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'I'm not distressed, I'm just pissed off': Q&A with Sumatran rhino expert John Payne

by Jeremy Hance on 11 May 2023

- *Rhino expert John Payne worked with Sumatran rhinos in Malaysia from the 1970s until 2019, when the country's last rhino died.*
- *With no rhinos left to care for, Payne has started working with other species, and recently published a book in which he argues the strategy to save Sumatran rhinos from extinction was flawed from the start.*
- *In an interview with Mongabay, Payne speaks about his new book, moving on after the loss of the rhinos he cared for, and his frustration with officials and conservation organizations.*

In 2019, the last Sumatran rhino in Malaysia died. Her name was Iman and ever since her capture in 2014, she had been under the care of the Bornean Rhino Alliance (BORA), headed by executive director John Payne in the Malaysian state of Sabah.

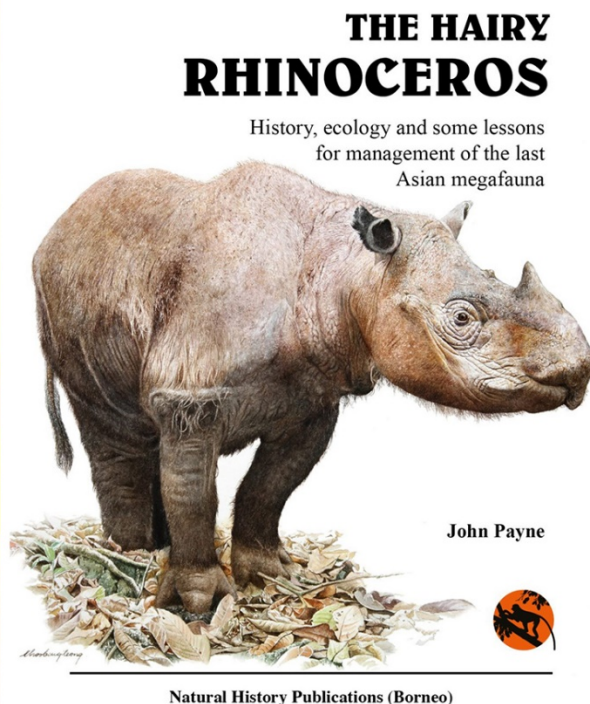
After her death, Payne, who'd worked on Sumatran rhinos since 1979 (with an admittedly long break in the middle due to "frustration"), was suddenly left without any rhinos to care for, after years of trying to breed the last male and female in Malaysia.

The disappointment hasn't slowed him down. He's now working with other species — Bornean orangutans (*Pongo pygmaeus*), Bornean elephants (*Elephas maximus*) and banteng (*Bos javanicus*) — and he's written a book, [The Hairy Rhinoceros: History, Ecology and Some Lessons for Management of the Last Megafauna](#), where he argues that the strategy to save Sumatran rhinos from extinction was flawed from the start by poor compromises and stifled over and over again by bureaucracy.

Among Sumatran rhino experts, Payne has always been known for his candor, his acerbic wit, and his sometimes controversial positions. And he pulls no punches in his latest interview with Mongabay. He criticizes both the rising bureaucracy of conservation organizations, and what he sees as the attitude of Indonesian officials for the delays and inaction on Sumatran rhino conservation.

“The problem was very much Indonesia and the international framework not working,” Payne says, adding that “it’s shocking in this day and age, that Indonesia has its forestry and environment now under one ministry.”

He also thinks Sumatran rhino are only breeding in the Leuser Ecosystem, in Indonesia’s Aceh province, on the northern tip of the island of Sumatra. And if he were in charge, he’d be catching rhinos from there for captive breeding; he’d be collecting egg cells from young rhinos for in-vitro fertilization; and he’d consider maximizing birth intervals by taking rhinos away from their mothers once they are weaned.



