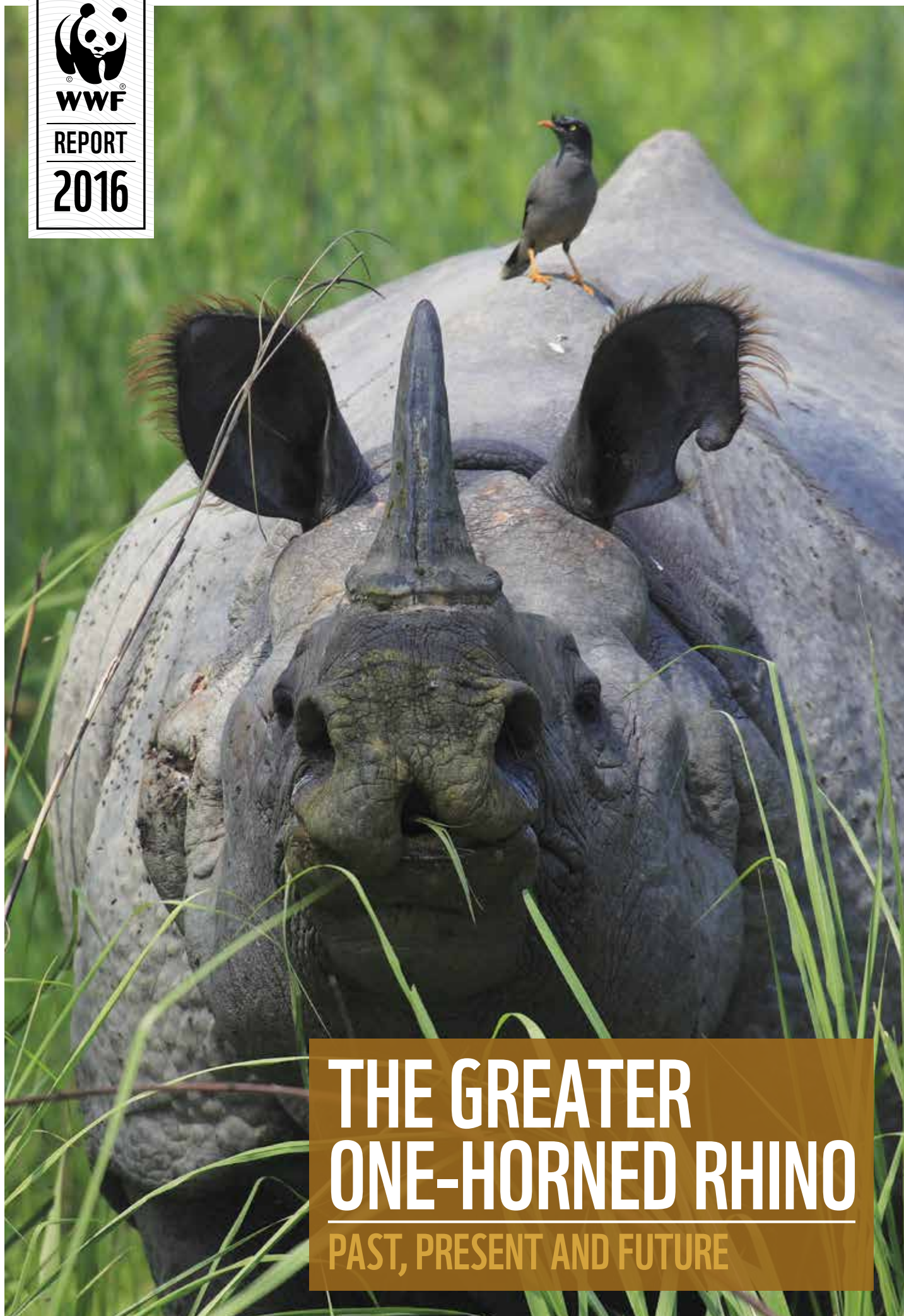




WWF

REPORT

2016



THE GREATER ONE-HORNED RHINO

PAST, PRESENT AND FUTURE

This report is dedicated to the rangers, forest guards, forest officers, the governments of Nepal, India and Bhutan and all those who have helped bring the greater one-horned rhino back from the brink.

Written by: Kees Rookmaaker (Rhino Resource Centre), Amit Sharma, Joydeep Bose, Kanchan Thapa, Barney Jeffries, Christy Williams, Dipankar Ghose, Mudit Gupta and Sami Tornikoski.

Designed by Lou Clements

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About WWF

WWF is one of the world’s largest and most experienced independent conservation organizations, with over 5 million supporters and a global network active in more than 100 countries.

WWF’s mission is to stop the degradation of the planet’s natural environment and to build a future in which humans live in harmony with nature, by conserving the world’s biological diversity, ensuring that the use of renewable natural resources is sustainable, and promoting the reduction of pollution and wasteful consumption.

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FOREWORD

This report is a comprehensive document on the greater one-horned rhinoceros, put together by a team of expert scientists and conservationists. The report not only addresses the present status and distribution of this species, but also elaborates conservation actions that are necessary to secure its future. We believe it will help and guide the researchers, managers and people working for the conservation of this species in the years to come.

**WHAT THE RHINO
TEACHES US IS
RESILIENCE. WE
BELIEVE THIS
ICONIC SPECIES
CAN CONTINUE
ITS REMARKABLE
RECOVERY**

In India, WWF has been associated with conservation of rhinos for the past three decades, and we are committed to securing the long-term future of the greater one-horned rhinoceros in the country. Our rhino conservation activities include securing its present populations and habitats and expanding its range. Over the last 10 years, we have intensified our efforts through the Indian Rhino Vision 2020 programme in Assam, which has helped to significantly increase the rhino population and reintroduce rhinos into areas from which they had been lost. The rhino population in Assam now stands at 2,626, and there are also healthy populations in West Bengal and Uttar Pradesh.

When WWF started work in Nepal way back in the 1960s, rhinos were the centrepiece of our conservation efforts. Rhinos were on the verge of extinction, reduced to nearly 100 individuals from more than 800 in the early 1950s. It is a matter of pride for us to see how our work with the government and local communities has gained strength, as seen in the remarkable recovery of this iconic species in Nepal.

As per the 2015 rhino count data, there are now 645 rhinos in Nepal – the highest number recorded to date – distributed across four protected areas in the Terai Arc Landscape. This marks an increase of 111 rhinos compared to the last count made in 2011. This is indeed a historic success for a nation that had lost 37 rhinos to poaching alone in a single year in 2002. Thanks to the efforts of front-line protection staff, local communities and conservation partners, Nepal recently observed another 365 days of zero poaching of rhinos – for a fourth time since the first success in 2011.

There are opportunities, too, to provide refuge for rhinos in Bhutan, particularly in the Royal Manas National Park, which adjoins Manas National Park in Assam, where rhinos have been successfully reintroduced. WWF-Bhutan has a strong track record of working with the government and local people on wildlife conservation and sustainable development in the Himalayan kingdom.

What the rhino teaches us, as true to its character, is resilience. With the leadership of government, the support of conservation partners such as WWF, and the committed on-the-ground efforts of enforcement agencies and local communities, we believe this iconic species can continue its remarkable recovery.

Dechen Dorji,
Country Representative,
WWF-Bhutan

Anil Manandhar,
Country Representative,
WWF-Nepal

Ravi Singh,
CEO & Secretary General,
WWF-India

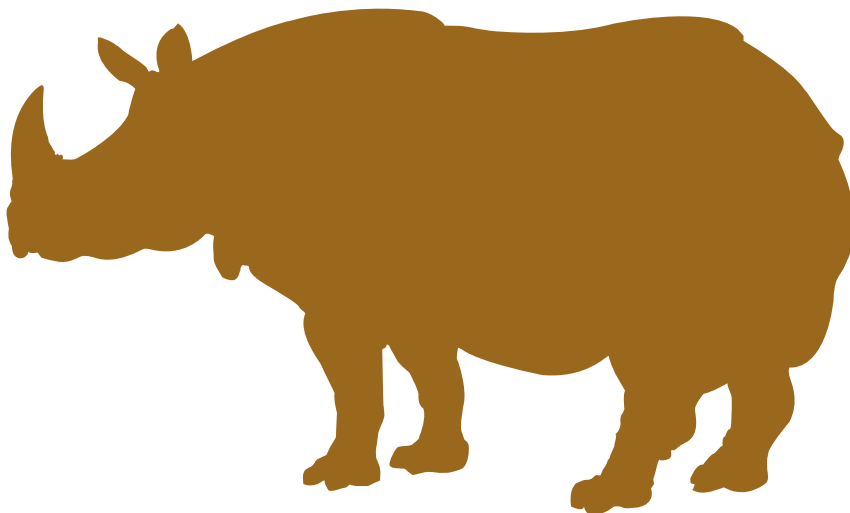
IN MEMORIAM

We remember all the brave people who have given their lives in the call of duty to protect rhinos: the survival of the species is their legacy.

