

Saving Species With Science®

CREW PROGRESS REPORT

Lindner Center for Conservation and Research of Endangered Wildlife

Cincinnati Zoo & Botanical Garden • Spring 2024

A Fairy Tale Ending to Moving Sumatran Rhinos to Indonesia

Photo courtesy of the Indonesian Ministry of Environment and Forestry.

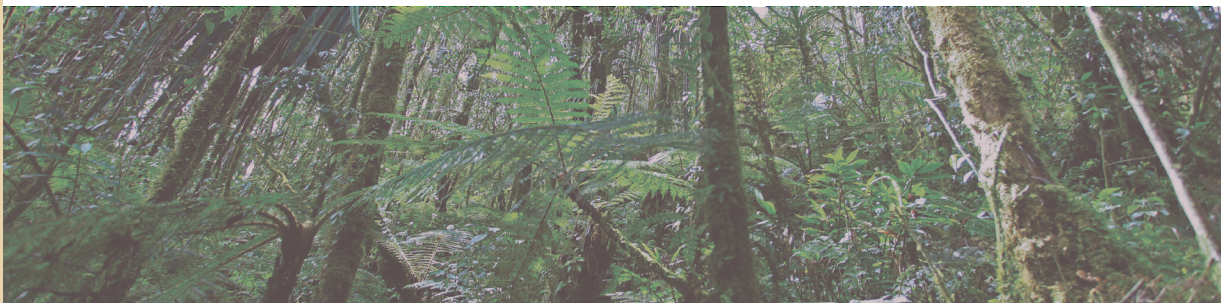


In 2015, the Cincinnati Zoo made the very difficult decision to send Harapan, the last Sumatran rhino in the Western Hemisphere, to Indonesia to join his brother in becoming part of the breeding program at the Sumatran Rhino Sanctuary (SRS). Sending two Cincinnati-born Sumatran rhino calves to Indonesia was not without risks, and the odds of them both succeeding in the mission to help their species were slim given the ever-changing landscape of international conservation efforts. So, it was with tremendous joy and relief that we received news in November 2023 that Harapan had succeeded in siring a healthy male calf in Sumatra (just three months after his brother Andalas had sired his third offspring). Achieving this milestone is significant on many levels. With fewer than 100 wild Sumatran rhinos left, the SRS is probably the last hope for the species' survival, yet it was without a fertile breeding male prior to the addition of Cincinnati's male calves. Through the contribution of these two male rhinos, we played an integral role in turning the Indonesian breeding program into a shining success, forever weaving our legacy into the history of this species' fight for survival. Rarely does a zoo have the opportunity to make such a profound impact on the survival of an endangered species. Additionally, Harapan's son represents the first offspring for both the sire and dam which adds an inkling of much-needed, new genetic material into the tiny population. Finally, from a broader and more diplomatic perspective, just seven Sumatran rhinos were sent to the U.S. for the breeding program in the 1980s and early 1990s. With the birth of this 8th calf, all descendants of the Cincinnati Zoo line, we have repaid in full the Indonesian government for their previous gift of rhinos, something that seemed unattainable in the early years of this struggling program. Thanks to a huge team effort between the Cincinnati Zoo and our dedicated Indonesian colleagues, and a bit of cooperation from the rhinos themselves, there is still reason to believe Sumatran rhinos may rally despite the crisis they currently face.



"Using Science to Learn,
Applying Knowledge to Save,
A Future for Wildlife"

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Sex, Seasons, and Senescence



Polar bears are equipped with remarkable energetic and physiological adaptations that have allowed them to successfully survive and reproduce in environmental extremes. Thyroid hormones (T3 and T4) impact a multitude of bodily processes in mammals, including energy metabolism for growth and development, hibernation, and reproduction. Therefore, measuring thyroid hormones may improve our understanding of the links among the environment, energetic status, and reproduction in zoo-managed polar bear populations. Scientists at CREW are measuring T3 and T4 in 400+ banked serum samples from 96 zoo polar bears to better understand how thyroid hormones fluctuate during reproductive events, across different seasons of the year, and as an animal ages. Our preliminary findings suggest that thyroid hormone levels are elevated in the breeding season, which has been observed in other marine mammal species, and they decrease with age, similar to what is observed in humans. Interestingly, T3 and T4 are higher in zoo bears with greater reproductive potential making us wonder if thyroid function could be one predictor of fertility. Because effective thyroid function is essential for growth, development, and reproduction, the information gained from this research will improve our understanding of polar bear physiology on many fronts while providing critical data for valuable comparisons to wild populations.

(This project was made possible, in part, by the Institute of Museum and Library Services grant #MA-249327-OMS-21.)

Meet Marta: a CATalyst for Training

CREW has pioneered the use of transvaginal and transcervical endoscopy to conduct reproductive health examinations and perform artificial inseminations across a variety of species. Yet, innovation isn't solely about scientific advancements; it's also about fostering the next generation of professionals. That's why we partnered with VETIQO, a leader in developing educational models for veterinary professionals, to create a revolutionary training tool. Drawing inspiration from the iconic Amur leopard, hours of virtual modeling, manual sculpting, and hand painting went into creating this one-of-a-kind masterpiece that now calls CREW home. Named after an Amur leopard cub from the Santa Barbara Zoo, Marta boasts silicone-based, anatomically-accurate reproductive organs. She offers a unique hands-on learning experience, allowing visiting colleagues to refine their endoscopy skills with confidence. The model also includes a fillable vein in the front leg, which can be used by visiting veterinary students to practice blood draws and IV catheter placement. Moreover, Marta serves as an educational tool during public events, offering a glimpse into the world of wildlife conservation and the groundbreaking work being done at CREW. Through Marta, we're not just training professionals; we're inspiring a new generation of conservationists.



Modeled after an Amur leopard, "Marta" is an innovative training tool that helps teach future veterinary students, provides a model for those studying in the zoo field, and educates zoo visitors. (Funding for the production of Marta was provided, in part, by the Foundation for International Aid to Animals.)