For years, Payne was advocating for more captures of wild rhinos even when it was a very unpopular idea. Today, his advocacy seems prescient. Not only has the Sumatran rhino gone extinct from Malaysia in just a couple decades, but it is nearly extinct in Indonesia, the only country where it's found today. The most recent estimates puts the total number of rhinos at less than [50](#), spread across three locations. And, if the past is any guide, the real number may be lower — note the [recent news](#) on the potentially inflated numbers for Indonesia's *other* critically endangered rhino, the Javan rhino (*Rhinoceros sondaicus*).

Given the dire situation in the wild, and the fact that there are only nine Sumatran rhinos in captivity, many of them are interrelated, Indonesia announced in 2018 — along with numerous partners, including National Geographic — that it would begin catching more rhinos from the wild. A rhino named Pahu was captured a few months later, but breeding has never been attempted with her.

Not a single rhino has been captured since.

"I have this feeling: it's never going to happen. Actually, I think it's just talk," Payne says of Indonesia's plan to capture and breed more wild rhinos.

Despite the loss of all rhinos in Malaysia, Payne continues to work in conservation. He's working with many of the same colleagues, such as wildlife vet Zainal Zainuddin, on building food habitats for threatened species in Sabah, including orangutans, elephants and banteng, a species of wild cattle.

"With the Sumatran rhino, I'm pissed; I'm not distressed, I'm just pissed off," he says.



The following interview has been edited for length and clarity.

Mongabay: How did you get started with the Sumatran rhino in 1979?

John Payne: In the days before Margaret Thatcher, the British government was very strange: I got a scholarship from the British government in 1975 to study macaque monkeys in Malaysia. I spent more than two years in Peninsular Malaysia in the mid-1970s. WWF-Malaysia amazingly already existed. It was one of the earliest WWFs outside Europe.

So, it was a natural progression, which I was very happy with, that when I got my Ph.D. in 1979 that WWF was looking for people to do fieldwork in Malaysia. I have to say at that time no right-thinking Malaysian would want to do wildlife fieldwork, it was a different era. It was wide open for young chaps like me in a way that it certainly isn't anymore. I was in the right place at the right time to get a job in WWF-Malaysia.

A survey with the Forestry Department of Sabah showed two things. Number one, that Sumatran rhinos still existed. That was a debate. And it was on the verge of extinction in 1979 and 1980: there were just still a few left.

That result came out after two and a half years of going around various forests in Sabah, trying to map the distribution of the larger mammals and larger birds.

Mongabay: You were at the [1984 meeting](#) that really kick-started humans interacting with the Sumatran rhino in a much more planned and sometimes unplanned ways. What do you see as the legacy of that meeting today, both for rhinos and in general?

John Payne: All the right people were there, but straight away there was a division. There was [Basel Zoo rhino expert] Rudolph Schenkel saying, “Rhinos [are] a part of the environment, we shouldn’t take them out.”

And [conservation coordinator for the Association of Zoos and Aquariums] Tom Foose who I admired greatly — he was a real pioneering thinker — said, “No, they’re going to get extinct if you leave them there.” That was the essence of that meeting. As you’ll know, the compromise was to catch only the ‘doomed ones,’ the rhinos that were least fertile, as we learned subsequently.

So, the legacy? Nowadays, people ... like to build a consensus, but it means you end up with a compromise that satisfies everyone, but is the wrong result, because it doesn’t achieve the aim.

There were a lot of changes around 1980 in the world conservation strategy. There was a big shift in moving away from a small number of dedicated, passionate people — doesn’t matter where they’re from — working together. Unmolested by the IUCN and unmolested by governments or other NGOs.

From 1984, you can almost never get what you really need to do because of this [interference]. There’s an odd phenomenon of humans being divided into two, right? This always comes out: There’s two [opposing] groups. At the same time wanting to reach a compromise, which doesn’t really satisfy either. I’ve seen that ... time and again.



Mongabay: That meeting made some big decisions, pretty bold stuff at the time. As you say it was a compromise: At the time neither side could really know what was the right strategy. So instead of going all in on one side, they compromised. What do you see as the failures from 1984 to today?

John Payne: I think one of the immediate ones is there's always these international tensions, right? U.K. and France, Canada and U.S.A. But Indonesia and Malaysia — it's even worse.

