

MOBILIZING MARCY:

Animal Care Team Helps Cub Conquer Swimmer Syndrome

Snow leopard cub Marcy is able to walk thanks to physical therapy, collaboration with other AZA zoos

When the Rosamond Gifford Zoo's carnivore team realized that the zoo's female snow leopard, Daania, was expecting, their main goal was to ensure the pregnancy and birth went smoothly. Thirty days before her due date, they set up a closed-circuit camera to monitor her 24/7. Each morning, they reviewed video from the night before to ensure nothing unusual occurred. A second-time mom, Daania had zero complications. On May 18, the team arrived to find her grooming and nursing a newborn cub. Snow leopards usually have twins – as Daania did in her first pregnancy -- so they continued to monitor her for signs of labor. There were none. Daania had just one cub, but it was healthy, eating and a valuable addition to the population of a critically endangered species.

All this meant hands off. Unless complications arise, animal care specialists at accredited zoos give mother and baby six weeks to form a solid bond before the baby's first wellness check and vaccines. They observe from a distance or via camera to ensure the cub is nursing, breathing normally and moving around. The general rule is Do Not Disturb.

But about three weeks in, Carnivore Manager Seth Groesbeck noticed the cub was not moving normally. At this age, a cub starts to crawl, but this one couldn't get its hind legs under it. It would try to pull itself forward with front paws but remain on its belly with rear legs splayed to the sides, pushing air.

Seth alerted Cornell University veterinarian Dr. Becky Eddy, who practices at the zoo in a

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partnership with Cornell's College of Veterinary Medicine. The decision was made to examine the cub and assess the situation.

After luring Daania into a separate area with her favorite food – pork – keepers removed the cub long enough for Dr. Eddy to learn it was a female, listen to her heart and lungs and examine her back legs. They didn't take time to weigh her before getting her back to mom, but they could tell the cub was well-fed. "She had a big belly since she was a singleton and getting all of mom's milk," Dr. Eddy said. She had a strong suspicion: The cub was a "swimmer."

Swimmer Syndrome is a condition most often seen in domestic kittens and puppies, but also observed, though rarely, in tiger cubs, clouded leopard and snow leopard cubs. So-called because they paddle their hind legs as if swimming, baby animals with Swimmer Syndrome fail to develop the adductor muscles on their inner thighs that allow them to stand.

"We are unsure if there is a genetic component, but it is likely related to weight," Dr. Eddy said. "Often, swimmers are singletons that consume more than the normal share of mom's milk as the only offspring. Because they have more weight, it's a little harder to lift their bodies." So, in the first weeks of life, their adductor muscles weaken instead of strengthening.

If left untreated, swimmers would never be able to walk. They're also at risk for flattening of the chest due to lying on their bellies, which can result in breathing problems.



Dr. Eddy did some research and found that two fellow zoos in The Association of Zoos & Aquariums (AZA) had treated snow leopard cubs with Swimmer Syndrome: the Bronx Zoo, whose cub was featured in a 2018 episode of "The Zoo," and the Sacramento Zoo a few months later.



See the Swimmer Syndrome segment of "The Zoo" at [youtube.com/watch?v=mTYMRaVdbbY](https://www.youtube.com/watch?v=mTYMRaVdbbY).

Dr. Eddy consulted with Bronx Zoo veterinarian Dr. John Sykes and devised a plan for physical therapy to train the cub's legs into normal position and strengthen her muscles. That would mean taking her away from Daania repeatedly at just 4 weeks old.

The big question was, would Daania allow it? With her first cubs -- twins Ozy and Strut in 2018 -- she was so protective that removing them for their 6-week vaccines was a victory. The team had been working with her daily in the two years since. They would need her cooperation in order to treat this cub and have mom continue to raise her.

Zoo Director Ted Fox said the team met to discuss the options. "Everyone agreed we had to intervene to ensure a normal adult life for this cub, especially given how valuable she is to the population," he said.

"Plan A was to do evaluations and physical therapy with her removed from the mother for a short time, but always returned to Daania. Plan B was, if the mother became too agitated or stressed or unwilling to allow us to do what we need to do, we will have to permanently remove the cub and hand rear her."

Ted said the team's expertise and many hours of training allowed them to quickly gain Daania's trust that if separated from her cub, it would not be for long. The first couple days, they performed 20 minutes of PT – massage of the cub's hind limbs, range of motion exercises and placing splints on her legs to correct her posture – in the den right next to mom.

Over the next few weeks, Daania only refused to shift a handful of times. "After a few sessions, we saw she was not stressed at all," Ted said. "In fact, she began taking naps while the cub was away and there was always a warm welcome when she returned."

On June 24, the zoo welcomed Onondaga County Executive Ryan McMahon and the media to introduce the cub to the public and announce a naming vote. Keepers submitted five names in keeping with their "I Love New York" theme, and voters chose the name Marcy. Few knew then how fitting it was to name her after New York's highest peak. By then, the rest of the team was excited that the PT seemed to be helping. Dr. Eddy was cautiously optimistic: "It took three or four weeks before I allowed myself to get excited that the PT was working really well," she said.



Over a total of 36 sessions, they increased physical therapy (PT) to three hours a day in the zoo clinic.

The PT included:

- “hobbles,” or stretchy material around the cub’s hind legs to pull them closer together
- having her walk on a rough surface for traction
- using a harness to support her hind end while manipulating her legs to walk
- creating a “tunnel,” a chute just wide enough for her to walk through without her legs splaying
- using toys donated by the zoo’s chapter of the American Association of Zoo Keepers (AAZK) to get her to kick and play using hind legs.



They had to discontinue the tunnel exercise when Marcy began trying to climb out of it. They put her in hobbles to climb a ramp and hay bales. Finally they removed the hobbles and encouraged her natural behaviors of play and exploration by adding a low platform, logs and climbing blocks.

At 67 days old, in mid-July, Dr. Eddy noted that Marcy made her first big leap from a hay bale over a gap to the platform. They decreased the PT to three times a week for about three weeks, at which point it was clear: Marcy was now a walker, runner and climber thanks to their efforts. “I consider her recovered and resolved,” Dr. Eddy said.

Carnivore Manager Seth Groesbeck said the zoo benefitted from and added to knowledge of how to treat Swimmer Syndrome with help from our partnership with Cornell, our collaboration with other AZA zoos, years of training by our staff and “lots of patience.”

“When we share this information, I would stress the amount of time and energy it takes to make this happen,” he said.

Dr. Eddy called the entire enterprise, from Daania cooperating to the cub improving, “absolutely the best-case scenario” for Marcy. “Nothing is more fulfilling than seeing an endangered species cub that’s having difficulty come out of it thriving and able to perform her natural activities and behaviors,” she said.