Boluram Dutta
Motiram Baruah
Dharma Kt. Kalita
Deben Chasa
Niren Saikia
Pradip Dutta
Gopal Bori
Babul Barua
Rajen Hazarika
Kanbap Dutta
Ranjit Medhi
Chandra Dhar Deka
Atul Bora
Dilip Bora
Sibian Hemrom
Mohendra Karmakar
Bhupen Paul
Bimal Saikia
Bharat Gogoi
Nitul Dutta
Karuna Kanta Das
Bharat Chandra Das
Suchandra Mahanta
Durjoy Bawri
Kalyan Giri Adhikary
Dibyajyoti Bordoloi
Kumud Saikiya
Sing Singner
Dipen Baruah

Bhudev Chakrabarty
Hassen Ali
Debiram Deka
Wahed Ali
Loknath Khatoniar
Badan Bodo
Sushil Sil
Joyotish Chandra
Chandra Deka
Alexhus Munda
Ghanashyam Thakuria
Bhakharu Boro
Mahendra Das
Munin Narzari
Bircha Orang
Matin Khan
Serajul Islam
Sarat Chandra Pathak
Khagendra Chandra
Kalita
Ajoy Talukdar
Chabin Boro
Bariqul Islam
Debeswar Talukdar
Kandura Rava
Laskhan Boro
Lal Bahadur Kunwar
Tika Ram Pant
Chotaki Tharu

Sheshchandra Chaudhary
Bishnumani Kharel
Kul Bahadur Thapa
Ramji Dhital
Bijaya Adhikari
Rameshower Pandit
Dal Bahadur Rai
Laxman Bote
Kiran Shrestha
Pahuna Tharu
Gyanraj Puri
Prithvi Pawe
Khadga Bahadur Lohani
Ramayodhi Chaudhary
Jugeshower Mahatto
Shreerang Kandel
Buddhi Bote
Madhusudhan Nepal
Jaya Bahadur Chaudhary
Dhodhai Mirdaha
Purna Raut Ahir
Bhim Bahadur Bhujel
Tarak Bahadur Thapa
Gyani Shaha
Jung Bahadur Shrestha
Bishnu Mahatto
Juthiram Bote
Ram Prasad Chaudhary
Gonilal Chaudhary



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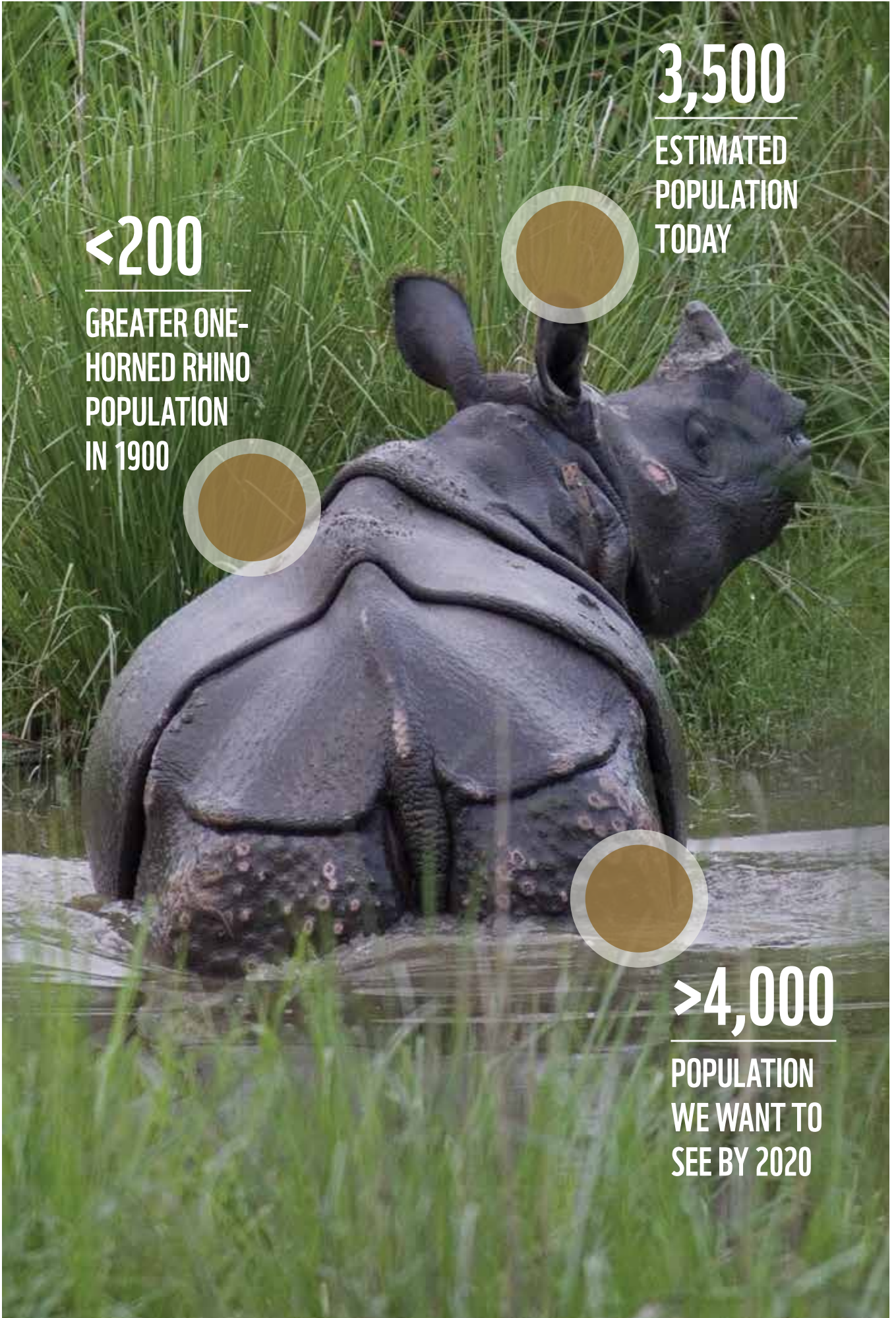
**GREATER ONE-
HORNED RHINO
POPULATION
IN 1900**

3,500

**ESTIMATED
POPULATION
TODAY**

>4,000

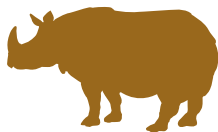
**POPULATION
WE WANT TO
SEE BY 2020**



INTRODUCTION

From ancient civilizations to the present day, the greater one-horned rhinoceros has been an icon of South Asia. Magnificent, enormous, unmistakable, it's a source of wonder, of pride and of tourist revenue.

3,500
TODAY THERE
ARE AROUND
3,500 GREATER
ONE-HORNED
RHINOS IN
THE WILD



Greater one-horned or Indian rhinos used to be widely spread across vast areas of the northern part of the Indian subcontinent. But centuries of hunting and habitat destruction brought them to the brink of extinction. By the early 20th century, only 200 remained.

People realized what was happening just in time. The fight to save the greater one-horned rhino has become one of the great conservation success stories. Today there are around 3,500 greater one-horned rhinos in the wild. And while they still face significant threats from poaching and habitat loss, rhinos are being reintroduced into new areas and population numbers are still growing.

In a world where we are perennially on the back foot trying desperately to slow down the rate of biodiversity loss, the experience of rhino conservation in India and Nepal shows that it's possible to recover lost ground and expand large mammal populations. What is needed is a clear vision, strong partnerships, adequate funding – and a lot of determination.

We now have a historic opportunity to build on these successes. WWF's vision is to bring rhino populations up to sustainable levels, to reintroduce them to areas where they have disappeared, and ultimately to restore rhinos to their historical range. Our first goal is to increase the greater one-horned rhino population in India, Nepal and Bhutan to at least 4,000 by 2020. We hope eventually to see the species removed from the IUCN Red List of threatened species as its long-term future is secured. Such an achievement would not only ensure that these remarkable animals will continue to amaze and inspire future generations: it could also provide significant benefits for the communities that live alongside rhinos, and provide a focus for wider conservation and sustainable development opportunities.

This publication looks at the past, present and future of the greater one-horned rhino: the rich heritage we so nearly lost, the hard-won lessons and successes, the challenges we still face, and what we stand to gain.

OUR FIRST GOAL IS TO INCREASE THE GREATER ONE-HORNED RHINO POPULATION IN INDIA, NEPAL AND BHUTAN TO AT LEAST 4,000 BY 2020.





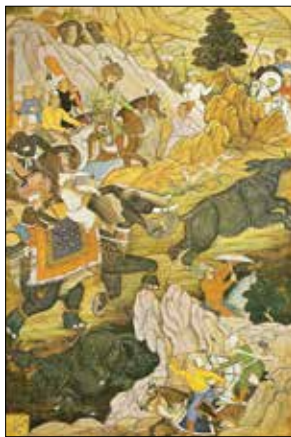
RHINOS REBORN

The greater one-horned rhino is one of the few large mammals whose population and range is growing. The outlook for this iconic species is brighter today than it has been for more than a century. But many challenges remain in order to secure its long-term future.

On the following pages, we look at how we reached this point – and where we go next.

SACRED SYMBOL TO CONSERVATION ICON

From the earliest civilizations through to the present day, few animals have captured the human imagination like the greater one-horned rhino.



