

## The Historical Range of the Greater One-Horned Rhinoceros *Rhinoceros unicornis* in South Asia

### 65.1 The Historical Distribution of *Rhinoceros unicornis*

The Greater One-Horned Rhinoceros is only found in South Asia. Their distribution in the past is different from their occurrence in the wild at present. In the available maps of former range, their presence is usually depicted in a wide belt along the southern edge of the Himalayas from the northern part of Pakistan eastwards, along the valley of the Ganges to the eastern extremity of the valley of the Brahmaputra in Assam. At present, rhinos have disappeared from large parts of these regions, being confined to seven national parks in India and three in Nepal (fig. 1.4).

The monumental difference in the former and present ranges of the rhinoceros in South Asia may be well-known in this general format, but has remained tentative in many details. Clearly the maps represent a generous and

perhaps optimistic view that rhinos occurred in each and every locality in this wide region. It does not need to be explained that this is not the case. There were no wild rhinos in the streets of Delhi or Patna in the 19th century, farmers had excluded most wildlife from their farms in Bihar or Uttar Pradesh, the rhino only occurred where the habitat provided them with shelter, food and water. Beyond these clear exclusions, the borders of the range, even if dynamic, should be established accurately in every direction.

The limits of the historical range are shown either too generous or too restricted in most available maps. The historical detail is either obscure or is lost in the wider context. The northern limit may be too far into the higher mountains of Nepal, Darjeeling and Bhutan. The western limit fails to account for some of the records which it tries to incorporate. The eastern limit across the border into Myanmar based on horns obtained in Singpho is



FIGURE 65.1 A group of *R. unicornis* stranded on small islands during annual floods of the Brahmaputra River in Assam, India  
PHOTO: DEBABRATA PHUKON, 2017

unlikely to be correct. The southern limit remains to be established almost everywhere across continental India. Although this may sound like a condemnation of the decisions taken by past researchers, it is actually the opposite. Records are hidden in many elusive corners, their interpretation is rarely straightforward, the time-scale is cumbersome.

The current project was designed to address these questions by examining as many relevant sources about the occurrence of the rhinoceros as possible. There are thousands of data listed in the chapters of this book. Some were obvious, others brought surprising insights. As the sources are diverse, in time, in reliability, in kind, in almost every aspect possible, it is necessary to look at their potential relevance to this enquiry. The use of the various types of sources is explored in 1.2.

### 65.2 Definition of Historical Distribution

Although the term 'historical distribution' is widely used in conservation literature, historical may mean any period of time before the present. The actual timeframe clearly depends on the availability of sources, which for instance might go back to the 17th century in southern Africa and to the 19th century in eastern Africa. The general principle is that if a species is observed in a certain place once, it also occurred there in earlier times. It is logical to assume that most observations are limited to the age of printing, from the 16th century onwards. In practice, most descriptions of historical distribution show the status in the 19th or early 20th century, because in almost all cases earlier reports are very patchy, and to zoologists hard to access or to interpret. In their detailed and careful survey of mammalian distribution in South Africa, Boshoff & Kerley (2013: 23) have chosen the period 1820s–1920s to be represented on their maps.

In the South Asian context, this is too restrictive. There are definitely earlier sources which cannot be excluded arbitrarily, like the writings of the Mughal Emperors from the 16th century onwards or the wall paintings of Rajasthan of the 17th and 18th centuries. The definition of 'historical' needs reasonable flexibility. Rhinos were always found in suitable habitats of Assam and North Bengal, but the earliest definite records date from 1755 and 1768. This is a combination of poor accessibility of the regions and absence of written or other sources.

For these reasons, the historical range of *R. unicornis* in South Asia is defined as a set of localities where it occurred from 1500 onwards and slowly merging with the current range by the middle of the 20th century.

### 65.3 Protohistorical Distribution of *R. unicornis*

The definition of historical distribution to include records from 1500 onwards eliminates several large and defined sets of earlier evidence. The rhinoceros is clearly depicted in the petroglyphs of central India. There are archaeological finds representing rhinos, like those of the Harappan civilisation in Pakistan and western India. This evidence needs to be incorporated into our interpretations, but would extend the usual understanding of the historical distribution in zoological terms too far back in time.

Hence these earliest records are added as the "protohistorical distribution", defined as the possible range of the rhinoceros during the Holocene, which started 11,700 years before present. This excludes the fossil occurrences of the Pleistocene and earlier, which remains the realm of palaeontologists.

