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Mongabay Series: [Asian Rhinos](#)

Nepal's rhino numbers rise, thanks to national and local commitment

by Alex Dudley on 18 July 2017

- *Nepal's population of greater one-horned rhinos has fluctuated wildly over the past century.*
- *Widespread in the early 1900s, rhinos were reduced to a few pockets by the 1950s and around 100 individuals in the 1970s.*
- *Conservation efforts boosted the population by the 1990s, but the 1996-2006 Maoist insurgency took a devastating toll.*
- *Numbers are now rising again, a trend attributed to commitment at both the grassroots and the highest levels of government.*



A semi-submerged greater one-horned rhino in Chitwan National Park. Photo by Alex Dudley for Mongabay.

This is the first in a two-part series on rhino conservation in Nepal's Chitwan National Park. The [second article](#), focused on how conservation policies affect local communities, can be [read here](#).

CHITWAN, Nepal — Minutes into my safari in Nepal's Chitwan National Park, the elephant I ride in search of greater one-horned rhinos (*Rhinoceros unicornis*) plods out of the tangled subtropical forest. My elephant driver (*mahout*) and I approach the babbling Rapti River abutting the park's northern border. "Rhino!" whispers the *mahout* excitedly, and sure enough, a male lies on the edge of the riverbank, submerging his underbelly and hindquarters.

As we more closely approach this magnificent animal, almost reptilian with his armor-plated skin, he cocks his head and flares his hare-like ears. Yet after my elephant crosses the river and enters the park, he relaxes.

As we penetrate deeper into the park, my beast of burden affords a view above the elephant-high grass. The piercing cries of peacocks occasionally punctuate Chitwan's dawn tranquility. Approaching the grassland's edge, we encounter our second rhino, a male with a sharp horn. Upon our arrival, only the head and upper back of this semiaquatic species rise above the murky water, and minutes later, only the tip of his horn punctures the surface.

Other than the two rhinos, we spot only Indian peafowl (*Pavo cristatus*), several wild boars (*Sus scrofa*), and a spotted deer (*Axis axis*) during our hour-long ride. Compared to the readily observable wildlife on East Africa's open savannas, Chitwan's towering grass and tangled forest can make the park a hit-or-miss experience for safari tourists. Those only undertaking an hour's elephant ride or half-day game drive may leave without spotting any rhinos.

Yet beyond the gaze of the casual visitor, Chitwan has witnessed an extraordinary conservation success story. From a low of about 100 rhinos when the park was founded in 1973, today over 600 individuals — about 90 percent of Nepal's total rhino population — call Chitwan home.

Since 2011 Chitwan has only seen four rhinos poached. Within the same period, the park accounts for most of Nepal's 21 percent growth in rhino numbers. As the country has attained tentative political stability over the last decade, conservationists hope to preserve these gains and bring Nepal's rhino numbers closer to their former highs.



Nepal's Chitwan Valley, where rivers and grasslands allowed rhinos to reach their peak density. Photo by Bas Wallet via [Wikimedia Commons](#).

Population pressures

Before extensive human settlement, in the 15th century, the greater one-horned rhino ranged from northwest Myanmar across the Indo-Gangetic plain to northern Pakistan's Indus River Valley. In grasslands along all of northern South Asia's major rivers, perhaps tens of thousands of animals roamed.

In Nepal's Terai, the southern strip of lush floodplains mixed with subtropical jungle below the country's Himalayan range, rhinos stretched contiguously from east to west. In Chitwan Valley, the animals reached peak densities in areas with large *Saccharum spontaneum* grassland, their favorite food. Such habitat allowed large numbers of breeding individuals to occupy a small area, minimizing the territory necessary to support a viable population. "Before the massive reduction... there are some estimates suggesting that there were 1,000 rhinos roaming across Nepal, based on historical data, hunting anecdotes," Shubash Lohani, Director of Sustainable Landscapes at World Wildlife Fund, said in a phone interview.

However, the human population explosion across South Asia in the early 1900s marked the end of the greater one-horned rhino's expansive distribution. While large areas of prime habitat were converted to agriculture, hunting of rhinos both by European sportsmen and by farmers protecting their crops led the once plentiful population to

plummet. By the 1950s, the species only survived in Nepal's Terai and several reserves in northeast India.

