid.

Ultimately, this assurance colony provides a major boost to a wild population or opportunity to reestablish the species if it disappears entirely in the wild. In this way, we can potentially boost the genetic resistance of a population even if the threat of disease persists, depending on whether these individuals just got lucky and managed to avoid the wave of the deadly amphibian disease chytridiomycosis or are exhibiting tolerance of or even resistance to chytrid. Not all the reintroduced animals will survive, but the ones that can will be in significantly larger numbers than they would be if they'd all had to run the entire gauntlet in the wild.

And although field evidence shows us that there are likely to be very few left in the wild, if we do find a healthy population on future expeditions—which is ideal—then we can implement a mixture of measures for the species, including a combination of conservation breeding in captivity and developing and implementing a plan for their protection in the wild.

We have examples of this approach working. The Mallorcan Midwife Toad in Spain is a good model for how captive breeding and reintroduction can form part of a larger strategy to recover a species in the wild. At least 10 populations of this species have been successfully reintroduced as part of a conservation breeding program. There's also the Kihansi Spray Toad in Tanzania, which has been successfully bred at zoos in the United States and is part of soft releases and a program for full reintroduction.

Is there anything we can do to help Romeo, Juliet and his new friends?

Absolutely! Fans of the new celebrity couple can support their happy future and the establishment of the conservation breeding center by making a donation toward any of the items on Romeo and Juliet's "happy future" registry, including a rescue pod for a new biosecure home for the species, a tadpole nursery and a frog college fund to support habitat conservation efforts so that offspring may someday be returned to the wild.