### 65.4 Mapping the Distribution of *R. unicornis*

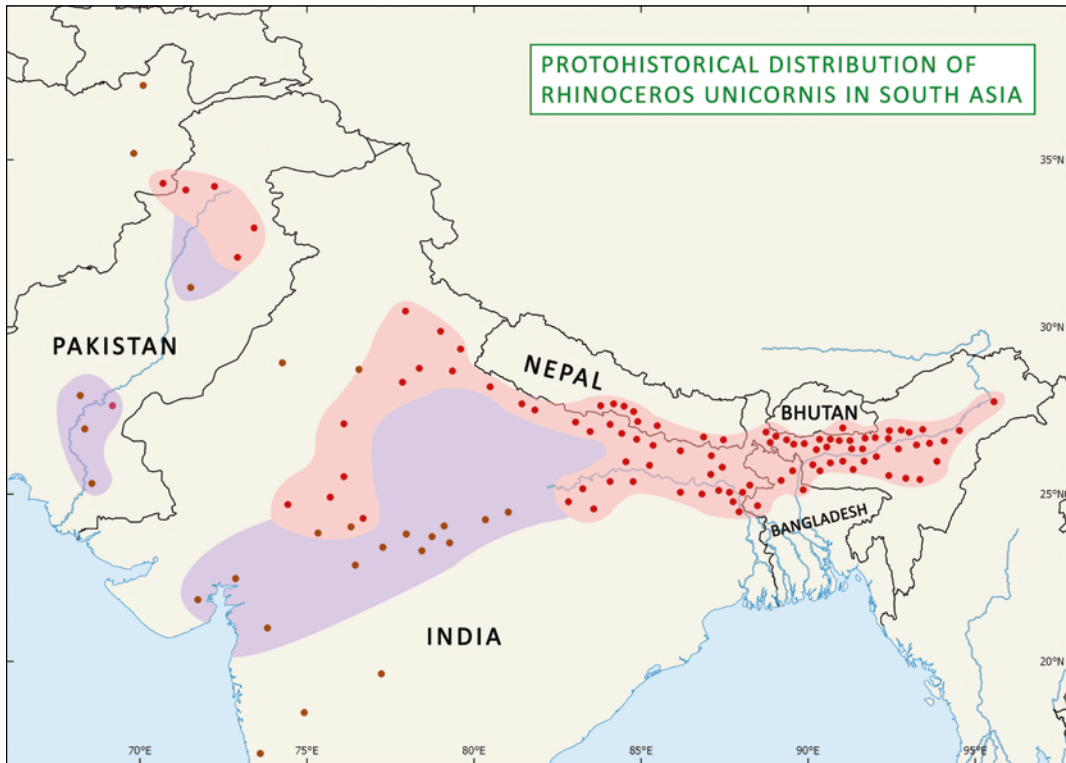
The distribution of *R. unicornis* is reconstructed in two separate maps, one for the protohistorical distribution (map 65.35), the other for the historical period (map 65.36). These show two complementary sets of records, in the west including Afghanistan and Pakistan, towards the east in India, Nepal, Bangladesh with strays in Bhutan. The maps follow the evidence set out in detail in Section 1 of this book as accurately as possible. The following justification for each region draws attention to some special features.

#### *Afghanistan*

The mountainous landscape and dry habitat of Afghanistan appear unsuitable to a rhino. Yet there are three records: one of a possible sighting in the 16th century and two artefacts. The large carved rhino sculpture at Rag-i-Bibi dated to the 3rd century is especially powerful. None allow to actual identification of the species. The two early artefacts belong to the protohistorical period, while the sighting by Babur in the 16th century is in a rather unusual locality.

