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The rhino reckoning

The Sumatran rhino captive breeding plan is poised for a re-evaluation — and a relaunch.

BY JEREMY HANCE ON 2 OCTOBER 2018

Mongabay Series: Asian Rhinos

- *The Sumatran rhino captive-breeding program caught 40 rhinos from 1984 to 1995. To date, the program has produced five calves.*
- *Some view these figures as evidence of a colossal failure. Others point to the births achieved as proof of the program's eventual success.*
- *Momentum has been growing to relaunch efforts to capture wild rhinos. The most significant step yet was the September announcement of a new initiative dubbed the Sumatran Rhino Rescue.*

This is the final article in our four-part series "The Rhino Debacle." Read [Part One](#), [Part Two](#) and [Part Three](#).

There is a clip from the documentary *Torgamba: the Last Rhino* that I watch over and over. It shows Torgamba, the male Sumatran rhino who spent much of his life in the U.K. before being sent back to Indonesia, returning to his native country. Tom Foose and Nico van Strien are waiting for him. Neither of them are comfortable-looking TV presenters, but these are scientists, not celebrities.

Foose is as John Payne describes him: "nerdy," with his slight build, thick glasses, short shorts and long socks. Van Strien is big-built and stiff. Both men try to look comfortable as Torgamba browses before them. Foose calls the moment "gratifying."

"I don't think he's much bigger now than he was," van Strien says.

"No, but he was definitely a young animal — his horn was quite short and now it really is quite spectacular."

In the film, you can see just how *small* Torgamba is when standing next to Foose and Van Strien. The littlest, strangest rhino.

In 2006, six years after the film was made, Tom Foose died. He was only 61. He'd lived long enough, however, to see the birth of two baby rhinos, long enough to see his life's work bearing fruit.



Tom Foose in 2001, posing in front of the Cincinnati Zoo's Sumatran rhino enclosure with Emi and young Andalus in the background. Photo courtesy of the International Rhino Foundation.

### Re-evaluating the failure

First, some numbers: the Sumatran rhino captive-breeding program caught 40 rhinos from 1984 to 1995. To date, the program has produced five calves. By any normal count this would look like a pretty spectacular failure.

"There weren't as many rhinos as everybody anticipated. The rhinos weren't as fertile as everybody anticipated. There were all those challenges," says Terri Roth, head of Cincinnati Zoo's *Center for Conservation and Research of Endangered Wildlife* (CREW).

But given how close the program was to accomplishing nothing but death and tragedy — given that the last calf was just born two years ago; that the remaining population in the wild may be anywhere from 30 to 80 — the captive-breeding program starts to look like a prescient gift from its founders. And maybe even the best chance to save this unique genus.

“For a combination of reasons, the collaboratively-managed global population imagined by the 1987 IUCN group was never achieved,” John Payne and K. Yoganand wrote in a [2017 report](#) on the future of Sumatran rhino conservation commissioned by the WWF. “The most significant reasons included insufficient knowledge of key elements of rhino breeding biology, poor husbandry, unwillingness to share rhinos, more than half the rhinos unable to breed due to age-related problems or reproductive pathology and no work done to apply advanced technology.”

Though all this is true (in fairness, Roth and her team did try and artificially inseminate a female rhino), it’s a glass-half-empty view.

The half–full view: Conservationists have succeeded in five captive births, and they have etched a template of how to produce more. Rhinos are also living longer in captivity than in those early days.

“From the pioneer project, we amassed a lot of information on how to set up and consolidate such a complex operation, devise new ways of capture, handle, provide health care, translocate and breed the Sumatran rhino in controlled environments,” says Francesco Nardelli, the former executive director of the Sumatran Rhino Project. “The events at Cincinnati Zoo and SRS” — the Sumatran Rhino Sanctuary in Indonesia’s Way Kambas National Park — “are the living proof of the success of Sumatran rhino captive breeding.”

After the successful birth of five calves (three at Cincinnati and two at the SRS), there has been a shift away from the view that the 1984-1995 breeding program was a complete disaster.

