

‘Vulture safe zones’ aim to rescue a vital but unloved scavenger



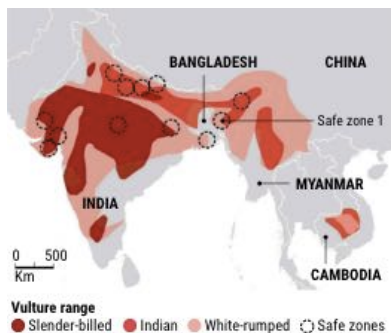
By Warren Cornwall Mar. 9, 2018, 8:00 AM

VULTURE SAFE ZONE 1 IN BANGLADESH—It was a grisly but irresistible spectacle. In a forest clearing here last December, a wake, or feeding flock, of white-rumped vultures pranced about a dead cow, jostling for a chance to grab a bite. One plucky bird repeatedly plunged its head deep into the carcass, tearing off bits of flesh. Others gave up and lifted off, unfurling 2-meter wingspans as they headed for a roost in a nearby tree.

Watching the feast through a hole in the wall of a nearby hut, Sarowar Alam, a conservation biologist with the International Union for Conservation of Nature (IUCN) in Dhaka, was delighted. The white-rumped vulture, he said admiringly, "is a majestic bird."

Once common, it is also gravely endangered. Just a few hundred white-rumped vultures (*Gyps bengalensis*) now soar above Bangladesh, researchers estimate, and about 10,000 remain in all of South Asia—less than 1% of the population a few decades ago. Two other South Asian species, the Indian vulture (*G. indicus*) and the less common slender-billed vulture (*G. tenuirostris*), have also suffered catastrophic declines. The cause: a drug that veterinarians use to keep cattle healthy, but that is deadly to vultures that eat the carcasses of treated livestock.

The vultures don't have to fear their food here in the Rema-Kalenga Wildlife Sanctuary, an 1800-hectare sliver of protected forest near Bangladesh's northeastern border with India. That's because the preserve is at the heart of Vulture Safe Zone 1, a 200-kilometer-wide circle where conservationists are working with local residents to provide uncontaminated carcasses for the vultures to eat, and with veterinarians to prevent the use of the drugs that kill the birds.



(MAP) J. YOU/SCIENCE; (DATA) SAVING ASIA'S VULTURES FROM EXTINCTION

The zone—one of two in Bangladesh, which are modeled on a handful of similar zones elsewhere in South Asia—is just one part of a multifaceted effort to pull the three vulture species back from the brink of extinction. Over the past decade, several Asian governments have also banned one of the most problematic drugs, and captive breeding centers have begun hatching hundreds of chicks. There are hints that such moves are helping: Surveys suggest vulture declines have slowed, and some populations might even be increasing.

But a recent visit to Bangladesh's Vulture Safe Zone 1 highlighted the sobering difficulties that conservationists face in achieving their goal. Banned drugs deadly to vultures remain in ready supply. Then there's the image issue: Many Bangladeshis still view vultures as things to be avoided—not saved. In the past, people stayed clear of scavengers circling overhead, fearing the birds' shadows would bring sickness. Some have even beaten the birds with bamboo sticks and pelted them with stones. Changing those attitudes, conservationists say, will be key to building vital local support for the drug bans and other vulture protection measures, especially in

nations where governments are short on money, manpower, and enforcement. "They don't love [vultures] like tigers or elephants," says Alam, who helped set up Bangladesh's vulture zones. "This is a problem."

The plunge of South Asia's vulture populations began in the 1990s and progressed with stunning rapidity. Millions of birds disappeared, seemingly overnight. It wasn't until 2004 that scientists in Pakistan found the culprit. Some vultures can't metabolize diclofenac, a painkiller that became widely used in the 1990s to treat fevers, udder inflammation, and other aches and pains in cattle. When the birds fed on tainted carcasses, uric acid crystallized in their kidneys. Kidney failure and death followed.

The disappearance of vultures meant the loss of one of nature's tidiest ways of disposing of a dead body. A wake of vultures can strip a dead cow to its bones in less than an hour. In India, where the Hindu proscription on eating beef means cows tend to die in the fields, there are concerns that carcasses once cleaned by the vultures are now being left to rot. In Mumbai, followers of the Zoroastrian religion, who traditionally put their dead in open towers on remote hilltops so that vultures could pick the bones clean, erected solar ovens to burn off the flesh. A 2008 study warned that fewer scavenging vultures could even lead to a rise in rabies, if feral dogs took their place.



