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The Archaeology of Great One-horned Indian Rhinoceros (*Rhinoceros Unicornis* Linnaeus 1758)

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Abstract—***Ancient, armoured and formidable, the great one-horned Indian rhinoceros is India's one of the most endangered species of ungulates whose history can be traced back to the Tertiary times when its ancestors immigrated into the Indian sub-continent from the Central Asia. Represented by very primitive forms of great dimensions in the Neogene- early Quaternary, very little has changed ever since in the anatomy of the animal. The paper presents a brief review of fossil and archaeological record including the prehistoric rock paintings of the species and its ecology, and also refers to its mention in ancient Sanskrit texts as a sacred animal as well as the folklores that signify the prowess and might of the animal.***

INTRODUCTION

Vedic *'Parasvat'* or '*khadga*', as commonly referred to in Ancient Indian literature, the Great One-horned Indian Rhinoceros, *Rhinoceros unicornis* Linnaeus 1758, is a second largest land mammal in India and the fourth largest in the world. Today geographically it is confined to the Terai region of Nepal, North Bengal and Assam in India. Other cousins of rhinoceros live far away across the subcontinent in Africa or in South-East Asia that have different names owing to their anatomy and taxonomy. White or Square-lipped Rhinoceros (*Ceratotherium simun*) and Black Rhinoceros (*Diceros bicornis*) belong to Africa while Two-horned Sumatran (*Dicerorhinus sumatrensis*), Lesser One-horned Javan (*Rhinoceros sondaicus*) and the Great Indian One-horned are other representatives of the 'extended family' of rhinoceros in Asia today. The word rhinoceros has Greek origins (*rhis* = nose and *keros* = horn), literally meaning the creature with a horn on its nose. It is not a true horn but a core of bone with a sheath of keratin mass covering it all over. As a result, it is not fused to the skull in any way but resting epidermally on a bony cushion. It can be dislodged with a severe blow and a new may emerge in its former location. Since it is not a bone, after the death of the individual it degenerates and thus the skulls of rhinoceros do not have horns on their nasal bone. The single horn it bears on the nasal bone has an average length of 35-40cm. In most adults, the horn length reaches to about 25cm. Among captives, the horn is frequently worn down to a thick knob (Laurie 1982). Unlike its African cousins which keep horns well sharpened as weapons of defense, the Indian species does not seem to be indulging in any kind of application with regard to its horn. Weighing for about over a couple of tons, standing 5 feet 6-7 inches tall and about 13 feet long, Indian single horned rhino represents a large mammalian species which is of great interest to evolutionary biologists and ecologists. *Rhinoceros unicornis* is semi-hysodont, and is able to graze successfully. Both *R. sondaicus* and. *R. sumatrensis* are brachydont browsers, inhabiting swamps and dense forests.

Kaziranga National Park in District Golaghat, Assam, is the largest abode for Indian rhino today. Having attained the status of National park in 1974 and a World Heritage site in the year 1985, it represents the single largest area (430 square km area) with most natural habitat for conservation of biological diversity within the northeast Brahmaputra valley. The Indian rhinoceros is a representative species of wetland ecosystem which is the most complex ecosystem of the world. Kaziranga and the neighbouring areas offer meaningful insights into the dynamics of nature that has enabled sustenance of rhinos for such long periods of time (Datta 1991). The Chitawan National Park in Nepal is the last bastion outside India, sheltering rhino population of over four hundred individuals. Conservation Action Plans of the Government of India and Nepal for the Greater One-horned rhinoceros struggle to restore the population that today estimates about 446 in Nepal and 2000 in India. Rhinoceros is now an endangered species listed in the *Red Book of the International Union for Conservation of Nature and Natural Resources (I.U.C.N.)*.

Swampy areas with extensive grasslands are its preferred habitats but in Nepal it also inhabits in low hills of woodland forests having extensive grasslands and numerous streams. Even though the grass is its

main stay, occasionally during the lean period it also feeds on water hyacinth, fruits of some trees and tender leaves of shrubs, and also the seedlings of several species of trees. They are voracious eaters while dietary contents have seasonal variations and the quantity may go up to over 2 per cent of their body weight (Laurie 1982). Recently, the pollen analysis of dung specimens from several rhinoceros collected during the winter season in Kaziranga National Park reveals a wide range of species belonging to families like Poaceae, Cyperaceae, Fabaceae, Myrtaceae Amaranthaceae, and Euphorbiaceae. which rhinos ingest during the season (Dutta 2008). All the palynomorphs are indicative of wet moist environmental conditions, which rhinos represent as their type habitat (Laurie 1982). They do not migrate long distances except during the rivers in spate when vast sheets of flood water force them to seek shelter away from their actual home range.