ARCHAEOLOGY

Archaeologists have found many representations of the rhino in ancient cultures, ranging across the subcontinent. It appears on seals, pottery, masks and copper tablets dating back to the Harappan civilization which flourished in the Indus Valley as far east as Afghanistan from 2,600 to 1,900 BC. Further south in India excavations have unearthed rhinoceros artefacts in several early Bronze Age sites.

In Madhya Pradesh, India, cave paintings showing men with spears hunting rhinoceros date back hundreds or perhaps even thousands of years. Gupta empire coins minted in the 5th century show the king on horseback attacking a rhino – a tradition continued a thousand years later by the Mughal emperors, frequently depicted in beautiful illuminated manuscripts.

Mughal emperor rhino hunting, from the Babur Nama (16th century)



RELIGION

The rhino is a creature of great symbolic importance in religious contexts. It appears in Hindu, Buddhist and Jain sacred scriptures; the mighty Ganges itself was sometimes represented as “an old man of an austere aspect, crowned with palms, and pouring water out of a vase, with a rhinoceros by his side”. The ancient Hindu Vishnu Purana mentions that rhinoceros flesh gives eternal satisfaction to those worshipped at ancestral ceremonies, while the horn of the animal consumes all sins. Ritual sacrifices took place for many centuries.

In Nepal, it became customary for rulers to kill a male rhino once in their career and to make an offering of the animal's blood to the ancestors and pray for peace and prosperity. This ceremony – referred to as “Blood Tarpan” – last took place as recently as 1979.

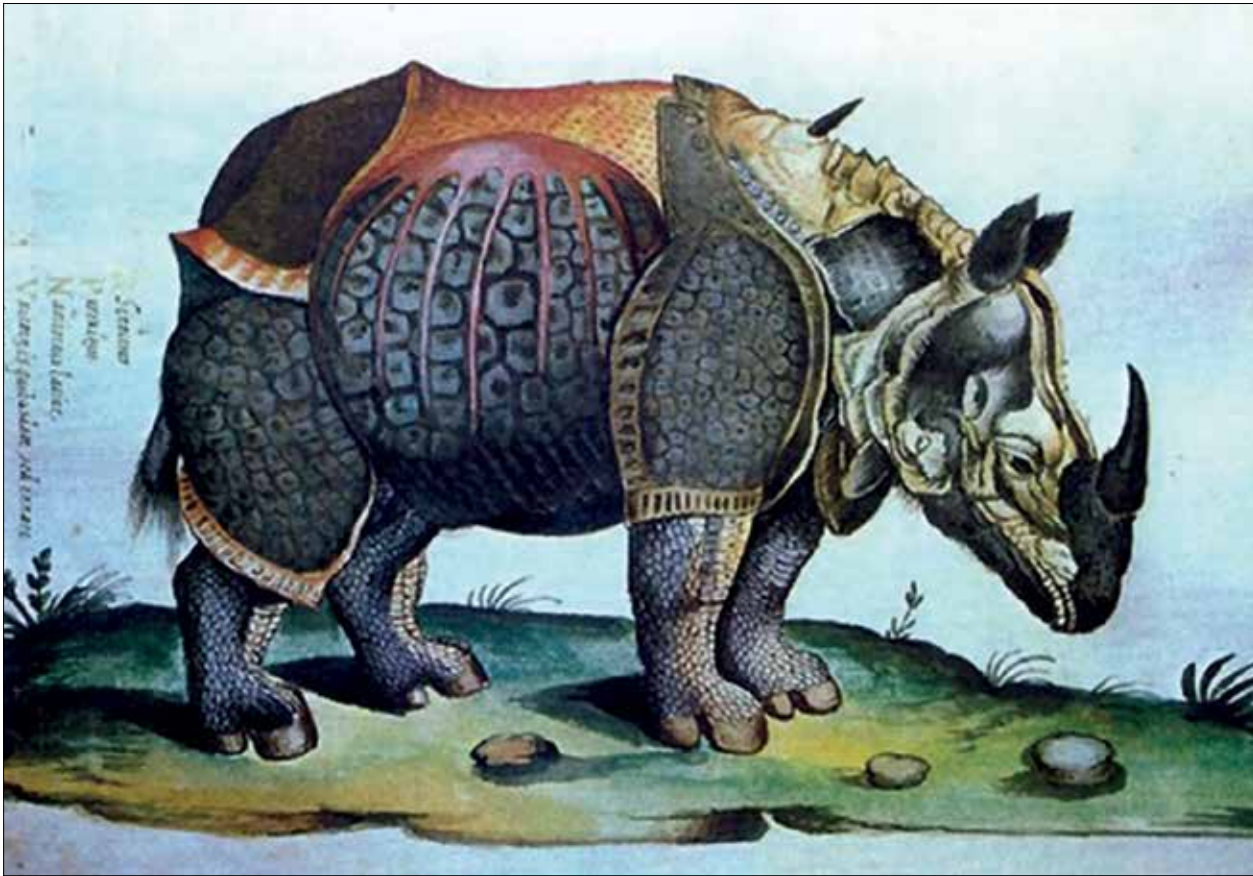
Rhino statues on Siddhi Lakshmi temple, Bhaktapur



RHINOS IN CAPTIVITY

Rhinos in some areas were once common enough to be caught and semi-domesticated, sometimes even being used in place of buffaloes to plough fields. It was not uncommon during the 18th century for rich merchants to keep a rhinoceros in their gardens, while the Nawabs of Lucknow kept extravagant menageries including as many as ten or more rhinos. Numerous 19th century records exist too of rhinos being made to fight for the entertainment of the ruling classes.

Rhinoceros fight in Baroda, 1875 during the visit of the Prince of Wales (Illustrated London News)



Above: a coloured copy of Dürer's famous woodcut, which shaped the image of the rhino in Europe for hundreds of years.

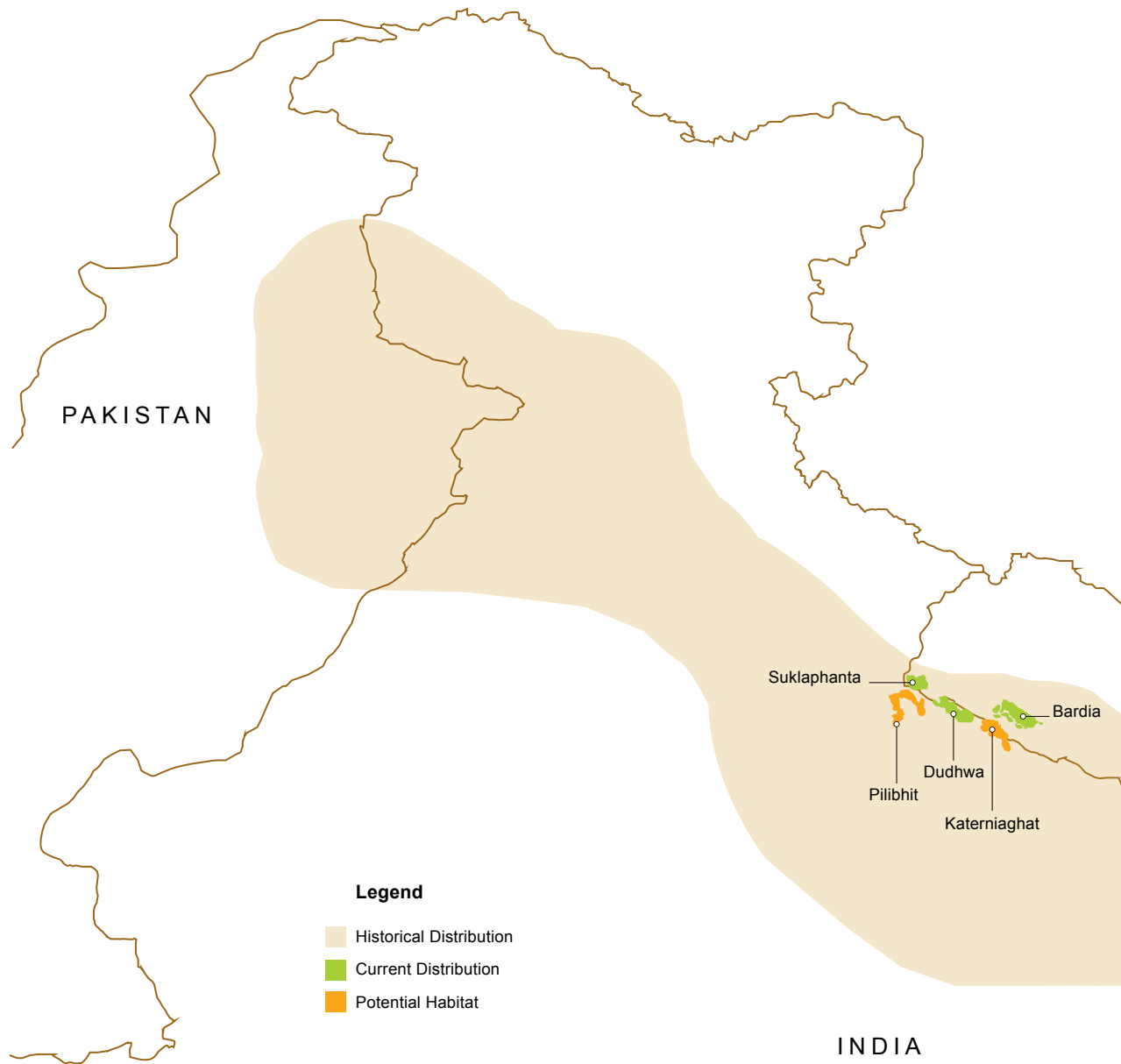
ART

The first rhino ever seen in Europe was sent from India to the king of Portugal in 1515, and later offered as a gift to Pope Leo X. Sadly, the animal died in a shipwreck on the way to Rome – but not before it had been immortalized in a woodcut by the great German artist Albrecht Dürer of Nuremberg. Dürer – who never saw the rhino first-hand – depicted a great armour-clad beast which, curiously, had a large horn on the nose as well as a small hornlet pointing forwards in the shoulder region. This image appeared in all the books in which a rhino was depicted, well into the 18th century, meaning that for at least 300 years the rhinoceros as imagined by Dürer defined the popular European image of the species.