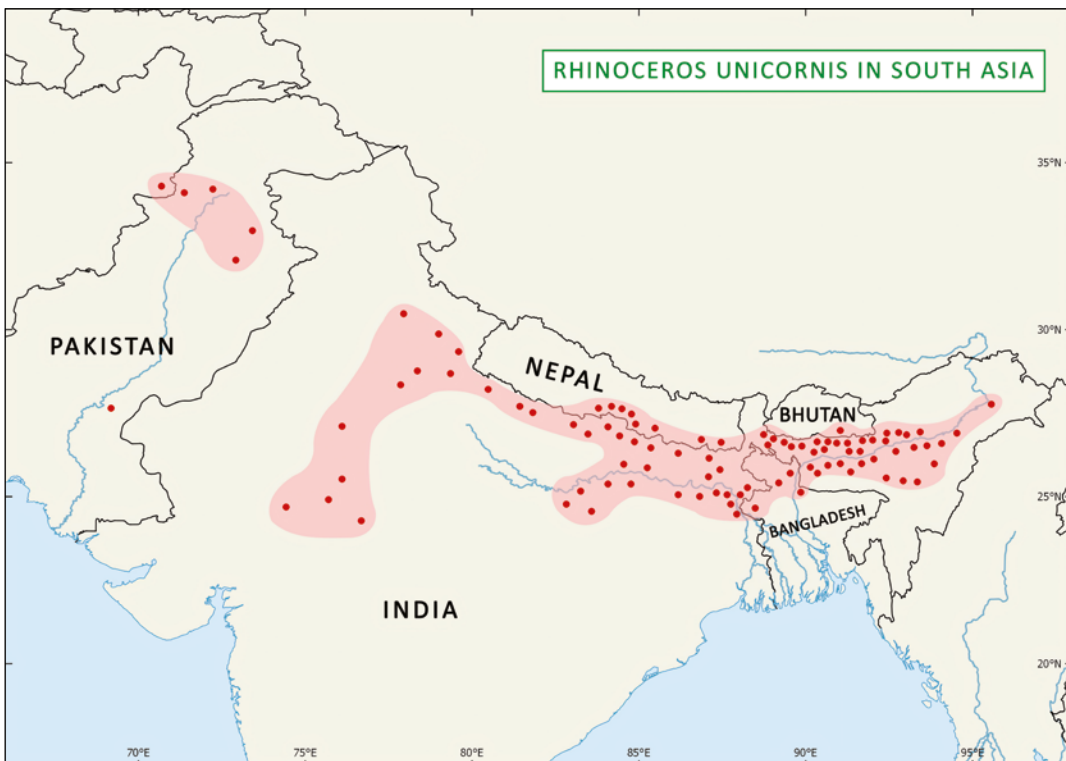
#### *Southern Pakistan*

Artefacts with rhinos are known from Harappa, Mohenjo-Daro and other settlements of the Harappan civilisation, which belong to the protohistorical period. There is a single sighting of 1333 in an isolated locality. These all may point at the existence of an early rhino population in the valley of the Indus River.



MAP 65.35 Map showing the Protohistorical Distribution of *Rhinoceros unicornis*. The three regions in purple represent known records of the early period from the start of the Holocene (11,700 years before present). The two regions in light red represent historical records from 1500 CE, identical to map 65-36. This excludes the fossil occurrences of the Pleistocene and earlier epochs

MAP DESIGN BY AJAY KARTHICK AND RICHARD KEES. © KEES ROOKMAAKER



MAP 65.36 Map showing the Historical Distribution of *Rhinoceros unicornis*. This incorporates records from around 1500 CE. The single record in South Pakistan on the Indus dates from 1333

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TABLE 65.72 First and last records of *R. unicornis* in the Rhino regions of South Asia

