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Mongabay Series: Asian Rhinos

Saving the Sumatran rhino requires changing the status quo

20 January 2017 / Commentary by **W. Aaron Vandiver**

Commentary: the greatest barriers to saving the species are human, not biological or technological.

- With a small, fragmented population, the Sumatran rhino is currently on the path to extinction.
- Despite dedicated efforts by conservationists, existing policies -- population surveys, anti-poaching efforts and a small breeding program -- have been unable to reverse this trend.
- Attorney and nonprofit consultant W. Aaron Vandiver argues that we now face a binary choice between maintaining the status quo until the species goes extinct, or embracing the expense and "risk" required to carry out an ambitious plan to capture and manage the surviving population.
- This post is a commentary. The views expressed are those of the author, not necessarily Mongabay.

The story of a species with one of earth's oldest mammal lineages, the Sumatran rhinoceros (*Dicerorhinus sumatrensis*), is an illuminating chapter in the tale of what scientists are now calling the "sixth great extinction" in our planet's history. It is the story of the damage we inflict on the earth and its non-human inhabitants, and of why we have such a hard time saving these natural treasures that we continue to imperil.

An attorney by training and profession, I have worked as a consultant and volunteer for western organizations trying against long odds to raise funds and contribute toward plans to save the species. From my vantage as an outsider, one with great respect for the scientists and activists who have dedicated their careers to protecting the Sumatran rhino, here is what I have learned.

After a quiet twenty million-year run, the earth's oldest surviving rhino species has now been driven by humans to a fateful choice between: (1) the status quo, which through well understood scientific processes will inevitably degrade the rhino's small and scattered population, soon drawing the species into the vortex of extinction; or (2) an ambitious plan to capture and intensively manage the total rhino population, which entails a level of effort, expense and "risk" that few leaders seem willing to bear at this point.

This a binary choice. There is no third option and no safe middle passage.

Sumatran Rhinos at the SRS. Photo by Rhett Butler. A female Sumatran Rhino and calf at the Sumatran Rhino Sanctuary in Indonesia. Sumatran rhinos are the smallest rhino species, and are sometimes referred to as hairy rhinoceroses due to their distinctive coats, which can range from short bristly hairs to shaggy fur. Photo by Rhett Butler.

In my view, there are three basic principles that are essential to understanding the dilemma to which we have led this tranquil species, if we are to stand any chance of saving the Sumatran rhino, or others like it, from ourselves.

(1) There is no real scientific dispute: The status quo is fatal.

At the current trajectory, the Sumatran rhino will become extinct in the not-too-distant future. Experts generally agree that the rhino population — divided into small groups scattered in at least six distinct geographic areas, each group isolated and together totaling less than 100 individuals — is not viable in the long term if current trends continue.

The main problem is that each isolated group lacks sufficient genetic diversity for long-term survival. Potential unrelated mates cannot readily find each other in the wild, which can lead to inbreeding depression. Additionally, the straggling survivors remain under constant human threat from poaching and habitat loss. These factors contribute to the “Allee effect,” by which the rhino population becomes less fit and more vulnerable to human exploitation as it shrinks.

As far as I know, no biological or genetic experts fundamentally disagree about the Sumatran rhino’s essentially dire prognosis. The real question becomes, what can we do about it?

(2) The only potential solution is intensive population management.

No one, it seems, truly believes that current policies — population surveys, anti-poaching efforts, plus a small breeding program, none of which sufficiently address the lack of genetic diversity and the low rates of reproduction in the wild — are good enough to save the species.

An April 2013 “crisis summit” of prominent NGOs, scientists and government leaders resulted in the frank acknowledgment that current policies “may not be adequate to prevent the species’ extinction.” This gathering made four policy recommendations: (1) manage the global metapopulation; (2) continue anti-poaching efforts; (3) create “Intensive Management Zones” where rhino populations can be consolidated; and (4) breed the rhinos in captivity.

