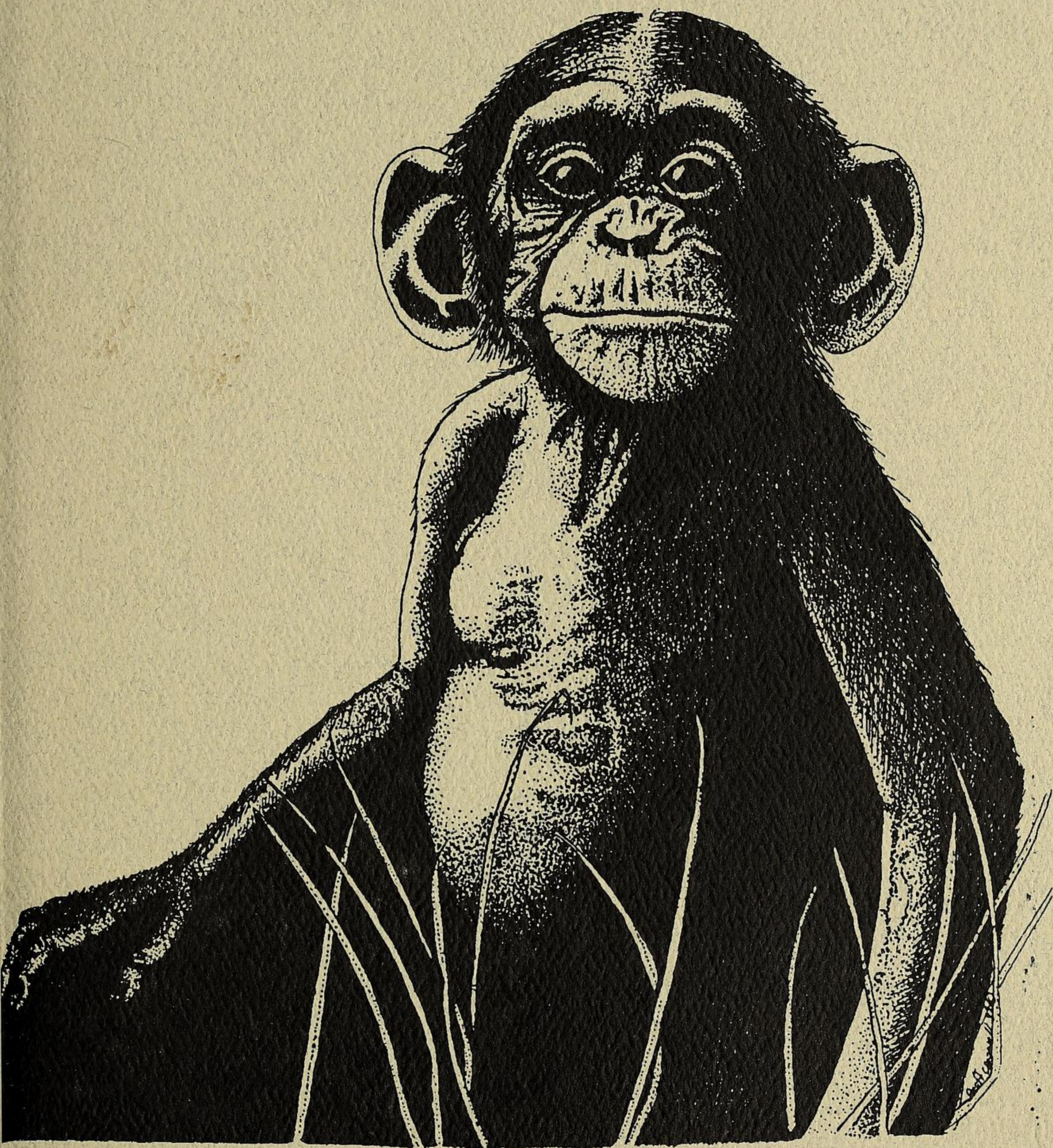


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Cincinnati Zoo Anxiously Awaits Birth of Sumatran Rhino

With an estimated month or so until delivery, the Cincinnati Zoo and Botanical Garden's 11-year-old Sumatran rhino (*Dicerorhinus sumatrensis*), Emi, is set to rewrite the history books. And, just as doctors take every precaution with human pregnancies to ensure that all goes well when the big day arrives, so too is the zoo staff carefully considering each detail in preparation for the birth of the Sumatran rhino calf. Despite facing the challenges of an estimated due date that ranges over a three-month period and the fact that Emi is a first-time mother, the Cincinnati Zoo staff and volunteers are committed to doing everything possible to ensure a healthy delivery. On delivery day, the staff may be faced with one of four different scenarios:

1. A healthy mother and calf
2. Mother rejects the calf because she is a first-time mom
3. A healthy mother and unhealthy calf
4. A healthy mother and calf, but the mother cannot provide colostrum—the first milk that flows from the mother, which contains all the antibodies that the baby must absorb within the first 24 hours.

"Not knowing the precise gestation for the species adds a major variable, and increases the tension level among staff. It necessitates monitoring for a longer period of time in order to ensure that even the slightest indication of pending parturition is detected," said Associate Veterinarian Dr. Ken Cameron.