“Today I consider obsolete and almost biased the rhetoric that the Sumatran rhino captive breeding project was a failure,” Nardelli says.



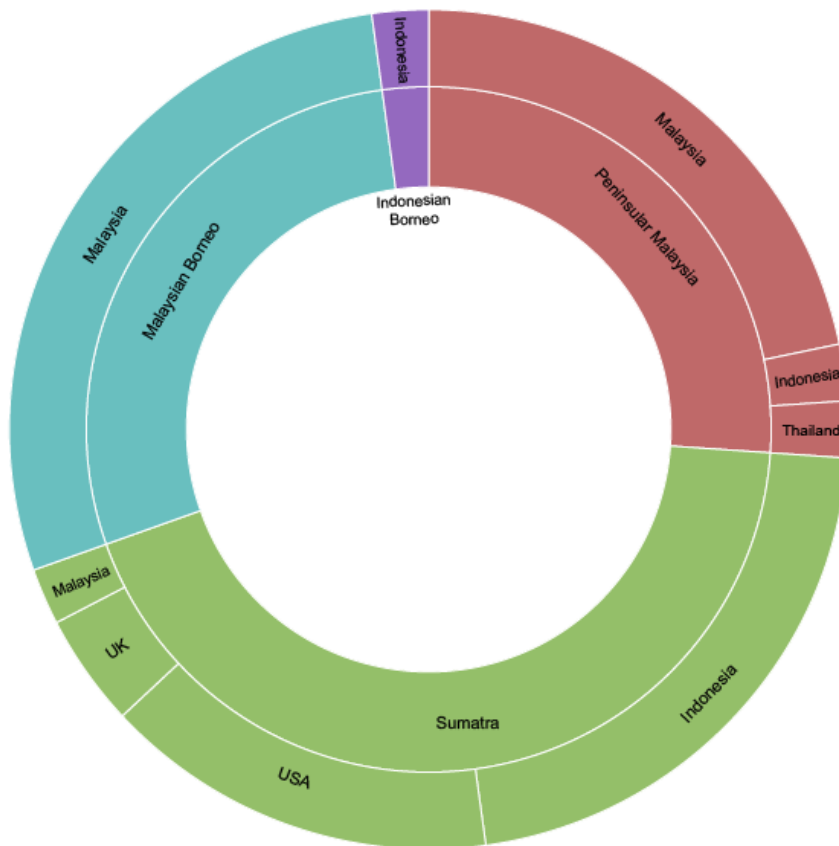
Tam under general anesthesia undergoing electro-ejaculation in Malaysian Borneo. Attending to him are staff from the Borneo Rhino Alliance (BORA), the Singapore Zoo and Peninsular Malaysia's Department of Wildlife and National Parks. Image courtesy of BORA.

Other take a more nuanced stance.

"It was not a rousing success, but at the same time there was a hell of a lot learned," says Susie Ellis, head of the International Rhino Foundation (IRF). "Everything that we're relying on now ... is sitting on the shoulders of all that work. What was perceived as a failure I think is actually going to be the thing that may provide the best hope for the future of the species."

Without the trials and errors and eventual success — without Foose, van Strien, Roth, British zoo owner John Aspinall, Malaysian conservationist Mohammed Khan bin Momin Khan and many others — we wouldn't know that a Sumatran rhino was an induced ovulator. We wouldn't know that it didn't graze on grass, like its African brethren, but that it fed on branches replete with the leaves, known as browse. We wouldn't know that vicious fighting is part of their foreplay. We wouldn't know that they need constant shade to prevent damage to their eyesight. We wouldn't know how vocal the animal is — more so than any other rhino. We wouldn't have any frozen semen samples.

## Captive Sumatran rhino lifepaths, by capture and captivity location from 1984 to September 2018



This graph depicts the lifepaths of wild-captured Sumatran rhinos. The inner ring indicates the area where they were captured, while the outer ring shows their final place of captivity. Image by Willie Shubert/Mongabay.