At a feeding station in Cambodia, a slender-billed vulture eyes a carcass that is free of harmful contaminants, while a wake of white-rumped vultures waits to feed. A. B. M. SAROWAR ALAM/VULTURE CONSERVATION INITIATIVES

Eventually, governments in the region moved to save vultures by banning veterinary uses of diclofenac. In India, which has the largest vulture populations and the best tracking efforts, the restriction is credited with enabling the white-rumped vulture population to recover slightly, to about 6000, and slowing the decline of Indian vultures, now down to fewer than 15,000. (The population of slender-billed vultures in India, believed to be about 1500, is too small to reliably discern trends.)

Eradicating problematic drugs, however, has proved difficult. After India imposed a ban on veterinary forms of diclofenac, for example, drug companies there started selling an extra-large dose, ostensibly for human use, that was the same as the dose used on cattle. The government then issued a ban on the new formulation (which was upheld by an Indian court last year). But several of the most common alternatives to diclofenac—including ketoprofen, aceclofenac, and nimesulide—are also toxic to vultures. And in most places, veterinarians can still legally use those drugs.

The continuing contamination has slowed efforts to rear endangered vultures in captivity and release them into the wild. Breeding centers in Nepal and India have raised more than 300 chicks, but most are still being held in cages, because of fears they will wind up poisoned if released. A 2004 study estimated that diclofenac contamination of as few as one in 760 cow carcasses is enough to drive down vulture numbers.

Such worrying statistics have helped catalyze the creation of 11 safe zones across vulture territory in South Asia, centered on areas where relict populations are hanging on. The strategy, which is led by conservation groups, debuted in Nepal in 2012. It mixes practical measures for protecting vultures with public relations efforts aimed at transforming vultures from symbols of doom to icons of the environment.

In 2014, at the urging of Alam and others, the Bangladeshi government designated two "provisional" safety circles. Their 200-kilometer width matches the distance vultures typically travel to find food. Zone 2 covers part of the Sundarbans mangrove forest in the southwest. Zone 1 is centered on a vulture hot spot in the Rema-Kalenga sanctuary.

Inside the zones, conservationists ply veterinarians with materials warning of drug perils, as well as free

stockpiles of meloxicam, a vulture-safe painkiller. They are also deploying undercover buyers to pharmacies, to see whether they are selling contraband drugs. (In 2017, Bangladesh became the first government to ban ketoprofen in addition to diclofenac, though only inside the safe zones.)

Such efforts appear to be having an effect. In Nepal, undercover pharmacy checks have shown a dramatic decline in the availability of diclofenac since the nation's only zone was created in 2012, with none found inside the zone since 2014. In Bangladesh, surveys have found that nearly all pharmacies within the safe zones have stopped selling diclofenac.



Conservationists with the International Union for Conservation of Nature peer at a nesting white-rumped vulture in the Rema-Kalenga Wildlife Sanctuary in northeast Bangladesh. WARREN CORNWALL

Then there are the measures

to build good will. In Zone 1, a school near the preserve now sports a colorful mural depicting vultures. And several residents help run the vulture conservation program, serving as what amount to paid local ambassadors.

IUCN also moved to foster pro-vulture feelings by providing cows to 15 impoverished families living on a tea plantation adjacent to the Rema-Kalenga sanctuary. Later, the group bought them back for 25,000 taka each, equal to nearly a year's wages for a plantation worker. The hope is the extra income will dissuade the families from trying to earn money by foraging for wood in the reserve, where the vultures nest.

Those cows—and others bought from local farmers—also become a source of drug-free meals at a so-called vulture restaurant within the sanctuary. During breeding season from September to April, a steady supply of cattle—screened to make sure it isn't contaminated—is slaughtered and dropped in a secluded clearing 50 meters downhill from the small hut.

During one recent feeding, Alam and several guests watched through four small holes as a lone Himalayan griffon (*G. himalayensis*), distinguished by its brown back and hulking size, stood guard over the remains of a 2-day-old carcass. The griffon is also vulnerable to painkillers, but its numbers have declined more slowly because the birds spend much of their lives in mountainous regions where the drugs aren't widely used. This one was intent on protecting its meal from seven white-rumped vultures that also had designs on the carcass. As the griffon spread its wings and menaced the other birds, Alam, an enthusiastic birder, chortled from behind his binoculars. "You are lucky to see the vultures at this forest," he declares. "My dream is in 20 years our population definitely will be increased, and by 10 years our population remains stable."