Flagship species



The rhino remains one of the world's most charismatic animals. It's the state animal of Assam, where three-quarters of greater one-horned rhinos live. For WWF, it's a flagship species – one of a handful of iconic animals that provide a focus for raising awareness and stimulating action and funding for broader conservation efforts, such as protecting important grassland ecosystems. This flagship role, and the rhino's tourism appeal, also provides opportunities for governments and communities.



Legend

- Historical Distribution
- Current Distribution
- Potential Habitat

Rhino numbers by protected area

Kaziranga National Park	2,401
Katerniaghat Wildlife Sanctuary	2
Jaldapara National Park	200
Gorumara National Park	50
Pobitora Wildlife Sanctuary	92
Orang National Park	100
Manas National Park	32
Dudhwa National Park	32
Chitwan National Park	605
Bardia National Park	29
Suklaphanta Wildlife Reserve	8
Parsa Wildlife Reserve	3

* Figures as of October 2015

THE RHINO'S RANGE: THEN AND NOW

The greater one-horned rhino was once found right across the northern floodplains and foothills of the Indian sub-continent.

It occupied an area stretching from the borders of Myanmar in the east, across northern India and southern Nepal, as far as the Indus Valley in Pakistan in the west. The northern boundary of its range was the Himalayas, while it was recorded in the south across the plains of the Ganges in West Bengal, into Bihar and Madhya Pradesh, possibly ranging as far as Rajasthan, India.

Over the last few centuries this range has been reduced to just 11 pockets of protected populations in northern India and the Nepalese Terai, with the two main hubs being Assam's Kaziranga National Park and Nepal's Chitwan National Park. Rhinos were sometimes seen in Royal Manas National Park in Bhutan before the resident population in Manas National Park on the Indian side was exterminated during civil unrest in the region in the 1990s. Rhinos are now making a comeback in Manas through a range expansion programme. In Pakistan, rhinos are extinct in the wild.



The historic distribution of greater one-horned rhinos, their current habitat, and potential sites for reintroduction.

BACK FROM THE BRINK

Hunting and habitat destruction saw greater one-horned rhinos facing extinction by the beginning of the 20th century.

The story of how the greater one-horned rhino came to the very brink of extinction is a familiar one – and it begins and ends with human activity.

On the one hand, rhinos were hunted in every area where they were found. The hunts varied from enormous imperial expeditions involving massive logistical preparations and thousands of staff, to smaller parties of “sporting” hunters in the days of the British Raj.

On the other, as the human population increased over the centuries it required more and more land and resources to support itself. The fertile floodplain grasslands that make up the rhino’s preferred habitat are also the main agricultural areas of northern India and southern Nepal. As human activity encroached into many areas where rhinos had previously thrived, ecosystems were unbalanced, habitats destroyed, and local populations disappeared.

By the beginning of the 20th century it’s estimated that fewer than 200 greater one-horned rhinos remained in the wild. Only then did a general awareness of the species’ plight begin to emerge, and efforts began in earnest to save the rhino from extinction.

BY THE
BEGINNING OF
THE 20TH
CENTURY,
FEWER THAN
200 GREATER
ONE-HORNED
RHINOS
REMAINED IN
THE WILD

HUNTING THE RHINO: A QUARRY FOR A KING

Rhinos had three main attractions for the hunter: their habits, their strength and their horn. Potentially formidable adversaries, they were difficult to locate in tall grasslands, dangerous to kill, and provided an impressive trophy when vanquished.

Since the earliest days – a coin from the 5th century shows King Kumaragupta I attacking a rhino with a sword – emperors and maharajahs had organized parties to go out after rhino. A thousand years later the Mughal emperor Jahangir writes: “It has often happened in my presence that powerful soldiers have shot 20 or 30 arrows at them, and not killed them.” Yet kill them they did, and the maharajahs kept on with the tradition down the years.

Big game hunting was also a major attraction for many of the Europeans who came to India over the centuries, with some individuals boasting dozens of kills. In Nepal, royal hunting parties in Chitwan continued well into the 20th century, on an almost unimaginable scale. When Britain’s King George V was crowned Emperor of India in 1911, he proceeded to Nepal for 10 days’ hunting over Christmas. The encampment that was set up involved some 12,000 people, as well as 600 elephants with a further 2,000 attendants. In 10 days, 18 rhinos were killed (the king shot eight himself), along with 39 tigers.

And yet the most destructive hunting of all needed no more than a large gun. In 1868, a British hunter named Pollok described the tactics of the 20-year-old son of the Zamindar of Lakhipur (Lukheepore), who used to go out on a domesticated elephant: “armed with a single-barreled cannon, carrying a 6-oz. ball, he goes out on moonlight nights, when the rhinoceros are feeding, and do not suspect danger ... in about six weeks he killed, I believe, thirty-four rhinoceros and ten tigers, besides other game, and has depopulated these jungles as far as game is concerned.”

HABITAT DESTRUCTION: A RACE FOR SPACE

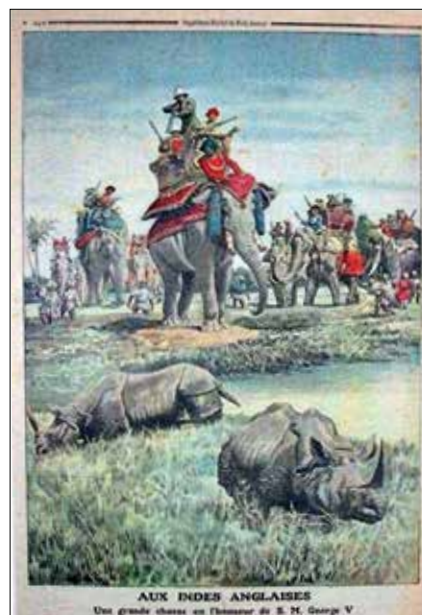
In the 18th century, a French traveller named Jean-Baptiste Chevalier described a scene of carnage that was organized for the local ruler's amusement: thousands of soldiers herded wild animals into a vast staked enclosure, which was then set ablaze and the creatures slaughtered by the king and his retinue.

But horrified as he was, Chevalier saw the spectacle in terms of a balance between man and nature: "It is the safety of the country and of the crops that authorise such bloody pleasure and, in fact, it is necessary. The various animals are in such great number and they multiply at such a rate that if they were not destroyed that way, the inhabitants would not be able to step out of their houses without risking their lives and the seeds would be eaten up as soon as they germinate."

By the 20th century, though, the people and crops that had once been threatened by the animals had taken over so much of the country that local populations of wildlife were completely eradicated. Ever-increasing areas of agricultural land, which were needed to feed a growing human population, overwhelmed natural ecosystems, and local villagers increasingly encroached upon nominally protected forest reserves.

As the number of pockets of the country suitable for rhino habitation dwindled and became increasingly fragmented, overall numbers fell further. Limited local gene pools damaged the strength of some populations, and incidents of direct conflict between rhinos and villagers increased as the remaining animals strayed out of their reduced living spaces into surrounding farmland.

In Nepal, a similar process took place later, but with greater speed and impact. Rhino numbers had stayed at higher levels than those in India because their preferred habitat, the alluvial plain grasslands of the Terai, remained relatively undisturbed through the first half of the 20th century. But with the eradication of malaria and the collapse of the Rana regime in the 1950s, hundreds of thousands of settlers from the foothills of the Himalayas moved into the Chitwan valley, attracted by the highly fertile soil, and the region changed radically with disastrous results for wildlife. Rhino numbers fell from around 1,000 to fewer than 100 in under two decades.



King George V hunting a rhino from elephant-back in Nepal. Engraving published in *Le Petit Journal*, Paris, 31 December 1911.