RHINOCEROS IN THE PREHISTORY

The Indian rhinoceros is one of the oldest land mammals existing in India. It possesses several primitive characteristics, providing an opportunity for evolutionary biologists to understand the evolutionary processes in land mammals. The ancestors of rhinoceros appeared for the first time about 50 million years ago in North America. The superfamily of rhinoceros, viz., Rhinocerotoidea, has been the largest and ecologically most diverse group of perissodactyls during the early Eocene, which included hippo or tapir-like Amynodonts, Hyracodonts and the true rhinoceroses of the family Rhinocerotidae. They adapted to several modes of herbivorous behavior, e.g., from sheep like runners, ecological vicars of hippos, tapir-like animals with proboscis and so on to the largest land mammals ever roamed the earth like *Paraceratherium* (Prothero *et al.* 1989). All three groups diverged in the later part of Eocene from a form like *Hyrachyus* and spread over the northern hemisphere. Unlike Amynodonts and Hyracodonts who were reduced to a few survivors by the early Oligocene, rhinocerotids began to diversify. Most early rhinos were hornless but the first horned rhinos that developed then had pairs of it on the tip of their noses, the feature that evolved independently in two different groups, the Dicerathrerinnae and Menoceratinae (Prothero *et al.* 1989). Towards the late Oligocene, rhinos exhibit a major spurt in their divergence into several subfamilies and tribes that dominated the northern hemisphere and Africa during the Miocene, viz., hippo-like grazing single-horned Teleoceratinae, prehensile-lipped browsing hornless Aceratherinae and Rhinocerotinae, which includes all the five living species of rhinoceros (Prothero *et al.* 1989). The precursors of rhinoceros were common in North America until the Tertiary and probably died out during the Pliocene. Some of the ancestors like *Paraceratherium (*formerly *Baluchitherium)* and *Indricotherium*, known from Mongolia and Baluchistan were giant extinct rhinos among whom *Paraceratherium* (*Baluchitherium)* attained the height of 17 feet and 27 feet long. Some of the earliest precursors of rhinos and true rhinos were reported from the Siwaliks of the northwest India since beginning of the 19th century (Falconer and Cautley 1847). The Siwalik Hills of the Northwest India are massive fresh water deposits, which are world's one of the best treasure troves of a continuous terrestrial fossil record assigned to the antiquity from about 18 to 0.6 million years before the present (Nanda 2002a &b). The direct ancestor of rhinoceros, *Gaindatherium browni* and its cousins *Aceratherium perimense* and *Chilotherium* were reported from Lower and Middle Siwalik levels while the rhinoceros appeared around 5 million years ago from *Gaindatherium* in the Miocene period. It also includes the Pliocene *Rhinoceros sivalensis* and a large Pleistocene rhino *R. palaeindicus, R. platyrhinus,* and two living species, *R. unicornis* and *R. sondaicus*. *R. unicornis* appears in the Middle Pleistocene. *Rhinoceros sivalensis* and *Rhinoceros palaeindicus* are the true rhino species that based on various skeletal and dental comparisons appear to have phylogenetic relationships with the living species of the Indian rhinoceros (Colbert 1942, Groves 1983).

As we move towards the Central India, the fossiliferous gravels along the river Narmada and its tributaries in the districts of Jabalpur, Narsinghpur and Hoshangabad are yet another rich fossil bed of large mammalian fauna with antiquity of 200 to 30k (Patnaik *et al.* 2009 and Sathe 2010). In addition to various species of elephants, large bovines, hippos and several other large mammals, another extinct species of rhinoceros (*Rhinoceros* c.f. *unicornis*) was reported from this region that is supposedly related to the main stream phylogeny of living rhinoceros of India. Eminent pre-historian and discoverer of first