Indonesia regards Malaysia — of course not everyone — but the general mood in Indonesian governments, politicians, is that Indonesia regards Malaysia as an upstart. And Indonesia knows best.

Just an upstart neighbor. Very small. So tiny in comparison of land area, population size, extent of oil palm, everything.

Now, once you get two countries, then you've got CITES [Convention on International Trade in Endangered Species of Wild Fauna and Flora] in the way. Which is often used as an excuse for inaction. Then you've got this Nagoya Protocol on who owns biological resources, all these things that come into play. And whereas you need a decision within a few weeks, like, "Should Tam [a male rhino from Malaysia] go to Indonesia?" It gets bogged down in bureaucracy, CITES and the Nagoya Protocol.

I think that the Indonesian and Malaysian situation might be a bit worse than average. But I can foresee that coming in again and again.

The IUCN just doesn't work in this situation. There's just so many people — and people who are well-meaning but really don't know the background — and they come into play. Then the IUCN Asian Rhino Specialist Group, and what was called the Captive Breeding Specialist Group, which is now the Conservation Planning Specialist Group. They don't really agree with each other, and neither of them really are fit for purpose. It's not against the individuals who work there.

They're just this accumulation of people who are in the right place at the right time and who have no particular knowledge of, in this case, the Sumatran rhino.

Somehow you have to have the model, which we can't do anymore, [where] small groups of passionate people [do conservation]. But now they're already constrained by national legislation, CITES, bureaucracies. The IUCN doesn't help get through that, those obstacles, it actually hinders them, it makes them even worse.

So, it sounds very negative on the IUCN, and I am really.

I'm quite bitter. Someone at Singapore Zoo said to me the other day, "Yes, John Payne, you're still very bitter." Yes, I am. The IUCN didn't help. I don't know what the solution is.



Mongabay: You mentioned this in the book: how the number of stakeholders and the bureaucracies make it more complicated and make decision-making more difficult. When you headed BORA and were working with the rhinos, it seemed like you had a lot of independence and a lot of latitude, or is that just the way that you communicate?

John Payne: Well, it's an interesting point. No, I did. I have to say it's always easy to criticize governments. But I did have latitude. I think I was lucky because I've been in Malaysia so long. And I'm older than most people in government, so automatically they tend to not be quite so harsh to me as they might have done with younger upstarts. I think it was to some extent luck, but Malaysia, both at national level and the Sabah level, were actually quite good.

The problem was very much Indonesia and the international framework not working.

For example, in my time, let's say 2009 to 2018, there were three cabinet decisions [in Sabah]. The chief minister and the ministers got together and said, "OK, we approve to capture rhinos from Danum Valley." That was done fairly easily, but that's partly because Sabah is one unit. It's not like a big thing like Indonesia. It's always lucky in that sense.

Sabah is a nice small unit, but even at federal level we had a bit of luck. The federal level quickly latched on, seeing how the wind was blowing in 2014-15, they agreed that assisted reproductive technology should be introduced.

Somehow the Malaysian system with endangered species seem to work better than it does in Indonesia.

It's shocking in this day and age that Indonesia has its forestry and environment now under one ministry.

There are various hierarchies in Indonesia's ministry. There are 10 or 11 directors-general, ranging from education, plantations, fire control [etc.]. There is *one* for conservation out of all of those directors-general. Then *under that*, there's the biodiversity section. *Under that* comes the parks and species. Under species — all the Indonesia species, one of the most biodiverse regions of the world — and there's nothing special for the rhino. It's right at the bottom of the hierarchy at national level.

I think that's one reason, not the only reason, but it's a stark difference between Malaysia and Indonesia. Despite Indonesia's prominence as a biodiversity area, there's no special department about endangered species. It's a tiny little, not even a division, it's *part* of a biodiversity division in a special ministry.



Mongabay: One of the main points you make in your book is that there was so much attention and money paid to concerns about habitat loss and poaching for the Sumatran rhino. But the real problem, in your mind, is there were just too few rhinos. Can you unpack that a little bit for us?

John Payne: Sumatran rhino habitat at the end of the Pleistocene around 18,000 years or so ago was well double what it is now [before sea level rise].