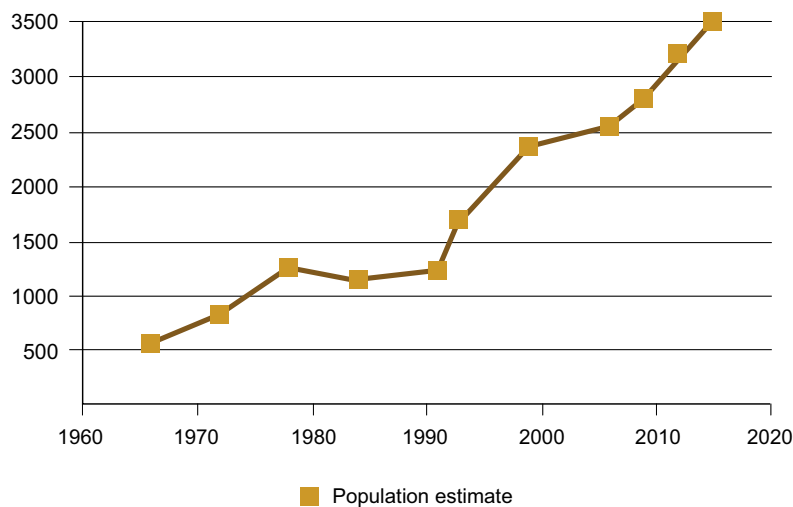
CHANGING OUTLOOKS: THE BIRTH OF RHINO CONSERVATION

At the beginning of the 20th century, it became clear that the survival of the species itself was in question. A deep strength of feeling for this glorious common natural heritage, coupled with a growing awareness that rhinos could be more valuable alive than dead, underpinned a raft of new efforts to save the rhino in the Himalayan region.

Attitudes changed quickly, across regional and socioeconomic boundaries. Where a generation before their fathers had been organizing hunting expeditions to bag a high-status prize, members of the ruling classes now found themselves prevented by statute from going after any more rhinos. Wildlife sanctuaries were established, laying the foundations of the successful system of national parks on which today's conservation efforts depend.

In fact, the growth of this modern ecological consciousness is reflected in no less important a source than the 1952 constitution of the newly independent Indian nation. Article 51A(g) says that "every citizen of India" has a duty "to protect and improve the natural environment including forests, lakes, rivers and wildlife and to have compassion for living creatures."

One-horned rhino numbers since 1966



Graph 1. Recovery of the greater one-horned rhino

TODAY'S THREATS

Despite the successes of the last century, there's no room for complacency.

Times have changed. Serious efforts to save the rhino have been going on for a century now. Conservation has become an international issue. A series of national parks has been established, and overall numbers have seen encouraging growth for decades. It's a very long time since anybody has been legally allowed to shoot a rhino.

But although the status of the greater one-horned rhino has improved from "Endangered", it remains "Vulnerable". Threats today come in new forms, and there is still potential for a disastrous reversal of the hard-won progress that has been achieved.

A key reason for this is that rhino populations remain scattered across less than 20,000km² comprising only 10 sites, some of which – particularly in Nepal and north-east India – are seeing a decline in numbers. With over 70 per cent of the population concentrated in Kaziranga National Park, a local catastrophe – whether caused by poaching, disease or some other factor – could have a devastating effect.

1,175

IN SOUTH AFRICA
THE NUMBER OF
RHINOS KILLED
BY POACHERS
JUMPED FROM
13 IN 2007
TO 1,175
IN 2015



MODERN-DAY POACHING: A NEW DANGER

Poaching is a constant menace in all areas where rhinos are found. Rhino horn is a highly prized (though now outlawed) ingredient in traditional Chinese medicine. More recently it's gained a – totally unfounded – reputation as a cancer treatment, as well as an aphrodisiac and a hangover cure. Demand has soared, particularly in Vietnam, and criminal gangs can make fortunes illegally selling it on the Asian market. Poachers themselves will only see a fraction of the profits – but to many desperately poor people, it's a risk worth taking.

This growing demand has fuelled a poaching crisis in Africa – in South Africa, the number of rhinos killed by poachers jumped from 13 in 2007 to 1,175 in 2015. Thanks to the bravery and commitment of anti-poaching teams, backed up by strong government and donor support and good relationships with local communities, poaching of rhinos in India and Nepal has largely been kept under control. Nepal, for example, has achieved zero poaching for four years since 2011. But as long as demand for rhino horn persists in nearby consumer countries, poaching will remain a threat, and constant vigilance is needed. The concentration of rhinos in just a few areas makes them particularly vulnerable to poachers and the organized crime syndicates that run the trade.

The need for control: poaching in Kaziranga and Manas

Government and national park authorities have made great strides in tackling poaching. Anti-poaching camps are staffed in all reserves, in impressive numbers: Kaziranga National Park currently has 174 anti-poaching camps, including nine which float in the Brahmaputra river.

But the scale of this activity reflects the scale of the problem: from 1984 to 2004 the park lost 371 rhinos to poachers, while a further 206 have been killed in the decade since then. Keeping poaching under control requires enormous ongoing efforts.

The poachers themselves are running great risks: since 1996, 411 have been arrested by park authorities, while 65 have been killed in encounters with frontline staff. But the potential rewards offered by the criminal gangs remain too great an incentive, and so the fight against poaching in Kaziranga continues.

While there is still room for improvement, Kaziranga currently seems to have poaching under control. But the logistical challenges in running any national park require strong state engagement, and not all parks have had such success. The story of Manas National Park in north-east India shows how badly things can go wrong on a local basis.

Between 1989 and 2003, there was severe unrest in the region as the indigenous Bodo people fought to establish a homeland. During the years of violent struggle, the park itself became a target: infrastructure facilities and anti-poaching camps were destroyed, staff were murdered, and its whole management system fell apart. This meant the population of around 100 rhinos was left unprotected, and during the years of the insurgency poachers – many apparently linked to militant factions – killed every single one. Laokhowa and Burachapori wildlife sanctuaries had previously lost their entire rhino populations of around 60 animals during the political turmoil of the Assam Agitations in the early 1980s.

Rhinos have since been reintroduced to Manas National Park and plans for reintroduction in Burachapori and Laokhowa are well under way, but the earlier slaughter shows how indispensable it is to maintain strong anti-poaching measures in every rhino population centre. If anything similar were ever to happen in Kaziranga, the overall survival of the species could be thrown into doubt.



Kaziranga National Park, Assam, India.

© Oja Jansen / WWF



© Jeff Foott / WWF

PRESERVING HABITATS

>4.7%
GRASSLAND
COVER
IN CHITWAN
NATIONAL PARK
HAS FALLEN
FROM 20%
TO 4.7%

Habitat destruction remains the other main threat to the rhino. Protected areas and buffer zones continue to suffer from human encroachment, and grazing by domestic livestock is causing serious damage in some localities.

Alien plant species are also invading some of the grasslands on which the rhinos depend, dominating and destroying the indigenous vegetation. In other areas, increasing forest cover has come at the expense of grassland habitats; elsewhere, beels (bodies of water used by rhinos) have become silted up.

The specific details vary across the different population centres, but the overall effects are clearly damaging. In Chitwan, for example, grassland has been reduced from 20 per cent to 4.7 per cent of the national park. Pobitora has seen woodland increase by almost 35 per cent since 1977, alongside a 68 per cent decline in alluvial grassland.

Unlike with poaching, where the discovery of a horn-less corpse is an unarguable indicator, it is hard to quantify the damage caused to rhino populations by habitat change and destruction. Many factors affect life expectancy, reproductive rates and so on, and need addressing in different ways – but detailed zoological studies show that there is a definite correlation between a decline in the quality of habitat and a threat to population numbers.

WWF and partners are working on a range of initiatives to protect and restore habitats across the subcontinent, tailored to local requirements. A key priority is to establish protected “corridors” between areas where rhinos are currently found, which would increase the range over which individual rhinos could pass, and lessen the likelihood of human-rhino conflict as they stray outside reserves. Allowing individuals to mix more widely would also strengthen the genetic diversity of the rhino population.

A number of upcoming infrastructure developments within the Terai Arc landscape – including the upcoming Indo-Nepal border road, and roads, railways and power lines on both sides of the border – also pose a threat to rhino habitats and corridors. WWF is working to ensure that new developments are sensitively planned to avoid negative impacts on habitats and connectivity.





CONSERVATION EFFORTS

A number of successful conservation initiatives have been launched in recent years. By building on these, we can bring rhino populations up to sustainable levels and extend their range.

IRV 2020 PLANS TO REINTRODUCE RHINOS TO DIBRU SAIKHOWA NATIONAL PARK AND LAOKHOWA AND BURACHAPORI WILDLIFE SANCTUARIES

INDIA: IRV 2020

Rhinos are making a comeback in several Indian states thanks to conservation efforts – most notably in Assam, home to 70 per cent of the greater one-horned rhino population. For the last 10 years, WWF has been working with the Assam Forest Department, the International Rhino Foundation and other partners on the Indian Rhino Vision 2020 (IRV 2020). This ambitious programme aims to increase the numbers of wild rhinos in Assam from 2,001 – the population at the time it was launched – to 3,000, spread across seven protected areas. This requires an annual population increase of around 3 per cent. So far, results have been very encouraging: by 2015 the rhino population in Assam had reached 2,626, well on track to meeting the 2020 goal.