The prevalence of malaria made the Terai a refuge for rhinos by preventing large-scale human settlement. Only the indigenous Tharu people, who had naturally developed malaria resistance, inhabited the area. While the Tharu were known to harvest rhino carcasses, they reportedly did not target live individuals for their horns or meat.

But in 1954, the Nepalese government used DDT on a massive scale to eradicate malaria from the Terai, seeking to relieve pressure on the country's overburdened hill regions. Once malaria disappeared, a deluge of hill migrants settled in the area, hungry for arable land. This influx would prove catastrophic both to the Terai's environment in general and to rhinos in particular.

"[Human settlement] led to massive deforestation and poaching, and that led to the devastation of many species — not just rhinos, but all megafauna," Lohani said. Unlike tigers, rhinos breed slowly and are easy to find, making them especially vulnerable, he explained. "People could easily spot the rhino and kill it in a retaliatory way if it damaged crops."

Even without sophisticated weapons, the animal's predictable habits, such as regularly defecating in the same spots, allowed communities to easily observe it. Villagers dug holes at the sites of rhino latrines to trap and kill problem animals.

By the 1970s, the insatiable demand for rhino horns as dagger handles in Yemen and as a purported fever remedy in neighboring China had decimated Nepal's population. In Chitwan, the country's last stronghold, only about 100 remained, according to Lohani.



Greater one-horned rhinos are excellent swimmers and spend much of their time in or near water, particularly during the hot season. Photo by Alex Dudley for Mongabay.

Protection and poaching in Chitwan

Nepalese and international conservationists sounded the alarm about the rhino's impending extinction in Nepal and championed the creation of a rhino sanctuary with strict protection. The country's powerful leader, King Mahendra, was sensitive to their sentiments, particularly since rhinos were designated a royal animal that could only be hunted with the king's permission. Chitwan thus became Nepal's first national park in 1973.

Before Chitwan's creation, rhino patrols (*gaida gosti*) already monitored the area. Armed with military rifles, these retired army troops closely monitored the animals' movements. But the *gaida gosti*'s antiquated weaponry proved ineffective at curbing poaching. In 1975, the park therefore took the unprecedented measure of replacing the *gaida gosti* with around 1,500 national army troops.

Simultaneously, in 1977 Chitwan was expanded from 400 square kilometers to 932 square kilometers in order to encompass all the primary habitat areas. Between the park's establishment and expansion, 20,000 villagers were resettled outside the boundaries to facilitate a habitat where rhinos could roam undisturbed.

The combination of the army patrols and the park's expansion allowed Chitwan's rhinos to rebound from near-extinction. From about 100 rhinos in 1973, Nepal boasted a total population of over 600 by 2000.

In Chitwan alone, a 2000 survey revealed almost 550 rhinos for the first time since the 1950s. Meanwhile, conservationists recognized that concentrating the population in a single area increased vulnerability to disease or natural disaster. Therefore, from 1986 to 2002, 70 rhinos were relocated from Chitwan to the remote Babai Valley in western Nepal's Bardia National Park.

However, the eruption of a rural Maoist insurgency against Nepal's monarchy from 1996 to 2006 delivered a severe setback to the country's conservation gains. "The security force, basically the national army, was fighting these guerillas, and the security system was broken," Naresh Subedi, an officer of the country's National Trust for Nature Conservation (NTNC), recalled in an interview in Kathmandu. "So the priority was not patrolling [and] the poachers had an opportunity to slip into the jungle and they killed all the rhinos."

While Chitwan's relative proximity to Kathmandu and the strong involvement of conservation NGOs allowed a degree of stability, the park's rhino population still fell by about a third to 370 by the war's end, according to Subedi. More severe were the losses in Bardia, one of Nepal's worst affected districts during the conflict. From a population of 67 rhinos in 2000, a 2008 survey in the national park found only 22, with none surviving in the Babai Valley.

By 2006, the national rhino population had dwindled to less than 400. That year, as Nepal struggled to attain political stability in the war's aftermath, the country was hard hit by the slaughter of 31 rhinos in Chitwan. "That was the biggest loss in the history of rhino poaching in the history of Nepal," Lohani said. "But now it's over 10 years later, and we are happy to have been able to replicate the success of the 1970s. Now the challenge is: How do we keep the momentum, and not go back to the situation of 2006?"