The South China Sea was mostly dryland and swamp, so it would've had all these tapirs, tigers, rhinos, elephants running around there. So, the natural rise in sea level from 18,000 years ago to 5,000 years ago wiped out half — and probably the better half — of the habitat for these large mammals.

Then more habitat loss in all the lowlands due to the spread of humans growing rice.

The fact that the first specimen of the Sumatran rhino was shot in Sumatra is not surprising, because that's probably where the biggest population was left

200 years ago. But my point was: We only have a few percent of the original habitat left 100 years ago, and by 1980 it was less than 1% of the habitat. And crucially it is the worst habitat, because as you'll know, large mammals always have trouble in tropical rainforests. There's not much food productivity, and they get very hot because it's humid.

The loss of habitat was trivial by 1980.

Mongabay: Why do you think the focus on poaching was also misguided?

John Payne: I find that more tricky. To answer that question, when the species is in very low numbers, the concern really ought to be in principle more geared toward how to increase births rather than decrease deaths, because everything dies.

With large mammals, the last few years of their life tend to be infertile anyway: either they have kidney disease, or they've run out of sperm production. You've got that window of time, which for Sumatran rhinos would be maybe six years to 25 years at the most. The emphasis should have been on how to increase the births.

Anti-poaching means you slow down the death rate, but you're not addressing the birth rate at all. I think the emphasis should have been on how to increase births. Not easy, right?

There are a few camera trap images of baby rhinos over the last 40 years, but the demography was mostly old animals. I hope that illustrates the point a bit.

Mongabay: Can you talk a little bit about the Allee effect and extinction debt?

John Payne: Allee effect is to do with a positive correlation between population density and reproductive fitness.

In general, the more dense the population, the more reproductive fitness there is. That applies at the population level, and individual ... If there are plenty of animals, every animal has a mate choice ... You can maximize reproductive rate because you can find a mate any time. Crucially, it's to do with the density rather than numbers [of the animal surviving in total].

Another thing that irritates me is this obsession with numbers. How many are left? It doesn't really matter. It's whether they're all in one area or not. The population density is the key thing. And once it goes below what you call a generally normal range, then you start to get fewer and fewer births because males and females are not meeting each other. Then you get the reproductive pathologies coming in.



Mongabay: Right now, the only place where people are saying that there might be a viable population is in Indonesia's Aceh province.

John Payne: Indeed, yes.

The remaining rhinos where there's still evidence of breeding in the last 10 years is in the Leuser Ecosystem. If you ask the [Leuser Conservation Forum](#), which I admire greatly as probably the most hardworking and competent NGO in Sumatra, they're convinced there's still lots of rhinos and they're breeding and there's even more rhinos out in the hills.

But I really believe they're wrong that the population is really a cluster. I'm certain it's much fewer than [in the 1970s]. It's just because every other cluster has the same thing: Every cluster of Sumatran rhinos goes down and down and down. It doesn't go up.

That [Leuser] cluster, in my view, must have gone down just to mirror the demise of other clusters. I think it'll go extinct. Why would numbers increase, really? There's no reason to think why the numbers have increased. At best they'll stay stable.

So, if you look at extinction debt and species-area curve, you expect if you decrease habitat by 50%, you expect 10% of species to go extinct. If you cut down habitat by 90%, you expect 50% of species to go extinct. Crucially, it doesn't happen immediately. It'll play out over 100 years or so.

Did you ever go to Sepilok [orangutan rehabilitation center in Sabah]?

Mongabay: Yes, I did.

John Payne: I thought you might. That's 4,300 hectares [10,600 acres], right?

The last elephants were there in 1981 and then they just disappeared. There are no signs of clouded leopards [*Neofelis diardi*] from numerous camera trapping in the last 10 years. You'd expect the elephants, clouded leopards and bears [*Helarctos malayanus*] to go extinct. But it'll take 100 years before all those species you expect to go extinct. It'll take decades or even 100 years to find if the last one dies. It won't all happen all suddenly. That's my point. Hence that extinction debt, that idea that you need to wait a long time for that debt to play out and all those species that you expect to disappear to go extinct in that area, whether it's Sepilok or Sumatra.