These four expert recommendations seem to represent the rhino’s best hope, yet they have languished in policy limbo. The easier and cheaper aspects of these recommendations have been implemented, like anti-poaching efforts, but there has been a reluctance to push for the more aggressive measures such as capture, translocation and managed breeding.

I recently talked to Francesco Nardelli, a biologist involved for decades in efforts to save the Sumatran rhino, and one of the leading advocates for captive breeding. He points to threats facing the species — the critical lack of genetic diversity, the Allee effect, and other factors like reproductive pathologies in the few surviving rhino — as undeniable evidence that we must now embark on a “carefully planned and properly executed capture and translocation program.” He wants to consolidate, manage and breed rhinos using the best available methods, including Advanced Reproduction Technology (ART).

It is hard to find any flaws in Nardelli's argument. As far as I know, no one has articulated a realistic scenario in which the Sumatran rhino can survive long-term without a program of capture, consolidation and managed breeding. At the same time, few voices call for robust implementation of these policies with the urgency of Nardelli and a handful of other likeminded individuals, such as John Payne of the Borneo Rhino Alliance (BORA). Why such tepid support for the only plausible plan to prevent extinction?

(3) The primary obstacles to saving the species are human — political, economic and even psychological — not biological or technological.

Isaac Newton said, "I can measure the motion of bodies but I cannot measure human folly." We can measure Sumatran rhino population statistics and genetic diversity, but it is harder to account for the human factor that makes applying our best scientific knowledge impossible.

No doubt there are enormous technical challenges related to maintaining and breeding Sumatran rhino in captivity. The biggest obstacles, however, may not be biological or technological. In Nardelli's words, the real obstacles are "anthropogenic." To me, this means our all-too-human systems of governance, as well as the faulty ways we tend to think about big problems. Here are two of the primary human obstacles I have observed, which have to do with our often flawed understanding of concepts like "risk" and "blame" and "cost."

A baby Sumatran rhino at the SRS. These captive-bred calves represent hope for the species, but reproduction rates remain too slow to reverse the overall decline in population. Photo by Rhett A. Butler.

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Loss Aversion

Nardelli and Payne have written that the failure to coalesce around a plan to save the Sumatran rhino is caused, in part, by "cognitive biases." I agree. Discussions about plans to save the species seem to be dominated by several cognitive biases, including the "status quo" and the "sunk costs" biases, and perhaps most of all by a sense of "loss aversion," a bias identified by Nobel Prize-Winning psychologist and economist Daniel Kahneman and Amos Tversky. Loss aversion causes "losses [to] loom larger than gains" in our minds, leading to irrational decisions.

Discussions about capture and managed breeding take place under a dark cloud of the setbacks experienced during the previous captive breeding program of the 1980s and 90s. That whole undertaking is now viewed negatively because a significant number of captured rhino subsequently died and the program produced few offspring. (Similar negative feelings sprang up again when a single female rhino, recently captured in Kalimantan, died from wounds incurred before capture in a poacher's leg snare.) Policymakers and major NGOs, constrained by the need to create political consensus, seem reluctant to pursue plans that produced such "losses" (and "blame") in the past, even though there is no promising alternative.

While understandable, this profound sense of loss aversion is somewhat illogical. Viewed in a more positive light, the previous losses, though substantial, can be considered stepping stones

toward a plan that actually works. Nardelli points out that eighteen rhinos were safely captured and translocated between 1984 and 1993 (before many died in zoos), which could be enough to provide the genetic diversity now needed to prevent extinction. Indeed, the current breeding program at the Sumatran Rhino Sanctuary (SRS) in Way Kambas, where seven rhinos now live, is a product of the pioneering efforts of the first program. And much has been learned since the 1990s about the Sumatran rhino's unique ecology, physiology and practical management, and about ART, thereby increasing the odds of future success. Accordingly, there are solid reasons to view a new captive program through the lens of potential future gains, rather than past losses.