In 1995, as the criticism peaked, the legendary conservationist Alan Rabinowitz wrote a landmark and scathing paper, "Helping a Species Go Extinct: the Sumatran Rhino in Borneo."

In May this year, months before his death in August, Rabinowitz told Mongabay that things had definitely changed.

"I feel the same way in terms of the failure of that early program and the mistakes and short-sightedness that were part of the decisions," he said, noting that there should have been more on-the-ground protection for rhino populations and more protected areas established. "I do not, however, feel the same way about the situation today."

He said he had since come to believe that captive breeding was absolutely necessary. "I think captive breeding, ignoring perceived subspecies differences, and using the improved techniques that have been developed, are now definitely called for and worth the expense."

Still, he said any captive-breeding efforts must be coupled with habitat protection and plans to re-release the rhinos one day.

"The success of captive-born Sumatran rhinos is definitely a good thing. It does not diminish the fact that the early efforts were misguided," Rabinowitz said.

Since the close of that program, conservationists have captured six more rhinos, four of which survive today. But these captures weren't a part of any wider, coordinated effort to take rhinos out of the wild. Instead, they were either removing the very last rhino from an area, or incidental captures due to animals wandering into villages or oil palm plantations.

One of these rhinos, Ratu, has proven key in keeping the program going: she is the mother of the two calves born at the SRS.

"As heavily criticized as this breeding program was back in the 1980s, if we were starting now — where we started in the 1980s — we would not have time," Roth says. "We're not starting there. We've learned a lot."

More than 30 years ago, during the 1984 meeting, Ulysses S. Seal, then chairman of the IUCN's Captive Breeding Specialist Group, said the new rhino program would need to follow a "safe-to-fail strategy."

This meant the ability to make "many mistakes without losing the species." Animals would likely die, unexpected challenges would arise, and there would be, in Seal's words, "repeated failures." This prescience about needing an opportunity to fail looks undeniable today.

Indeed, fail, we did. A lot. But we also succeeded. Time will tell if those successes will prove enough to stave off extinction.

Epilogue: Najaq

Earlier this month, a group of conservation organizations — including National Geographic, IRF, IUCN, Global Wildlife Foundation and WWF — announced a plan

endorsed by the Indonesian government to capture wild rhinos and build two additional facilities to house them. Nothing on this scale has been seen since the 1990s. The idea is to bring in wild rhinos to supplement and add much-needed genetic diversity to the current captive population. Dubbed the [Sumatran Rhino Rescue](#), the new program is currently in the fundraising stage.

But, in many ways, this new plan actually kicked off more than two years ago — it's a shame it started so tragically.

On March 12, 2016 a female Sumatran rhino stumbled into a pit trap, set by conservationists in central Kalimantan, Indonesian Borneo. She was the perfect age to begin breeding and living, breathing proof of rhinos in Kalimantan, where they had been thought extinct for decades.

Within several weeks she was dead.

In thirty years, when looking back on the Sumatran rhino conservation program, the capture of Najaq in Kalimantan may be viewed as the start of the *second* capture program. For more than two decades — really from 1995 onwards — the shortcomings of the 1984 program halted captures of more rhinos from the wild.

"I think part of the reluctance in terms of allowing capture was this perceived failure of the earlier program," Ellis says.

The other part of it is that catching wild rhinos is always risky, as the cases of Najaq, and Riau in 1986 and Linbar in 1987 and Lokan in 1988 and others unnamed, attest. Things go wrong; animals perish.

Mike Griffiths, founder of the Leuser International Foundation, says the "key policy makers" are "very sensitive" to catching rhinos due to the difficulty and risk. Of course, there are many ways to mitigate that risk.

Officially and publicly, Najaq died of a snare wound she sustained six months before her capture. However, there's another side to the story.

Payne and Yoganand's 2017 study cites an unpublished report on the animal's death that points to several mistakes made in the capture and subsequent care.

