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## A tranquilizer shortage is holding back rhino management plans in India

by **Moushumi Basu** on 16 November 2017

- *Conservationists rely on a semi-synthetic opioid called Etorphine HCl to tranquilize rhinos for veterinary care, translocation and other critical interventions.*
- *Due to export regulations in South Africa, and red tape at home, Indian states face a critical shortage of the drug.*
- *The lack of Etorphine is already holding up translocation plans in several protected areas, and preventing veterinarians from caring for injured animals.*

“Watching a rhino get tranquilized is indeed an experience to cherish. It is hard to imagine that such a powerful animal can become so vulnerable too,” says Dharanidhar Boro, an officer on special duty at Manas National park, who has been working with greater one-horned rhinos in India’s Assam state since 1987.

He describes the frenzy as more than 30 trained elephants circle a grazing rhino to try and contain it, and an official with a dart gun, riding atop one of the pachyderms, shoots a drug-laden syringe at the rhino’s rump or neck.

It takes eight to 10 minutes after the needle pierces the rhino’s thick skin for the animal to go completely under; it takes off running at first, then staggers, before finally collapsing onto its chest or side. While the experience is no fun for the animal, tranquilization makes it possible to give rhinos veterinary care, affix radio collars to track them, or safely transfer them into crates for relocation.

The most important element of the tranquilizing cocktail that allows conservationists to safely knock out a 2,000-plus-kilogram (4,400-pound) rhino is a semi-synthetic opioid known as Etorphine HCl.

“Etorphine HCl is by far the best available choice for rhino immobilization today,” says Amit Sharma, coordinator of rhino conservation at WWF-India. “Other large herbivores, [such] as elephants can still be tranquilized safely with other options, but nothing better works for rhinos.”

India’s stock of the drug, however, is alarmingly low. The states of Assam, West Bengal and Uttar Pradesh, home to the country’s rhino population, have almost run out of it. Since chemical immobilization plays a crucial role in the monitoring and

conservation of the species, this shortage is already having an impact on rhino management plans, Sharma said.



Greater one-horned rhinos running in Kaziranga National Park. Photo by Murali K via [Flickr](#).

### Supply-chain problems

Home to more than 2,900 greater one-horned rhinos (*Rhinoceros unicornis*), India does not manufacture this critical narcotic derivative and needs to import it. South Africa, where the tranquilizer is manufactured, recently banned the export of compounded drugs — including the only commercially available Etorphine HCl compound — raising questions about how India will be able to secure it in the future.

“We are in trouble regarding the procurement of the drug,” said Kushal Konwar Sarma, professor of surgery and radiology at the College of Veterinary Science in Assam. “With so many rhinos in hand and with no drug to restrain them, what will we do but to be just spectators?”

The drug was once manufactured and sold under the trade name M99 in the United States, but is no longer commercially available, Sarma said. M99 was followed by a compound drug known as Immobilon, manufactured in the United Kingdom and which, according to Sarma, was a superior medication since it contained components that helped manage stress and prevent rhinos from overheating while being revived. Immobilon, too, is now off the market.

The Etorphine currently being manufactured is registered under the trade name Captivon and available in South Africa. However, a regulation that came into force in South Africa this September says that “no medicine may be compounded by a

pharmacist or licensed person ... for the purpose of export” — a rule that has, for now, put Captivon out of the reach of Indian conservationists.

Sarma said he hopes it may somehow be possible to at least procure Etorphine in its simple form, even if the compounded drug isn't available. “The picture is however not clear as yet,” he said.

Even if veterinary facilities manage to find a supplier, they could still run into roadblocks within India. As a Schedule-1 narcotic derivative, Etorphine is a highly regulated drug, making its import a long, drawn-out process.

“In India too, getting [an] import license for the drug is not easy,” says Subrata Pal Chowdhury, technical assistant in the West Bengal Wildlife Wing of the Forest Department. Even before applying to India's Narcotics Control Bureau (NCB), which ultimately approves the import application, conservation groups and government agencies have to spend from six months to a year obtaining a range of other permits and certifications from government departments, says Chowdhury, an expert on the immobilization and transport of wild animals.