The first three years of the programme involved extensive field work to improve protection for existing populations and areas where rhinos could be reintroduced. In April 2008, the first translocations took place from Pobitora Wildlife Sanctuary to Manas National Park. These were the first rhinos in Manas since the entire population had been killed by poachers during civil unrest in the late 20th century.

Further translocations to Manas followed, with more rhinos coming from Pobitora and also from Kaziranga. Progress has been encouraging. In the late summer of 2012 the first birth took place, and two more followed in 2013. The creation of new breeding populations can rejuvenate gene pools, increase rhino numbers and help to guard against poaching and disease.

Sadly, new populations face the same threats as old ones, and six of the new rhinos were poached in Manas from October 2011 to October 2013. However, the reintroduced rhino population in Manas is now well established, currently numbering 32, and breeding successfully. This can be considered a major conservation success.

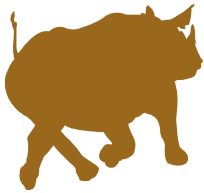
Plans are also being made under IRV 2020 to reintroduce rhinos through translocation to Dibru-Saikhowa National Park and Laokhowa and Burachapori wildlife sanctuaries.

IRV 2020 also aims to improve security in rhino-bearing areas. The use of drones for surveillance was first tested in Kaziranga National Park. To improve protection measures in Manas National Park, rangers now use SMART patrolling, employing digital technology to transmit real-time information from the field. Initial results have been encouraging.

WWF-India's rhino conservation priorities

1. Adopt a national strategy for rhino conservation.
2. Allocate specific funds for conservation and protection for rhino-bearing protected areas.
3. Adopt a regional RhODIS® (Rhino DNA Index System) laboratory in India to strengthen global enforcement for rhino protection.

800KM
NEPAL'S RHINOS
ALL LIVE IN THE
TERAI ARC
LANDSCAPE, AN
800KM STRETCH
OF TERRITORY
COVERING SOME
5 MILLION
HECTARES ACROSS
INDIA AND NEPAL



NEPAL: CONSERVATION ACTION PLAN

Nepal also has a government-backed Conservation Action Plan in place to safeguard the rhino. This has a number of aspects – translocations, anti-poaching measures, and broader community development and habitat protection – which are being supported by a range of partners and stakeholders including WWF-Nepal. A total population of 800 animals is the target. The latest census in 2015 put the country's rhino population at 645, an increase of more than 20 per cent since 2011.

Chitwan National Park is the main population centre. From 1986 to 2003, 87 rhinos were translocated from Chitwan to Bardia National Park (83) and Suklaphanta Wildlife Reserve (4). Translocated rhinos have successfully bred in Bardia, and a self-sustaining population is developing – the goal is for this to grow to 100. Numbers remain small in Suklaphanta, but it is seen as a potential third population centre.

The fight against poaching has been stepped up following a surge in incidents during the recent Maoist insurgency. Increased resources are being mobilized, along with a greater emphasis on working with local communities to gain intelligence of poaching activities. In 2012, WWF tested one of the world's first conservation drones in Chitwan National Park – a small unmanned plane that can monitor animals and illegal activities in remote areas – and has also helped introduce innovations such as sniffer dogs and smartphone apps to improve patrolling.

Nepal's rhinos all live in the Terai Arc landscape, an 800km stretch of territory covering some 5 million hectares across India and Nepal. Comprising rivers, wetlands, plains and the foothills of the Himalayas, it contains a huge array of ecosystems and endangered species. But it also has a fast-growing human population of some 6.7 million people on the Nepali side, many of whom live in extreme poverty; natural ecosystems are under great pressure as people try to make whatever use they can of the resources around them.

WWF is actively involved in the Terai Arc landscape in Nepal, working with local communities to implement long-term sustainable development plans. These are bringing great benefits to local people, while also driving a reduction in the activities that have previously been most damaging to wildlife in the area.

WWF-Nepal's rhino conservation priorities

1. Build a second viable population of rhinos in western Terai Arc Landscape, Nepal (Bardia National Park and Suklaphanta Wildlife Reserve) through translocation.
2. Attain a national rhino population of 800.
3. Maintain 365 days of zero poaching of rhinos in Nepal.



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Expanding the rhino's range through translocation is a key component of WWF's rhino conservation plan

WWF ASIAN RHINO AND ELEPHANT ACTION STRATEGY (AREAS)

Maintaining isolated pockets of populations in wildlife reserves is not enough. Long-term conservation of endangered large mammals needs a landscape-based approach: rhinos need to be able to move safely between protected areas, without coming into conflict with human activity. This means creating and maintaining forest corridors, and making sure land uses in the surrounding areas are sustainably planned and managed.

AREAS guides all WWF's work on rhinos and elephants in Asia. It's an ambitious programme which combines cutting-edge conservation biology with trade monitoring, socio-economic analysis and policy advocacy. Working closely with rhino populations in the field, AREAS protects and restores habitats, runs translocation programmes, and spearheads anti-poaching initiatives. It's also deeply involved with community development, giving people in surrounding areas the support they need to implement long-term sustainable strategies for agriculture, forestry and other forms of land use.

With proper planning and resources, a sustainable balance can be struck between human and animal needs, which is an essential requirement in ongoing efforts to conserve rhino numbers and restore the species to its historic range: AREAS provides a focus for this long-term vision. Specific objectives and strategies for protecting the greater one-horned rhino are shown in the table opposite. Achieving these objectives will cost around US\$1 million a year.

WWF'S GREATER ONE-HORNED RHINO CONSERVATION PLAN: 2020 GOAL

By 2020, greater one-horned rhinos will increase to 4,000 in India, Nepal and Bhutan, resulting in the removal of the species from the IUCN Red List of threatened species.

Objective 1

Protect existing rhino populations in seven protected areas in India, Nepal and Bhutan through improved anti-poaching efforts



The seven protected areas are Kaziranga, Orang and Dudhwa national parks and Pobitora Wildlife Sanctuary (India); Manas National Park (India)/Royal Manas National Park (Bhutan); Chitwan National Park and Suklaphanta Wildlife Reserve (Nepal).

Strategy A

Improve the management of protected areas by equipping and training rangers to use law enforcement monitoring protocols like SMART and MSTRIPES, which help rangers identify and address gaps in park security.

Strategy B

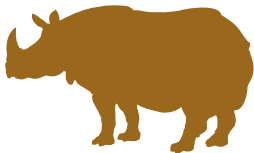
Strengthen anti-poaching efforts by deploying and training rangers to use new tools such as conservation drones, sniffer dogs, gun-shot detectors and movement-sensing cameras.

Strategy C

Strengthen and expand existing informer networks to collect intelligence on poachers and prevent rhinos from being killed.

Objective 2

Identify and secure new potential rhino habitat areas



Strategy A

Implement immediate security measures in Burachapori-Laokhowa Wildlife Sanctuary (Assam, India) and Babai Valley (Bardia National Park, Nepal) so the areas are able to receive and protect translocated rhinos, including constructing new guard posts, increasing the number of patrol staff and improving law enforcement and technical skills (in line with the strategies listed above).

Strategy B

Investigate the feasibility of reintroducing rhinos to Dibru Saikhowa National Park (Assam, India), D'Ering Wildlife Sanctuary (Arunachal Pradesh, India), Katerniaghat Wildlife Sanctuary and Pilibhit Tiger Reserve (Uttar Pradesh, India) and Buxa Tiger Reserve (West Bengal, India).

Objective 3

Create two new populations and expand two existing smaller populations through translocation



Strategy A

Translocate 50 rhinos from Nepal's Chitwan National Park to Babai Valley in Bardia National Park to create a new population of rhinos in Nepal.

Strategy B

Translocate 20 rhinos from India's Kaziranga National Park to Burachapori-Laokhowa Wildlife Sanctuary to create a new population.

Strategy C

Translocate 20 rhinos to Manas National Park, a transboundary protected area shared by Bhutan and India, to a new rhino rehabilitation area within Dudhwa National Park (Uttar Pradesh, India), and to Nepal's Suklaphanta Wildlife Reserve to strengthen existing small populations.

Objective 4

Ensure community stewardship for rhino conservation – communities become the rhino's best friend



Strategy A

Create incentives for communities to support rhino conservation initiatives, such as rhino-linked tourism and other livelihood development projects.

Strategy B

Strengthen capacity of local community institutions, including anti-poaching networks. Build awareness of rhino conservation among students, for example through exchange visits.

Strategy C

Minimize human–rhino conflict in buffer zones around protected areas.



Women cross a river on their way to work in Bardia, Nepal. Translocated rhinos have successfully bred in Bardia National Park, raising hopes that a permanent population can be established.

WWF LIVING HIMALAYAS INITIATIVE (LHI)

The Himalayas is one of the most diverse regions on Earth, home to an enormous range of wildlife across hugely different environments. From snow-capped peaks to lowland jungles, the biodiversity is enormous – and so are the conservation challenges.