Alam is worried, however, by signs that the use of problematic alternatives to diclofenac, such as ketoprofen, is on the rise—even within safety zones. Just 100 white-rumped vultures live within Zone 1, he notes, and "If these 100 feed on only two or three cows with the harmful drugs, this will destroy the whole population."



Banned drugs, as well as vulture-safe products, are still available from veterinarians within Bangladesh's vulture safe zones. WARREN CORNWALL

A trip to the nearby town of Gazipur confirms that Alam has reason to be concerned. In a cramped one-room office, Muhammad Ali Babul, a local veterinarian, sets boxes of ketoprofen and meloxicam on his desk. He's heard that ketoprofen is banned in the area and bad for vultures, but he also finds it's the best drug for treating cows that are giving birth. So he strikes a balance by using the drug in just 30% of the cases he sees. "It's easy to get," he says, and officials haven't put much effort into enforcing the ban. "That's why we're using it."

A block down the potholed street, Nurul Alam, a veterinary technician with the government's Department of Livestock who advises locals on animal care, seems unaware that ketoprofen is banned in the zone. "I didn't get any kind of order. And many, many [people] use ketoprofen," he says. "I don't think the government bans it. When the government bans it, then companies will not produce it."

So far, the drug problem is confined largely to South Asia. Vulture species in the Americas appear immune. Africa is having its own vulture crisis, but it is driven by other kinds of poisoning. Poachers, for instance, lace carcasses with poison to kill vultures and other birds, but only because scavenging flocks can alert antipoaching authorities to their presence. Farmers do the same to kill hyenas and other predators; vultures are unintended victims.

Still, conservationists worry that cattle drugs could become a wider problem. The conservation group BirdLife International, headquartered in Cambridge, U.K., has accused a Brazilian company of aggressively marketing diclofenac in Africa and exporting it to 15 countries there. And in 2013, Spain authorized the use of veterinary diclofenac, over the objections of bird conservationists. The country is home to three-quarters of Europe's griffon vultures (*G. fulvus*), and there are concerns that these birds could be sensitive to the drug.

The proliferation of problem drugs puts a premium on finding safer alternatives, says Toby Galligan, a conservation scientist at the United Kingdom's Royal Society for the Protection of Birds in Bedfordshire. Because governments sensitive to the wishes of the pharmaceutical industry appear unwilling to ban an array of drugs or force safety testing, his organization is now studying how vultures react to a variety of painkillers. Ultimately, he says, "We hope we can find two or three drugs that we can promote along with meloxicam, and flood the market with these safe drugs."

In the meantime, conservationists are working to strengthen existing vulture safe zones—and create new ones. "We hope to get initiatives like this all over the subcontinent, and they could all join together, and that would put pressure on the national governments to make the drug bans more effective," says Chris Bowden, the Bangaluru, India-based program manager for Saving Asia's Vultures from Extinction, a consortium of conservation groups and government agencies.



An Oriental white-backed vulture (*Gyps bengalensis*) at the Vulture Conservation Breeding Centre near Pinjore in Haryana, India, about to be examined by a veterinarian. CHRIS GOMERSALL/MINDEN PICTURES

In Nepal, conservation groups recently launched a test to see whether their nation's safe zone lives up to its name. Last November, they released 17 white-rumped vultures, each carrying a satellite tracking tag, into the safe zone. If the birds, along with others released in the coming year, survive until April 2020 without a drug-related fatality, the region will be officially declared safe. To date, only one bird has died, and Galligan says the cause was a predator, not tainted meat. "So far," he says, "so good."

Here in Bangladesh's Vulture Safe Zone 1, some advocates think they are changing attitudes as well. Nirmal Chandra Dev, a manager of the tea plantation next to the Rema-Kalenga preserve, serves on a local conservation committee that he says is helping spawn a new appreciation for vultures. In the past, he recalls, people would chase the birds away from their houses. They "didn't know that vultures were becoming extinct," he says. "Nowadays, they don't believe vultures are bad luck. They become caring."