Najaq was kept in her pit trap for at least 54 hours — four and half days — “subjecting her to stress and over-heating,” according to the report. Living in deep forests, Sumatran rhinos are rarely exposed to direct sunlight and spend much of their days cooling off and avoiding insects in wallows. Sitting in a pit trap for days, with constant human presence and noise, meant that Najaq was likely not only highly stressed, but potentially overheating.

“The snare wound was not the primary cause of death,” Payne and Yoganand conclude.

If this was the case, how did things go so wrong? Why hadn’t we learned from the many failures of 1984-1995?

“Too many people and institutions were involved in the capture and translocation plan, the majority with no relevant skills or knowledge,” Payne and Yoganand wrote. “There was no clear structure of leadership, decision-making and responsibility, and people with Sumatran rhino capture and translocation skills were not involved.”



Herman Stawin, senior wildlife ranger, shakes hands with veterinarian Zainal Zainuddin in front of a crate used to transport captive rhinos. The two jointly supervised the BORA team in the field. Image courtesy of BORA.

Payne, who along with his vet, Zainal Zainuddin, has successfully captured several rhinos, elucidated six key points they’ve stuck to over the years: a small team; a



clearly designated leader; one vet “experienced in capture of Sumatran rhino by pit fall trap” and another person dealing with all non-rhino issues; everything ready to go the moment the rhino is trapped; the trap itself, measuring 8 by 4 by 6 feet (2.4 by 1.2 by 1.8 meters); and avoiding the use of drugs on the animals, especially psychotropic drugs.

“If you look at the case of Najaq and her death, none of these six points were followed,” Payne says.

Many agree with him. Erik Meijaard, a conservationist with decades of experience in Indonesia, [wrote an op-ed](#) blasting not only the WWF’s handling of Najaq, but its subsequent unwillingness to admit anything went wrong. Griffiths echoed criticism heard from many who work in the region when he said, “At the basic level the organizational structure and control was not sufficiently professional.”

Margaret Kinnaird, an expert in rhinos with the WWF, admits that things did go wrong.

“When Najaq was rescued she had already suffered a wound from a poacher’s snare, an unavoidable factor that contributed to her death,” she says. “Other factors including temporary holding conditions, stress and the drugs administered [that] may have complicated her situation. Arguably, there could have been better coordination among all actors during the capture effort — something that we have streamlined for any future rescues. The decisions taken during Najaq’s capture and attempted translocation were made by the highest authority in Indonesia with assessment and consultancy from a host of wildlife experts around the world. All parties involved during the effort had a role to play in the chain of events that led up to the failed attempt at ensuring she didn’t succumb to these complications.”

Still, Najaq’s death hasn’t stopped conservationists from viewing captive breeding seriously — as the newly announced Sumatran Rhino Rescue program demonstrates.

There’s been a complete turnaround. I’m stunned,” says Roth, who notes that when she started, the captive-breeding program was widely regarded as a total failure. “Now you hear exactly the opposite, that all the rhinos should be brought into captivity.”

## Foose's Vision

Over the last 30 years, the Sumatran rhino population in the wild has collapsed far more quickly than many could have guessed. In some places, populations have gone from estimates in the hundreds to near zero in a matter of a few years. Quite simply, the Sumatran rhino is vanishing.

So conservationists have returned to Tom Foose's vision from 1984; in many ways the Sumatran Rhino Rescue is Foose's Vision 2.0.

"I certainly think that we should get more rhinos into the breeding program, if for no other reason than we need the genetic diversity," Roth says.

According to new numbers released by the Sumatran Rhino Rescue Program there are only around 80 wild Sumatran rhinos in the world spread over *eleven* subpopulations.

Nearly everyone agrees that all the rhinos should be rounded up in Kalimantan and Bukit Barisan National Park in southern Sumatra, where new numbers released by the Sumatran Rhino Rescue Program show the population at up to ten and up to five respectively. However, there is more debate about Way Kambas National Park, also in southern Sumatra, where new numbers show less than 20, and the Leuser Ecosystem in northern Sumatra, where researchers estimate fewer than 50 animals spread out over six subpopulations. Some believe these areas may house enough rhinos to sustain a wild population, assuming they are protected from poachers and snares. But others think it necessary to take animals out of these populations — if only to ensure we are capturing some young, healthy, fertile females.