Rhino Region	Area	Protected area	Neolithic rock art	<i>R. unicornis</i>			Species <sup>a</sup>
				Earliest artefact	Earliest record	Last record	
RR 01	Afghanistan			200	1556	1556	RU
RR 02	Pakistan			< 2000	1333	1525	RU
RR 03	Rajasthan		Present		1600	1850	RU
RR 04	Gujarat		Present				
RR 04	Maharashtra		Present				
RR 07	Madhya Pradesh		Present	< 700	1695	1695	RU
RR 08	NW India				1387	1387	RU
RR 09	Uttarakhand			1200	1755	1878	RU
RR 10	Uttar Pradesh S	Dudhwa		< 400	1017	reintroduction	(RU)
RR 11	Uttar Pradesh NW				1341	1876	RU
RR 12	Uttar Pradesh NE				1525	1933	RU
RR 13	Nepal West	Suklaphanta Bardia			nil	reintroduction	(RU)
RR 14	Nepal Centre	Chitwan			1750	current	RU
RR 15	Nepal East				1797	1995	RU
RR 16	Bihar 1 SW			100	1766	1766	RU
RR 17	Bihar 2 S			300 BCE	1632	1893	RU
RR 18	Bihar 3 NW				1665	current	RU
RR 19	Bihar 4 NE				1632	1959	RU
RR 20	Jharkhand			1650	1788	1860	RU
RR 21	Bengal Central			1700	1806	1876	RU
RR 22	Bangladesh NE			1000	1609	1886	RU
RR 23	Bangladesh NW				1640	1886	RU
RR 24	North Bengal 1	Gorumara			1869	current	RU, SON
RR 25	North Bengal 2	Jaldapara			1800	current	RU, SON
RR 26	North Bengal 3				1785	1904	RU, SON, SUM
RR 27	Bhutan	Royal Manas			(1934)	(2007)	(RU)
RR 28	Arunachal W				(1952)	(2007)	(RU)
RR 28	Arunachal E				1955	1955	RU, SUM
RR 29	Meghalaya			1600	1837	1898	RU
RR 30	Assam NW				1864	1919	RU, SUM
RR 31	Assam SW				1755	1894	RU, SUM
RR 32	Assam N	Manas			1815	reintroduction	RU
RR 33	Assam N	Sonai Rupai Orang			1836	current	RU
RR 34	Assam S	Pabitora Laokhowa Kaziranga			1755	current	RU
RR 35	Assam S (Lower)			1850s	1856	1897	RU
RR 36	Assam NE			1600	1756	1886	RU
RR 37	Assam SE				1893	1917, strays	RU
Rhino Region	Area	Protected area	Rock Art	Earliest Artefact	Earliest Record	Last Record	

a RU = *Rhinoceros unicornis*. SON = *Rhinoceros sondaicus*. SUM = *Dicerorhinus sumatrensis*. < = previous to date. Abbreviations enclosed in brackets refer to potentially introduced or stray populations.

### *Northern Pakistan*

The records for this region date from the times of the Mughal Emperors in the 16th century. Some are far closer to the Afghan border than shown on existing maps of rhino distribution. The reports about rhino hunts of Babur are generally accepted, even though they are in places where no rhinos have been seen before or after. When rhinos were depicted in the manuscripts relating to these accounts, these did not represent contemporary knowledge which could have been corrected as they were made at least half a century later. The possibility of mistranslation finds little resonance with experts of the history and language of the period. This section of the range is kept as a separate unit due to the absence of records which could link it with occurrences further to the east.

### *North-West India*

There are no reports of rhinos from Northern Pakistan eastwards to Himachal Pradesh (13.2). While this might be a consequence of patchy historical writings, it could also be a true state of affairs. The gap shown in the map will focus attention which will hopefully lead to a solution to this phenomenon.

### *Himachal Pradesh and Uttarakhand*

Nestled at the foot of the western Himalayas, rhinos existed here in the foothills. The sighting by Thomas and William Daniell at Kotdwara in 1789 is an iconic early record accompanied by a sketch prepared on the spot. The western extremity is located in the Sirmaur Hills, close to the localities where many of the Siwaliks fossils were unearthed in the 1830s.

### *Gujarat and Maharashtra*

On the basis of three artefacts associated with Harappan settlements in Gujarat and Maharashtra, the proto-historical distribution is extended to the Arabian Sea. This is largely the valley of the Narmada River which also sustained rhino populations further upstream.

### *Rajasthan and Madhya Pradesh*

The extension of the range to include the eastern part of Rajasthan and Raghogarh in Madhya Pradesh is entirely based on the art work of local artists from the 16th to early 19th centuries. Although these must all be classed as artefacts, their sheer abundance and accuracy of portrayal must lead to the conclusion that rhinos existed in the region. This seems counterintuitive given the relative aridity of the western part of India. The evidence is strong that the rhino was indeed hunted by the rulers of Rajasthan in whose palaces the murals are located. In

theory the hunting parties could have traveled further northwards, in reality there is no evidence which supports this. It would be better if the artistic representations had been reflected in hunting diaries or some other kind of written testimony. On the other hand, real rhinos easily identified in drawings or paintings cannot be ignored. The area is traversed by the Chambal River which still supports forests along its banks. Even today the Ranthambore and Keoladeo (Bharatpur) reserves have the right habitat for wild mammals and birds. Therefore the possibility of the presence of rhinos in southern and eastern Rajasthan must be approached with an open mind. The existence of the wall paintings in the palaces of Kota and other towns is discussed here by Joachim Bautze (chapter 15) for the first time in a zoological work.