Obviously, the zoo's staff hopes that none of the preparation work for all of the worst-case scenarios is put into place, but the rarity of this birth (last successful breeding and birth of a calf in captivity dates back 112 years to 1889 in the Calcutta Zoo) makes it critical to plan ahead. "It is a major event and many eyes will be watching," said Dr. Cameron. "We want to do everything possible to see that mother and calf come through this in good health." Within many departments, additional efforts are in progress. At CREW (Center for Research of Endangered Wildlife), Emi's hormone levels are monitored closely to evaluate the progress of the pregnancy and to look for any hints of pending parturition. In addition to collecting blood samples from Emi, the veterinary staff has collected and stored rhino plasma just in case an emergency occurs. This plasma was obtained by collecting blood during a routine foot trim on an Indian rhino at a local breeding and research facility in central Ohio. This blood was then spun in a centrifuge and separated into plasma. Two liters of rhino plasma have been banked and are ready, if needed to supplement the calf.

"In the event that the mother cannot or will not raise the calf on her own, we will be intimately involved in the hand-rearing of the calf," said Dr. Cameron.

The nursery staff is prepared for the remote possibility that Emi does not produce enough milk. Because milk from each species differs, data on rhino milk have been collected and will be used as a basis for matching any supplemental milk that may be needed for the calf. For the past six months, the staff has collected, analyzed and stored an extra 210 gallons of colostrum from several local facilities, including the horse industry, since horses are the closest living domestic relative of the rhinoceros. The colostrum is then processed at a low heat to kill bacteria, but not too hot to kill the antigens, which are necessary in immune defense.

In 1976, the zoo's nursery staff had the experience of raising a female black rhino, named Danielle, but each case is different and more information is now available. "If our assistance

is needed, there will be no time to prepare," said Head Nursery keeper Dawn Strasser. "Neonatal have a very small window of opportunity to turn around a problem. When most animals might have days, neonatal have only hours."

Ultimately Emi's keepers are the individuals responsible for alerting the staff about any changes that might suggest labor is near. Every day, Emi is inspected for changes in mammary development and milk production, her temperature is taken and weight recorded. Even her appetite and behavior throughout the day is noted.

"We are ready for this wondrous event, but are hopeful that many of the 'just in case' preparations will not be necessary," said CREW Director Dr. Terri Roth. "An uncomplicated labor resulting in the birth of a healthy calf that is cared for by a doting mother would be just what the doctor ordered."

Head Keeper Paul Rhinehart has worked with rhinos for 20 years and has been very instrumental in the zoo's Sumatran rhino project. He is responsible for the daily maintenance and care of the rhinos and since the confirmation of the pregnancy, it has been Paul who has monitored Emi's weight and fed her the daily dose of hormones given to ensure a healthy pregnancy. The veterinarians rely heavily on Paul for input on Emi's behavior and appetite.

"All births are significant to me, but this one carries a lot more with it," said, Paul. "Rhino calves are awesome to begin with, but this being the first in over 100 years make it more so."

Paul records Emi's weight every morning and provides her daily requirement of six slices of bread, soaked with hormone supplement, five pounds of ficus browse, five bananas, seven apples and fresh water. In the afternoon, she receives approximately 30 pounds of ficus browse, one flake of orchard grass hay, two pounds of grain, seven bananas and eight apples.

The Sumatran rhinoceros is considered one of the most endangered mammalian species on the planet. In the last 10 years, more than 60% of the Sumatran rhino population has been lost, resulting in fewer than 300 left in the wild and 15 in captivity. Habitat loss has been one factor in the decline but the much more serious problem is poaching for the horn, used for thousands of years in traditional Chinese medicine. Two of the only three Sumatran rhinos in the U.S. reside at the Cincinnati Zoo. In March the zoo's other female rhino, Rapunzel, returned to the Bronx Zoo to make room for the expected baby. The calf's wild-caught sire is Ipuh, age unknown, that came to Cincinnati in October of 1991 from San Diego where he first arrived in April of that same year.

According to Dr. Thomas Foose, Program Director for the International Rhino Foundation, protection of the Sumatran rhino in the wild is a formidable challenge. Not only is the animal secretive and elusive, but their tropical forest habitat renders it more difficult to protect them. The task is getting even more difficult as human populations expand while the political and economic condition deteriorates in the countries where the Sumatran rhino still survives...Indonesia and Malaysia.

The goal of conserving species in the wild is sometimes so difficult or uncertain that additional methods are needed. The conservation strategy for the Sumatran rhino is diversified and is comprised of three main components:

1. Protection of rhinos in the wild from poachers by anti-poaching teams known as Rhino Protection Units (RPU's).
2. Propagation of rhinos in captivity; also not an easy task.
3. A combination of the two in the form of very large managed breeding centers, known as sanctuaries, in the rhino's native habitat, where more space and natural conditions, especially diet, can be provided. The Cincinnati Zoo is involved and contributing to all three.