"If there are still rhinos in their forests, they are no longer in sufficient numbers to propagate the species scattered as they are. Those last 'forest ghosts' need our help to meet each other now," Nardelli says.



Ara, a male Sumatran rhino, at Sungai Dusun. Caught in 1994 in Peninsular Malaysia, Ara survived just over nine years in captivity. He perished in 2003 when disease struck the facility of Sungai Dusun. Ara was the last wild rhino ever caught in Peninsular Malaysia. The species is now believed to be extinct there. Image by Mohammed Khan bin Momin Khan.

But Roth, who was instrumental in making the captive breeding a success, says we shouldn't go so far as to bring all the rhinos into sanctuaries like the SRS.

"Now, I almost find myself in the opposite part of that spectrum where people are saying, 'We have to bring them all in and [a managed] breeding program is the only way to go,' and I'm kind of arguing, 'No, I don't think so, look at the Javan rhino,'" she says. The Javan rhino today survives in a single site with a stable, albeit small, population. Roth says she doesn't see the dilemma as a binary — all captive or all wild — but a situation that requires "multiple strategies."

"I'm not ready to give up on the wild populations," she adds.

Griffiths says there are plans to catch some animals for captive breeding from the eastern Leuser population. But he believes conservationists should not take animals out of the western Leuser population, which he thinks is viable in the long term.

“The population of rhinos in Western Leuser is increasing in numbers and range,” he says, noting that they have evidence of recent births. Griffiths believes that if this area can be protected it could one day be home to “several hundred rhinos.”



Rainforest in the Leuser Ecosystem. Situated in northern Sumatra, the ecosystem is home to tigers, elephants and orangutans as well as rhinos. New estimates put the number of Sumatran rhinos in Leuser at high as 50. Photo by Rhett A. Butler/Mongabay.

What about Way Kambas? Roth says she’s not against taking animals out of Way Kambas — with a new estimate of less than 20 animals — to contribute to genetic diversity of the captive population.

But even as conservationists’ plans to capture more rhinos are coming into fruition, the question remains: Are we doing enough?

“Things don’t move fast enough. There’s no question. Again, deciding on what should be happening and then making it happen, those are two different steps,” says Roth, who calls the decision to catch rhinos “a huge step forward.”

In the meantime, she says, more can be done with the rhinos available. For example, she thinks that Tam, the last male rhino in Sabah, should be sent to Indonesia for attempted breeding.

"I know they're concerned that Tam maybe is subfertile. I'm not sure that he is. I think he's maybe just like all the other Sumatran rhinos," says Roth, who notes that sperm samples taken from other Sumatran rhinos have been poor, even for proven fathers like Ipuh and Andalas.



Tom Foose, Nico van Strien and veterinarian Marcellus Adi at the Sumatran Rhino Sanctuary in the early 2000s. Image courtesy of IRF.

"As Tom Foose used to say... [we] need to maximize our options and minimize our regrets," Ellis says. "And I think that's where we're trying to go, just to be sure we're doing everything we can."

We've come a long way from the meeting kick-started by Foose in 1984. We know more than we ever have about Sumatran rhinos. And that knowledge may, in the end, be the only thing that saves them.

"Tom was the most visionary of all of us in the 1980s," Payne says.

Without Foose, Sumatran rhinos probably would have never made their way to Cincinnati Zoo and our whole story would be very different — and likely all the more tragic.

"He was the one who obviously encouraged us all along," Ed Maruska, former head of Cincinnati Zoo, says of this "dedicated rhino man."

*Banner image: One of the seven residents of the Sumatran Rhino Sanctuary in Indonesia's Way Kambas National Park. Image by Rhett Butler/Mongabay*