Conservation of rhinos in Chitwan has also helped protect other species, such as Bengal Tigers. Photo by Morgan Erickson-Davis/Mongabay.

Post-conflict recovery

Critical to this momentum has been the combination of resumed anti-poaching patrols and the goodwill of surrounding communities. As Nepal stabilized following the transition to a republic in 2008, army troops returned to the parks and the number of guard posts increased. Simultaneously, Nepalese conservationists strengthened linkages between wildlife and the rural communities who had historically lacked access to the parks' benefits. Volunteer youth patrols were deployed in Chitwan's community forests, or buffer zones, and these communities generated tremendous revenue from homestay and safari tourism.

Chitwan's anti-poaching strategy has not been without criticism. Human rights activists have documented [abuses by the army](#) both of suspected poachers and of villagers collecting firewood and grass inside the park. Furthermore, the underrepresentation of Tharu in the NTNC and buffer zone committees highlights the shortcomings of participatory conservation. But overall, the buffer zones' financial benefits have successfully compelled communities who might otherwise seek profit from poaching to value live rhinos on their land.

"If the [rhino] population grew, everybody would feel good," Bipi Choudhary, chairman of the Baghmara Community Forest outside Chitwan, reflected in an interview.

"Conservation is giving happiness to the public...There are tall grasses inside the park [but] still we have rhinos here, because we have good management. They are happy here. And every day tourists are seeing rhino, and elephant owners are also happy because they take tourists."

By both implementing sophisticated security measures for rhinos and addressing the social inequities that might encourage poaching, Nepal has won widespread praise from international conservationists. In 2013, 2015, and 2016, the country celebrated a year free of rhino poaching. The slow reproductive rate of greater one-horned rhinos (16 months' gestation, and 3-year intervals between births) makes the growth of Nepal's population all the more remarkable. The steady growth in numbers also offers testament to the value placed on conservation at both the national and local level.



A rhino crosses over a river in Chitwan National Park. Photo by Nomad Tales via [Flickr](#).

Looking to the future

Assuming that these trends continue, Nepal's conservationists hope to restore rhino numbers to their former highs. Ram Kumar Aryal, an officer at the NTNC's Chitwan office, explained that India's Kaziranga National Park, home to the largest greater-one horned rhino population, contains about 2,400 rhinos in an area of about 450 square

kilometers (~174 square miles) of suitable habitat. By contrast, Chitwan extends over 932 square kilometers, two-thirds of which could support high rhino densities. "Beside that, our buffer zone has almost 750 square kilometers so we think our population [in the park and buffer zones combined] can go to 2,500," Aryal said.

To achieve this comeback, Aryal noted that Chitwan might need to exchange several males with Kaziranga to minimize inbreeding. The mixing of individuals from both parks in India's Dudhwa National Park has drawn criticism from several scientists who recognize distinct subspecies. But most Nepalese and international scientists have not supported the idea of genetic distinction between Chitwan and Kaziranga rhinos, and argue that potential hybridizing may be a necessary sacrifice to boost numbers.

More controversial in Chitwan has been the recommencement since the end of the war of [translocations to Bardia and Suklaphanta National Park](#), in westernmost Nepal. Bardia now boasts about 30 rhinos and Suklaphanta about a dozen, compared to Chitwan's 605. International NGOs have championed the translocations as vital for creating backup populations in the event of a natural catastrophe in Chitwan, as well as to spread the benefits of rhino tourism. But many residents in Sauraha, Chitwan's main tourist hub, have greeted the measure with skepticism or disapproval.

In interviews, both local residents and NTNC officers in Sauraha cited local feelings of rhino ownership and expressed concern that the translocated animals would be poached. "Our country has not [a] stable political situation," said an NTNC official involved in the translocations who spoke anonymously. "After [every] 10 or 20 years it has problems. Basically, there will be a new issue. The new issue will be linked with the political scenario, and in that case it is a little bit risky to translocate."

However, Choudhary offered a more nuanced assessment of the translocations, theorizing that areas that receive rhinos will be more vigilant this time around. "Suppose I lost my son," he said. "The second time my wife becomes pregnant I care for the baby. I carry and wash, clean it, because I lost one baby and I take care more for my second baby."

"The first time Bardia lost rhinos because they were careless. Now they take great care, because we have suggested, if you don't care please don't take [our] rhinos."