### *South-West Nepal*

There are no records for this western part of Nepal. Wedged between Uttar Pradesh and the higher Himalayas, this absence might merely reflect a lack of travellers when the country remained off-limits. After the translocations of rhinos to Suklaphanta and Bardia in this region, the dynamic has forever changed.

### *Central and South-East Nepal*

The rhino populations remained restricted to the *terai* region of low hills and river valleys south of the higher mountains. The central area of Chitwan has always been a famous stronghold. The Kings and Maharajas of Nepal hunted here during the 19th and 20th centuries. They hosted the British royal family in 1876, 1911, 1921 and 1961.

### *Uttar Pradesh and Bihar*

These two states had significant rhino populations between the borders of Nepal and the Ganges River. South of the river in Uttar Pradesh, there is only one record for 1529. Further eastwards in Bihar these become more common. The track found at Rohtas on the Sone River in 1769 points at a rhino population in the southern part of the region.

### *Rajmahal Hills*

This region, recently included in the state of Jharkhand, was known as a hunting location from early times. Traffic passing on the Ganges could see the hills. Rhinos were regularly mentioned and might have been restricted to some lower areas along the river banks.

### *From Bihar to North Bengal*

Rhinos were rarely recorded in this administratively divided region, which is wedged between more attractive

wilderness areas in Purnia and North Bengal. The reliefs depicting rhinos in the terracotta temples could resonate the presence of rhinos until the 19th century.

#### *North Bengal*

This northern part of West Bengal is prime rhino habitat. This is reflected in the large numbers of records in the *terai* towards the north. The Maharaja of Cooch Behar organized annual shooting camps from 1871 to 1911 hosting scores of international aristocrats and distinguished army officers. Although wildlife is now restricted to national parks, this remains an important stronghold of the rhino.

#### *Bhutan*

The only records of rhinos in Bhutan pertain to strays from the south.

#### *Arunachal Pradesh*

There is no indication that there was a permanent rhino population in Arunachal Pradesh except *D. sumatrensis* at the eastern extremity towards Nagaland and Myanmar.

#### *Meghalaya*

Rhinos were relatively rare in this hilly region and may have been restricted to northern parts bordering on the valley of the Brahmaputra River.

#### *West and Central Assam*

The rhino was regularly encountered in many wilderness areas of Assam both north and south of the Brahmaputra River. The expansion of settlement and agriculture from west to east is reflected in the dates of encounters with rhinos. Wildlife has become limited to national parks of which today Kaziranga is the most important rhino habitat. Assam remains prime Rhino Country.

#### *East Assam*

Records become sparse at the upper reaches of the Brahmaputra River. Rhinos were only found in the lower lying valleys. In my view, it is highly unlikely that *R. unicornis* ever penetrated in the higher hills towards

Myanmar, which were elsewhere locally inhabited by *D. sumatrensis*.

### 65.5 The Road to Extinction and Successful Conservation

For a long time in the historical period, the strongholds of rhinos were in south-central Nepal, in North Bengal and in Assam. Elsewhere *R. unicornis* was largely exterminated by the 1930s (table 65.72). The creation of national parks has been an indispensable lifeline without which few might have survived in the wild. The extinction elsewhere is often blamed on sports hunting by foreign personnel and the wealthy Maharajas and their guests. While this was a contributing factor, the success of the population in Chitwan shows that the effects of hunting can be exaggerated. Yet rhinos disappeared from large parts of their range, through a combination of poaching, urban expansion, increased agriculture, development of indigo and tea plantations, political unrest, and changes in habitat which left no room for a mighty herbivore like the rhino.

The establishment of game sanctuaries and national parks made a careful start early in the 20th century and has gained momentum ever since. Sports hunting has declined with changing attitudes about the value of wildlife, while poaching of rhinos for their horns remains a constant threat. The engagement of the respective governments as well as a series of environmental agencies is exemplary. The rhino is indeed a symbol of nature conservation and of love for the wilderness across South Asia.

### 65.6 New Maps of the Historical Distribution of *Rhinoceros unicornis* in South Asia

The evidence collated in previous chapters leads to a new representation of the protohistorical range of *R. unicornis* (previous to 1500 CE) shown in map 65.35.

The more recent (since 1500 CE) historical distribution of *R. unicornis* in South Asia is represented in the new synthesis in map 65.36.