Mongabay: This poses an interesting question. I'm curious if you've thought about when the extinction debt hit for the Sumatran rhino? Did it hit in the 19th century? Did it hit in the 20th century? By the time when you started working with them in 1979, do you think that without any human intervention there was potentially no chance? Do you think that there were maybe some populations that could have survived had they not been hit by poaching or had there not been deforestation?

John Payne: Curiously, I haven't really thought about that before. Oddly, it's almost a fundamental question, isn't it? To answer it very ballpark: actually, it probably happened a few hundred years ago with the Sumatran rhino. Thinking back to my earlier comments right about Sundaland losing all its lowlands after the Pleistocene and leaving the rhinos in the very infertile slopes.

Leuser is a bit different because it's volcanic ... so it's a much more fertile soil, so they could probably hang on much longer. I think of that time scale, I'd say probably that was playing out a few hundred years ago.

Thinking even more clearly, rhinos were in the Riau province on the east coast of Sumatra, which is very big deal, because of APRIL [a major pulp and paper company] and all these big companies cutting down the whole area in the 1990s. There was obviously quite a dense population in Riau in the 1950s when the two groups from Denmark and Switzerland tried to catch them for European zoos.

It looks like about seven to nine rhinos were caught fairly easily in surface traps ... implying that the population density was high. It's swampy, very flat land in Riau, which is now under acacia plantations. That population density of rhinos was probably high just by luck. Didn't have anyone living there except on the main rivers.

Where does that leave us logically? You could either imagine that if they'd been left there with no poaching, they might still be there, but you could also imagine maybe that what I've said earlier — the productivity, their plants were poor — it might be they were in a long process over a few hundreds of years to extinction there.



A Sumatran rhino in Lampung, Sumatra. Image by Rhett A. Butler/Mongabay.

Mongabay: Let's look a little bit at the future. There's a plan now in Indonesia to go out and capture some more rhinos. They've been talking about this for a few years. I know COVID-19 halted some of the movement on that, but they're building a new facility. Do you think that is the right call at this point? Is there anything else that you would be doing?

John Payne: I'm not being over-cynical ... because the intent to capture rhinos in Sumatra has been several years now. COVID is a convenient excuse, since I have this feeling: it's never going to happen. Actually, I think it's just talk.

I really believe, based on my experience, that the only place to get wild rhinos now that might breed is in Leuser.

There's the fiasco of the rhinos in Kalimantan [Indonesian Borneo]. There was a multimillion-dollar project to build this enormous sanctuary with a mosque and quarters in the middle of nowhere. You remember that one rhino died in the trap, and then there was another one, [Pahu]. I'm told that she's going to be moved to Taman Safari [a zoo] in Bogor [south of Jakarta] because they can't find any more rhinos in that area anymore, which was sort of predictable.

Even there it was obvious to an experienced observer ... They were both old females. You could see the numbers are very low. There's no sign of breeding in the last 10 years. That probably was never going to be very useful.

If it was up to me, I'd say go all out to catch rhinos from Leuser. Technically difficult. Yes, it's a remote, steep area, but our two last female rhinos [in Sabah] came out by Sikorsky helicopter, nearer and therefore easier than the Leuser hills and valleys, but not that different. In my view, it is a bigger risk to leave those rhinos in Leuser where the experience is small clusters of rhinos decline to extinction everywhere else that's happened. Whether it's poaching or not, doesn't really matter. That's empirically the story. Catch them now whether there's still a few left.

There might be a small number of fertile females still breeding in that valley.

Frankly, it doesn't really matter if new-caught rhinos are in Aceh or Way Kambas [the captive-breeding facility in southern Sumatra] as long as it's part of one program. You move one or two around from time to time.

Another thing as you may know, generally, baby infant mammals have a lot of egg cells already there lurking away in their ovaries. You could do two things. One is, you could get them out when the animal is still young and healthy and do in-vitro, which is now doable with rhinos. It's possible to make embryos in the lab.