0.1 Sumatran rhino Emi at the Cincinnati Zoo and Botanical Garden. *(Photo by Ron Austing)*

The standard method for poaching Sumatran rhinos is with snares, traps, or sometimes pits that are placed along the trails that the rhinos use through the forest. The RPUs' main job is to patrol the forests and destroy or confiscate the snares and traps. Each RPU consists of 4-5 rangers who have much experience and training in tropical forest work. In areas where RPUs have been operating since 1995, there have been almost no rhinos lost to poachers. While there are about 40 RPUs operating in southeast Asia, at least twice as many are needed.

As the amount of encroachment and exploitation of rhinos and their habitats intensifies, the job of the RPUs has become even more difficult. In April 2001, a rhino was lost to poachers in Bukit Barisan Selatan (BBS) National Park in Sumatra even though the area was being intensely patrolled by RPUs. Just a week after the RPUs had passed the area, poachers placed a snare along a rhino trail. A week later, the RPUs discovered a rhino, still alive and struggling, in a snare. There was a desperate and valiant effort to rescue the young male rhino, but by the time field conservationists and veterinarians could get to the remote forest site, it had died from a combination of suffocation, dehydration and stress.

There are currently Rhino Protection Units operating in all of the main areas where the Sumatran rhino still survives: four major National Parks in Sumatra, Indonesia; four Parks and Reserves in Peninsula Malaysia; and two Reserves in Sabah on the island of Borneo. The RPU programs have been developed, supported and coordinated by the International Rhino Foundation (IRF) in partnership with the Wildlife Departments in Indonesia and Malaysia and other non-governmental organizations (NGOs) like the Cincinnati Zoo and Botanical Garden, the Asian Rhino Specialist Group (AsRSG), World Wildlife Fund (WWF), the Wildlife Conservation Society (WCS) and SOS-Rhino. The Rhinoceros and Tiger Conservation Fund (RTCF) of the U.S. Fish and Wildlife Service has also been a critical supporter and partner in the RPU program. Funds raised from AAZK's Bowling for Rhinos has also gone toward the support of the RPUs through the IRF.

Attempts to maintain and reproduce the Sumatran rhino in traditional captive situations have also proven very difficult. Since only seven Sumatran rhinos actually moved to the U.S, this provided a very small number to work with to try and determine dietary requirements, reproductive cycles, physiology, etc. In addition, the Sumatran rhino is essentially a solitary animal, coming together only when the female is in estrus. Determining the estrus cycle was a task taken up in the 1990s by CREW Director Dr. Terri Roth.

It was therefore decided in the early 1990s to establish the third component of the conservation strategy for this species and create large areas (10 to 250 acres) in the native habitat of the Sumatran rhino. Rhinos that were not breeding in zoos would be moved to these "sanctuaries".

To date, three major sanctuaries have been created:

- 1) The Sumatran Rhino Sanctuary (SRS) in Way Kambas, where there are 250 acres behind electric fence in a National Park. There is a pair of Sumatran rhino within this enclosure; the male has been in a zoo in England for 15 years after being rescued in Sumatra and the female was in a zoo in Indonesia. The National Park where the sanctuary is located also contains an estimated 30-40 wild rhino.
- 2) The Sumatran Rhino Conservation Center (SRCC) at Sungai Dunsun in Peninsula Malaysia maintains two males and five female rhinos that had been in Malaysian zoos.
- 3) Sepilok Rhino Center in Sabah, also contains a pair of rhino.

Over the last several years, the efforts to reproduce the Sumatran rhino under managed conditions at both the Cincinnati Zoo and the sanctuaries in Indonesia and Malaysia have intensified. Communication, collaboration and coordination among all the facilities with Sumatran rhino have intensified as well. In 1999 and 2000, the International Rhino Foundation and the IUCN/SSC Asian Rhino Specialist Group (AsRSG) sponsored major workshops in Indonesia and Malaysia that assembled all of the primary rhino managers and researchers involved with Sumatran rhino reproduction to conduct animal-by-animal assessments and formulate recommendations to enhance reproduction. A Global Management Group was formed for Sumatran rhino.

The Cincinnati Zoo has been a major contributor to, and participant in, these workshops and the Global Management Group. There have been important exchanges of personnel involving the Cincinnati Zoo:

- 1) The head and other staff of Sungai Dunsun and Sepilok have been to Cincinnati;
- 2) Dr. Terri Roth has been to Way Kambas twice and to Sungai Dunsun three times, most recently in March of this year;
- 4) Steve Romo, who was head rhino keeper at Cincinnati when the break-through of getting Emi pregnant occurred, has been on an extended technical mission to Sungai Dunsun to help transfer the methodology that has worked at Cincinnati to the breeding center in Malaysia.

There is a global and urgent campaign in progress to prevent the extinction of the Sumatran rhino. It is probably the most endangered large mammal on our planet, and we will all be waiting for a positive outcome of Emi's pregnancy as a positive sign for the future of this species.

(Information for this article was excerpted from several news releases from the Cincinnati Zoo and Botanical Garden. Our thanks to Greg Hansen, Communications Coordinator, and his staff for their assistance. Editor)