Both people and wildlife depend on the resources of the Himalayas, but as human populations have increased these resources are being used faster than they can be replenished. Forests are becoming fragmented and wild spaces are decreasing, causing serious problems for wildlife. The rhino has suffered along with other endangered species.

For some 50 years WWF has been actively involved in the region, working to protect species and habitats and promote sustainable development. LHI aims to protect, restore and reconnect natural landscapes across the Eastern Himalayas, allowing plant and animal species to thrive while local communities improve their livelihoods through sustainable use of natural resources. Governments, communities and industries in India, Nepal and Bhutan are all important stakeholders in the plan.

Rhinos are an important flagship species for the LHI – because by protecting rhinos, we can protect much more besides. The future of rhinos depends on well-managed, well-connected protected areas that are secure from poaching and encroachment. This benefits a host of other species, especially tigers and their prey. It also ensures that ecosystems remain healthy and resilient, and continue to deliver vital services like water provision, erosion control and flood prevention.

Ultimately, the aim is to secure 7 million hectares of forests, grasslands and wetlands across the region, producing “a harmonious mosaic of healthy, vibrant landscapes providing plentiful resources for people while giving wildlife space and securing the ecological and cultural treasures of the Himalayas”.

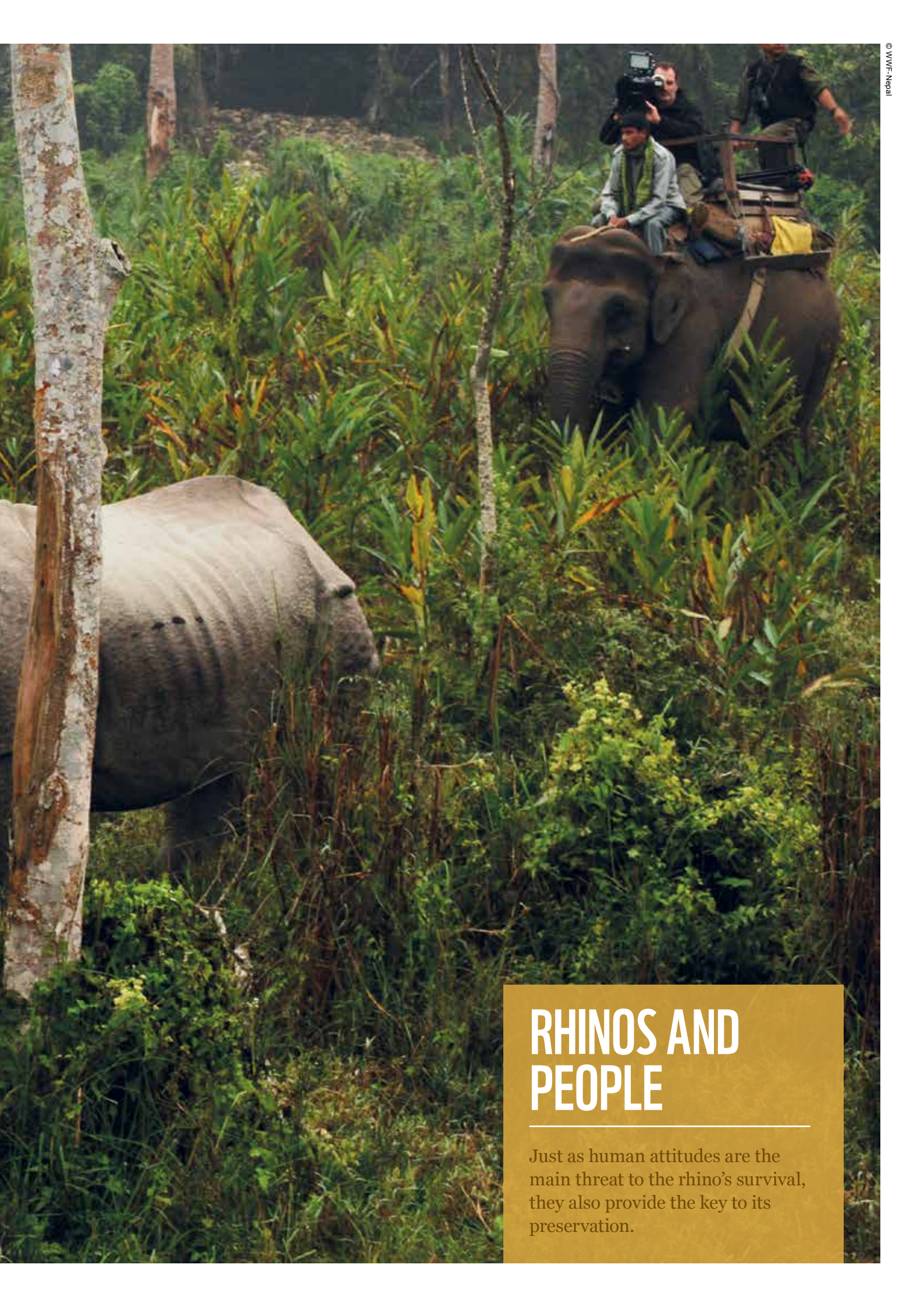
Tigers Alive Initiative

Rhino ranges overlap significantly with those of tigers and Asian elephants, creating important synergies for conservation. Many key rhino strongholds are also important tiger habitats: Kaziranga, for example, has the highest tiger density of any protected area in the world, while Manas and Chitwan national parks are also important for both species. Through its Tigers Alive Initiative, WWF is working with tiger-range states including India and Nepal to double tiger numbers by 2022, the next year of the tiger in the Chinese calendar. This is creating significant opportunities to strengthen protected areas and corridors, clamp down on poaching and support sustainable livelihoods for neighbouring communities – to the benefit of tigers, rhinos, elephants and many other species.



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RHINOS AND PEOPLE

Just as human attitudes are the main threat to the rhino's survival, they also provide the key to its preservation.

**LOCAL PEOPLE
BENEFIT
DIRECTLY
FROM RHINO
CONSERVATION
THROUGH
ECO-TOURISM
AND
COMMUNITY
DEVELOPMENT
SCHEMES**

Communities closest to rhino population centres are absolutely crucial to conservation efforts. Rhinos can bring lasting prosperity to regions in which they're present, directly through eco-tourism and indirectly through community development schemes – so rhino conservation is in everybody's interests.

Tourism must remain carefully controlled so as not to harm the very wildlife that attracts the tourists in the first place. But when this is effectively handled, the revenue generated makes a massive difference: park areas put the majority of their income back into local communities, with a view to sustaining a long-term balance between the needs of local people and the health of the parks themselves. Local people can benefit directly through initiatives such as homestays and selling crafts to tourists.

As far as local people are concerned, there are two priorities: to spread understanding about the importance of conservation and the benefits rhinos can bring, and to help communities develop in economic and social terms so they don't need to engage in activities that damage the ecosystems around them.

WWF works with various partners to implement development plans village by village, according to their different needs. Some directly address current causes of human-rhino conflict – such as helping farmers switch to growing crops that rhinos won't damage, like mint, ginger and black dal, which can also provide a useful extra income. Fodder grass and other commercial crops are now increasingly being grown in fallow and uncultivated areas of villages rather than further into buffer zones.

We're also supporting alternative economic activities, from raising chickens and pigs to aquaculture and weaving cooperatives. As well as taking pressure off surrounding habitats, these new initiatives are making an important contribution to living standards and social development around the national parks. Traditional cultural activities have also been promoted, providing a further attraction for tourists who come to view wildlife in the national parks.

As well as improving living standards, these initiatives provide much-needed employment for many local people. Villagers also frequently find employment in the parks themselves, whether working with tourists or alongside frontline staff on anti-poaching duties. The community plays a wider role in fighting poaching, with networks of local informers passing on information and intelligence about illegal activities. Community engagement has been a key factor in achieving zero poaching in Chitwan National Park.