The other thing is really — this is again coming in for criticism — is [to] really maximize the birth rate, so put the male and the female [together to breed] when they're quite young: 4 years old, rather than wait till they're 10 or 12.

Put them together early, and if there's a birth, take the baby away within less than a year. Now at Way Kambas, they keep the baby with the mother until it's 3 or 4 or 5 years old. In the wild that would happen, but it suppresses the [mother's] estrus cycle as long as the baby's still there trying to get milk.

As you may recall from Nico van Strien [late Sumatran rhino expert] and Terry Roth [who cracked the code on how to breed Sumatran rhinos in captivity at Cincinnati Zoo], they reckoned the shortest birth interval could be about three years. Zainal Zainuddin [a vet and expert on Sumatran rhinos who works closely with John Payne] believes it could be even less if you take away the baby when it's weaned. You could potentially have a one-year birth interval. There's no reason why not. Again, you get why snowflaky people say it's not natural, but it's doable. Mammals evolve to reproduce. You are enhancing, in my view, what nature could do anyway.

Catch, maximize reproduction rate, and why not as a precaution, keep frozen embryos just because it's possible — which of course it won't be in the future, when there's hardly any rhinos left to carry or present embryos.



Mongabay: Is there anything that gives you hope for the long-term future of this species?

John Payne: I don't know if you follow the story of the [northern white rhino](#), and the fact there's now embryos. It's a lesson that one can make in-vitro embryos, which may in the future be useful.

My general point is that reproductive and cell biology are advancing. One of the pioneers is an Indonesian, Arief Boediono. [He's] an Indonesian who is a vet.

There's expertise in Indonesia. I wanted to make that point. There's expertise in Indonesia, not necessarily in this assisted reproductive technology, but in a really, on-the-ball, advanced-thinking, willing to try out new things.

Mongabay: You worked with the Sumatran rhino now in Sabah for 40 years. What do you do after the species that you've worked with goes locally extinct? What did you turn to? How did you handle that?

John Payne: Busier than ever. With the Sumatran rhino, I'm pissed; I'm not distressed, I'm just pissed off.

Zainal and I work very well together, and we have an excellent academic, Abdul Hamid Ahmad, who is our chairman in BORA. We decided to stay on at BORA, and we're very bullish. Among the things we're doing now is starting a program to plant the favorite food of orangutans in oil palm plantations in Sabah in the belief that the residual population doesn't need to be moved out. In fact, it shouldn't be, it should stay there. Orangutans are really smart: if they have food, they'll survive ... There are little patches that you can stuff with orangutan food plants. We're doing that in the expectation that orangutans in the long term can live in a mixed oil palm and forest for its landscape.

The other is the elephant. The numbers are going up, although everyone denies it, but the numbers are going up. The problem is now the conflict with humans is getting worse rather than better. One of the reasons is that there are more elephant foods outside forest reserves than in protected areas. And that's not only oil palm, it's grass. They go for monocultures. We started planting specific areas with grassland for elephants in Tabin Wildlife Reserve. It'll be a slow process, but the general thinking is you need to put a lot more elephant food guaranteed so they come back. They know there's lots of lush grass, there's artificial mineral blocks. There's a pond nearby, with water even in the dry season.

So that habitat in the long term becomes at least as attractive as going out into villages and getting harassed.

Similar, but different, the wild cattle of Malaysia, the Bornean banteng: we're growing pastures for those as well. Similar thing, there's no contact with humans, but their limiting factor in the remote areas is the same thing: there is not enough grass. Even more so because they're bovids, so they need grass and there's just not enough grass in the different kinds of forest in the north.

So, we're starting in the last two years to plant grasses in Tabin and in Perak state in west Malaysia, where there's wild cattle species. We are already proving it with camera trap images. They need grass. Their limiting factor, again, is not poaching, they just don't have enough food. And we see it with the body

condition of the cow and their birth rate. With grass, they start breeding more frequently and their body condition is better.

In a sense, it's a funny lesson from the Sumatran rhino, isn't it?

How do you boost the numbers? In this case, make sure they have lots of food in suboptimal habitat in protected areas.