Moreover, fear about the “risk” of captive breeding not only overestimates the negative value of past and potential losses, but also underestimates the competing risk posed by leaving rhino in the wild and hoping for the best. As Dr. Abdul Hamid Ahmad, a zoologist at the University of Malaysia, Sabah, says: “The capture of isolated Sumatran rhinos is indeed inherently risky, but leaving isolated animals in a place where they cannot find a mate and breed has far greater risks for a critically endangered species with a global population of less than 100.”

Loss Aversion — particularly the inordinate fear of losses that can be blamed on someone, rather than attributed to natural phenomena, or chalked up to a vaguely collectively failure — must be overcome, if we are to avoid even greater losses.

Relying on the Same Thinking that Got Us Here

Compounding the problem of loss aversion, species recovery efforts are dependent on highly risk-averse politicians and corporate leaders, who are wedded to the same political and economic rationales that drove the rhino to its current predicament. The Indonesian government, fully committed to commodity-based economic priorities, has shown little interest in funding a new rhino recovery plan. With nowhere else to turn, activists and NGOs are forced to raise private money. Who has the kind of money (millions of dollars) that might fund a large-scale breeding program? Mostly palm-oil corporations and other industrial businesses (the same companies that have spent the last half-century converting the rhino's wild rainforests into corporate assets, no less).

Accustomed to corporate risk analysis, private corporate donors are always looking for “safe” investments. They are reluctant to invest money into a species that might not survive. “Donors want to see an immediate return on investment,” laments John Payne. “It is much safer to put money into a threatened species than it is to put money into a species that is on the edge of extinction.”

In short, these corporations view the rhino through a financial cost-benefit lens. And now that we (and they) have pushed the rhino to the verge of extinction, it is not “cost-effective” to invest the resources needed to pull the species back from the brink. No major private donors in Indonesia or Malaysia have so far stepped up to fund substantial new captive breeding efforts (although an anonymous donor did just support a \$2.4 million expansion of the breeding facilities at SRS, which appears to be a solid step in the right direction).

We cannot begrudge businessmen and politicians for thinking like businessmen and politicians. But this type of thinking will probably not save the Sumatran rhino, nor other endangered species for that matter. In the future, we must find ways to put scientific thinking at the center of the decision-making process, where it belongs, and strive to make crucial decisions affecting endangered species on a more rational and long-term basis.

Sumatran Rhinos are critically endangered. Photo S. Ellis / Wikimedia Commons CC BY 2.0. Without a change in conservation tactics, the Critically Endangered Sumatran Rhino could cease to walk the earth. Photo by S. Ellis / Wikimedia Commons CC BY 2.0.

Faced with the Sumatran rhino's existential dilemma, can we hope to prevent extinction, if few seem willing to upset the status quo or reassess the thinking that got us here? And is it futile to hope that politicians and corporate leaders might start making decisions based on scientific realities, or concern for wildlife, rather than short-term economic or political considerations? After all, Nardelli points out, "it is not just Indonesia, but most of the world" that discounts the value of wildlife.

We should not be naïve. In the case of the Sumatran rhino, all we can hope for is that somehow and some way, leaders will emerge among NGOs, the government and private donors, who will bring new thinking and fresh resolve, and do it soon enough to raise the funds and enact the policies needed to save the species.

There are glimmers of hope that some within the Indonesian scientific and conservation communities may have enough skill, courage and homegrown credibility to make their voices heard. Names like Muhammad Agil, Arief Boediono and Dami Buchori of Bogor Agricultural University, Rudi Putra of Forum Konservasi Leuser, Zulfi Arsan of Yayasan Badak Indonesia, Yuyun Kurniawan of WWF Indonesia, and others, are often spoken with hopefulness. Perhaps with enough resources and support from the Indonesian government and international NGOs, these Indonesian experts and emerging leaders could safely guide the Sumatran rhino through the current crisis.

If not, one of our oldest mammals will soon join a long list of irreplaceable treasures already lost, or soon-to-be lost, in the deep floodwaters of the sixth great extinction.

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