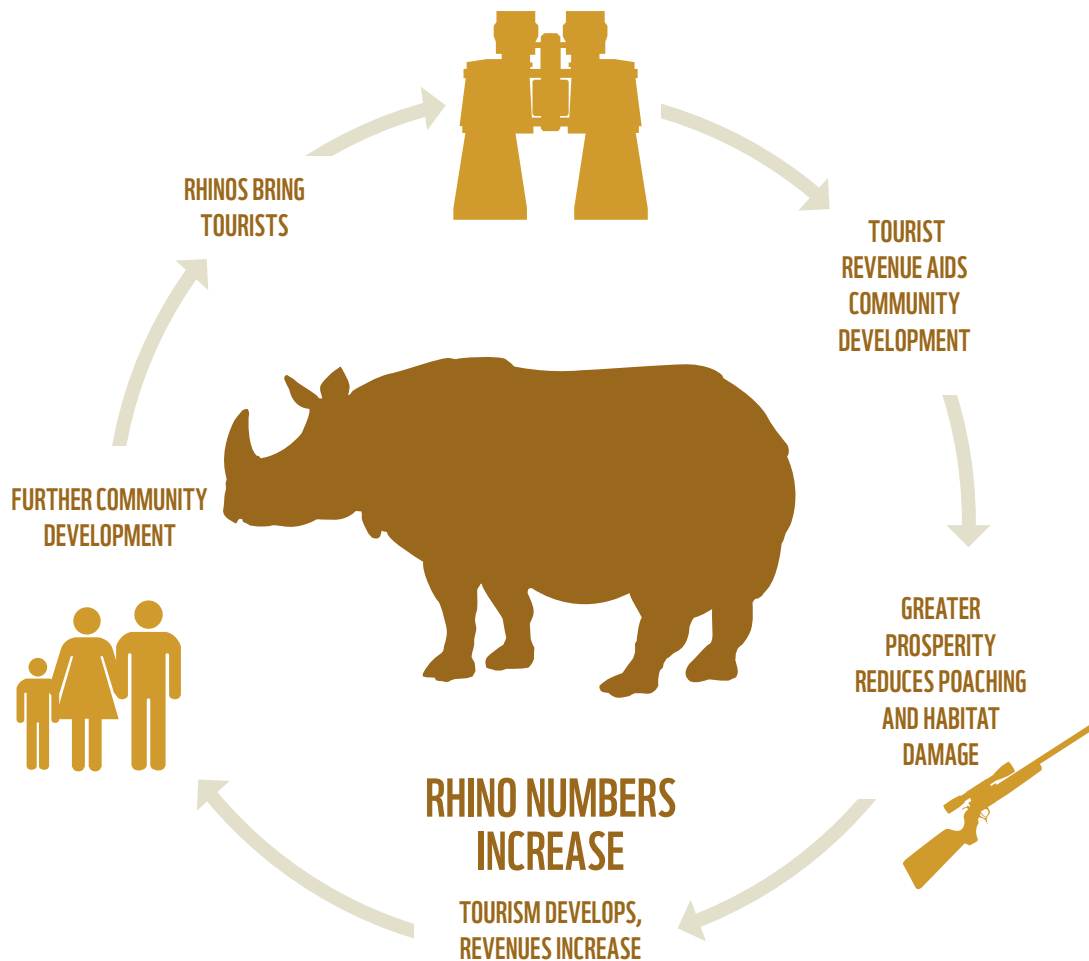
Education and awareness

WWF is one of many organizations active in running awareness and education programmes in and around the areas where rhinos are found. These are carefully targeted, focusing both on young people directly and on key educators who can then pass on the messages far more widely. They use a variety of engaging methods – from maths and science activities to drawing and drama.

Other ways of getting communities together have also seen success, despite having no immediate link to rhinos: organizing a cricket tournament, for example, provides an opportunity to engage with hundreds of people. Participants across all these activities tend to be enthusiastic, and education is having excellent results. A generation of rhino-lovers is now growing up around the sanctuaries.

A VIRTUOUS CIRCLE

RHINO CONSERVATION SUPPORTS COMMUNITY DEVELOPMENT WHICH SUPPORTS RHINO CONSERVATION



DEVELOPMENT STRATEGIES



Education – changing attitudes and offering new opportunities to the next generation



Alternative crops such as mint and black dal – reducing human-rhino conflict and increasing incomes



Alternative food sources such as aquaculture, hens and livestock – reducing human-rhino conflict, enhancing food security and making livelihoods more resilient



Wildlife-friendly infrastructure – stimulating development and jobs while minimizing impacts on rhinos and other species



Traditional crafts such as weaving and cultural displays – attracting tourism and raising revenue



Renewable energy – reducing habitat degradation while enhancing well-being and providing development opportunities



Microfinance schemes such as savings and loans – supporting business development, incomes and community resilience

THE FUTURE

Expanding rhino conservation will benefit range countries and local communities



**US\$2.5
MILLION**

**REVENUE FROM
ENTRY FEES IN
CHITWAN NATIONAL
PARK, 2013-14**

The greater one-horned rhino's rich history and iconic status nationally and internationally make it a powerful symbol for conservation. With many successful projects to build on, a thriving future for rhinos should be a priority for the Himalayan region. Saving the rhino also provides a focus for conserving its endangered grassland habitat: the grasslands where one-horned rhinos are found are the tallest in the world, and home to a wide diversity of species.

Rhino conservation can help to strengthen local and national economies through tourism and sustainable development initiatives. Chitwan National Park in Nepal welcomed 173,000 visitors in 2013-14, generating revenue of 246.8 million rupees (US\$2.5 million) in entry fees alone – half of which is reinvested in buffer zone communities. Since rhinos were reintroduced to Manas National Park in 2008, tourism has grown rapidly and land values have shot up. As rhino numbers increase and populations are re-established in new areas, new opportunities – and new challenges – will develop.

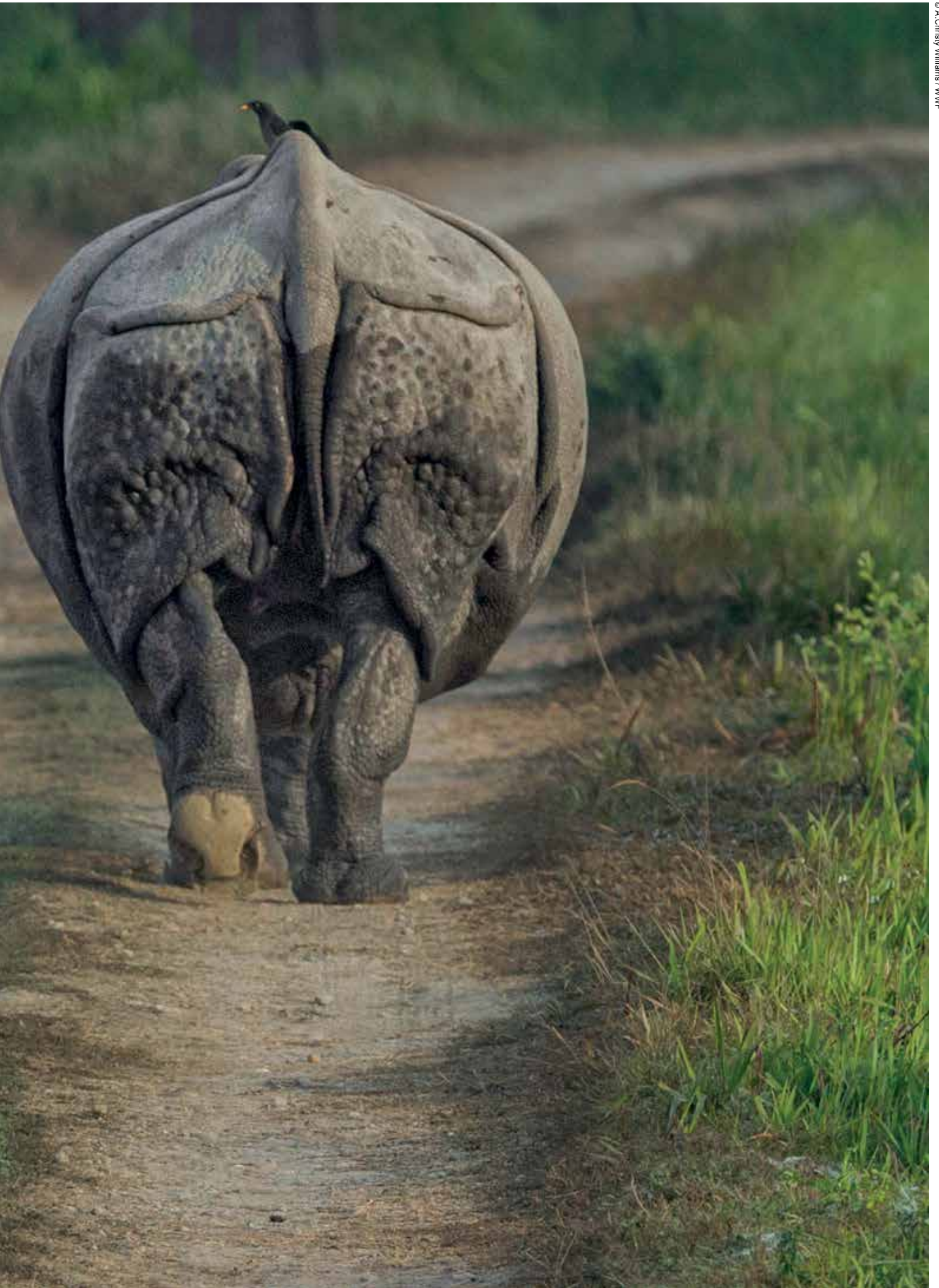
But for rhino conservation and the community development it enables to be successful, strong support is needed from governments and communities themselves. Long-term funding is also essential.



© A. Christy Williams / WWF

Rhino conservation can help to strengthen local and national economies through tourism and sustainable development initiatives.





100%
RECYCLED



Greater one-horned rhinos in numbers

<200

By 1900, fewer than 200 greater one-horned rhinos remained in the wild

3,500

Greater one-horned rhino numbers have increased to 3,500



10

Greater one-horned rhinos survive in just 10 protected areas

70%

Almost 70 per cent of all greater one-horned rhinos live in Kaziranga National Park, India



Why we are here

To stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature.

panda.org