If the NCB approves a requisition request, it then passes it on to the International Narcotics Control Board in Vienna, which clears the drug company to make the delivery. However, even before South Africa banned Captivon exports, the Indian government had gone years without passing along requisition requests, Chowdhury said. The last time Odisha State's Nandankanan Zoo, the officially designated import licensee and the facility responsible for distributing the drug to other institutions, received a shipment was in the 2009-2010 fiscal period. According to Nandankanan director Sisir Kumar Acharya, requisition orders from states including Uttar Pradesh, Assam, West Bengal, Bihar and Chhattisgarh are still pending, due to the absence of supply from manufacturers. The Assam state government procured it via alternative channels in 2014-2015, but has not managed to renew stocks since.





A greater one-horned rhino in Assam State's Pobitora National Park. Photo by Travelling Slacker via [Flickr](#).

### Effects on the ground

In the meantime, both critical rescue work and ambitious relocation plans have stalled.

“Our second phase of rhino reintroduction program in Dudhwa National Park is held up in absence of this drug,” said Sunil *Choudhary*, Dudhwa's field director.

From seven rhinos brought to the park in 1984, Dudhwa now hosts 34 at its Sonaripur Range. While the success story is encouraging, park officials are wary of the possibility of inbreeding, which can lower the immunity of the existing population. Consequently, Choudhary said, officials plan to move two or three female rhinos and bring in a new male, in hopes of establishing a second breeding population in another part of the park.

There's just one problem: “In January 2017, when we checked our drug stock, we found they had already expired. They have a short shelf life between 12 months [and] 18 months,” Choudhary said. The state is currently attempting to obtain its own import license for the rhino tranquilizer.

Assam is also keeping its fingers crossed for the availability of the drug. “Winter is the best time for rhino relocation, as the administering anesthesia releases heat from the animal's body, and accordingly we had plans to do so in Manas and

Laokhowa from Pobitora and Kaziranga respectively, by February 2018,” said Assam Veterinary College’s Sarma. “But if we can’t procure the drug our program will fail.”

Assam State’s Manas Park, for example, urgently needs the drug, both to allow translocation and for veterinary care. The park has about 10 females and 15 males, which is leading to fighting among the males, said special duty officer Boro. One rhino has already sustained a leg injury, likely due to such sparring. Without Etorphine, the caretakers are helpless. “Proper treatment would have helped the animal to recover faster, but we had no choice but to simply monitor it from a distance and leave the rest to nature,” Boro said.

West Bengal, another rhino range state, still has a small stock of Etorphine left for emergency use. However, the drug has already passed its official expiration date, says Pradeep Vyas, recently retired as the state’s chief wildlife warden. The drug is known to retain its efficacy for at least a few years, he said, but officials there are working to acquire more stock.

With more rhinos straying from their habitats as carrying capacities are exceeded, West Bengal has plans to relocate at least 50 rhinos to new habitats within the state. Underscoring the urgency of the relocations, the body of a juvenile male rhino was found on Nov. 7 in the Dhupjhora area of Gorumara National Park. The animal, aged 3 or 4 years old, likely died from fighting, according to divisional forest officer Nisha Goswami.



A greater one-horned rhino in Kaziranga National Park. Photo by Murali K via [Flickr](#).



Bibhab Talukdar, chair of the IUCN SSC Asian Rhino Specialist Group, emphasized the necessity of putting in place a regular mechanism for procuring Etorphine. “The Environment Ministry should assess its annual requirements and take it up with [the] Home Ministry that governs the Narcotic Control Bureau,” he said. He added that India needs around 50 vials of the drug per year for rhino management.

Accordingly, he said, India should place its requisition before the International Narcotics Control Board on time, so that the stock doesn't run out and rhino management is not affected. Talukdar also called on the government to earmark an annual budget for Etorphine and entrust agencies such as the Central Zoo Authority and the Wildlife Institute of India with its procurement.

South Africa must also be made aware of the gravity of the situation in fellow rhino range countries, so that it revokes the export ban in the interest of global rhino conservation, he said.