

3D printed horns may put rhinos at greater risk of extinction

By Rachel Nuwer May 1, 2015 New Scientist

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Rhino poaching is pushing the species to the brink of extinction (*Image: Pete Oxford/Minden Pictures/Corbis*)

Can 3D printing save the rhino? Seattle-based bioengineering start-up Pembient believes it can. The company plans to flood the market with synthetic 3D printed rhino horn in an effort to stem the number of rhinos killed for their horns.

But conservationists fear that the plan may backfire, undermining their own efforts to cut the demand for such products in China and Vietnam, the main black markets for rhino horns. They sell for up to

\$60,000 per kilogram and are used in traditional Chinese medicine and, more recently, as [cancer “treatments”](#) and [aphrodisiacs](#). Rhino poaching [has risen sharply](#) since 2007, [pushing the species to the brink of extinction](#). A record 1215 animals were slaughtered last year in South Africa alone. Conservation organisations and governments have struggled to make a dent in the illegal trade, focusing instead on curbing consumer demand, strengthening anti-trafficking and poaching laws and ramping up on-the-ground protection for wildlife.

But Pembient argues that there is no need to curb demand. “This is something people want, and we have the technology to make it available to them,” says Pembient co-founder and CEO [Matthew Markus](#). “Why not try to satisfy their needs instead of telling them their needs are wrong?”



Bioengineered rhino horn smells and feels like the real thing (*Image: Pembient*)

The company plans to unveil a prototype horn next month. The synthetic horn is based on a largely keratin-based powder with the same spectrographic signature as rhino horn.

Markus says Vietnamese rhino horn users who sampled the fake powder said it had a similar smell and feel to horns taken from wild rhinos.

If all goes well, faux horns could be on sale by next autumn, at one-tenth of the price of illegal ones. Markus says that the legal product would eventually displace black market horns because it is cheaper, it would be legal, and guaranteed to be unadulterated with cutting agents like water buffalo horn.

The company also hopes to synthesize ivory, tiger bone, pangolin scales and other wildlife products.

“We think all animals are precious, that all traditions are important, and we’re trying to bioengineer harmony between those things,” Markus says.

Easy smokescreen

But conservationists are not convinced. “The road to hell is paved with good intentions,” says [Crawford Allan](#), senior director of TRAFFIC, a wildlife trade monitoring network. “My hat’s off to these guys for sticking their necks out and trying to do something, but they should sit down with the people in the country who are experts on consumers and talk these things through, because this could really backfire.”

[Nguyen Van Thai](#), founder of Save Vietnam’s Wildlife, says that synthetic rhino horn “is a terrible idea” because it would serve as an easy smokescreen for illegal horn. It also risks stimulating demand by making that product more readily available and implicitly endorsing its value, which undermines efforts to educate horn users.

[Douglas Hendrie](#), technical advisor at Education for Nature – Vietnam, points out that Pembient overlooks the fact that people also use rhino horn for its role as a status symbol. Indeed, in a survey of 500 Vietnamese rhino horn users commissioned by Pembient, only 45 per cent said they would be willing to use a lab-made substitute. “The synthetic horns will not have an impact on current rhino horn users that want real horns from dead rhinos,” Hendrie says.

“It’s hard to say how this would play out, but at this point, rhinos cannot afford the risk – there are too few of them,” Allan says. “Any miscalculation could cause even greater problems down the line.”