Stone Age tools in India, Dr. Robert Brue Foote, in 1876, discovered a fossilised upper jaw of rhinoceros from Late Pleistocene fossiliferous gravels near Gokak in the Ghataprabha River, district Belgaum, Karnataka, which he named as *Rhinoceros deccanensis*. His grandson Henry Bruce Foote, in 1884, also discovered its fossilised remains from the limestone caves near Betamcherla, in Kurnool District of Andhra Pradesh (Murthy 1974). Similar findings of a well preserved fossilised skull of rhinoceros (*Rhinoceros* cf. *unicornis*) of similar antiquity from Coimbtoor District in Tamil Nadu further extended its prehistoric distributions to the interiors of the southern India (Badam and Jaykaran 1993). Recently several well preserved fossilised skeletal remains of rhinoceros (*Rhinoceros* c.f. *unicornis*) have been reported from the Manjra valley, in District Latur in Maharashtra. In addition were found the *in situ* remains of hippos, elephants, horse, large bovines, deer and antelope, and porcupine, with the site emerging as an ancient ecosystem locked in time during the Late Pleistocene (Sathe 2005). The skeletal elements support the presence of four individuals of the species (Sathe 2009). Ironically this region is now semi-arid and droughts are not first timers. It is very clear that rhinos and its ancestors lived in various parts of the country unlike what we know of their distribution since the historical period (Table 1).

One of the direct non fossiliferous evidence of its presence comes in the form of the '*painted fossil record*' by prehistoric artists in the rock shelters at Bhimbetka, and other rock shelter locations in Madhya Pradesh (Mathpal 1984, Neumayer 1983, Sathe 2007). It is a direct evidence of the animal's presence especially when the skeletal remains cease to survive in the fossil record. Authors of these paintings were hunter gatherers who probably had several lethal encounters with the beast they put on record artistically. The paintings present some of the best examples of human response to nature's fury. The rhino is painted with x-ray geometric designs, and in silhouette either in profile or in a state of retaliation to human attacks. Most of the human figures are stick-like, at times with antlers as headgears, or a group of people seem to be either fleeing the site or attacking rhinos in all desperation.

Recently some DNA studies have been carried out to understand the phylogeny of the living rhinocerotids, but the answers to precise ancestral links remain elusive. Willerslev *et al.* (2009) undertook the analysis of complete mitochondrial genomes from extinct and living rhinoceroses but the phylogenetic resolution does not address the issue satisfactorily owing to the highly diffusive state of phylogenetic signals from individual genes of the species examined. The authors conclude that

...Satisfactory resolution of the rhinoceros phylogeny may not be achievable without additional analyses of substantial amounts of nuclear DNA. This study provides a compelling demonstration that, in spite of substantial sequence length, there are significant limitations with single-locus phylogenetics.

Yet another study identifies a basal rhinocerotid divergence between African and Asian species where the Sumatran species of rhino seems to be forming a sister group of the genus *Rhinoceros*. The analysis further suggests that the Asian and African lineages diverged at about 26 million years in history (Tougard *et al.* 2001).

Rhinoceros and Archaeological Record

Rhinoceros has a wide occurrence at various archaeological sites across the length and breadth of the country, ranging from Mesolithic to Neolithic and Harappan periods as depicted in Table 2. The occurrence of *Rhinoceros* bones at these archaeological sites shows a definite trend of exploitation. From the Mesolithic period onwards, almost all the sites show the use of *Rhinoceros* bones in the production of bone tools- whether as anvils such as at Langhnaj (Clutton Brock 1965), or as raw material, in the manner seen at Damdama, (Mesolithic) Harappa and possibly Surkotada. This pattern of occurrence has led to the theory that rather than being hunted, rhinoceros bones were generally collected from naturally occurring carcasses in the wild. These bones were then brought back to the site, and stored for use in tool working (Thomas 1995). As such, there is very little evidence for the consumption of rhinoceros meat during the period concerned, even though there is an opinion widely prevailing among the archaeologists that rhino meat may have been the part of diet of Harappan and Mesolithic population. It would appear that the primary utility of the animal lay in its large, strong bones, which must have proved ideal for use

in the bone tool industry, especially at sites like Damdama, where workable stones were difficult to procure. It is indeed contrary to the literary evidence where the rhino is considered as a sacred animal, its meat was considered as a sacred offering to the ancestors. Besides bones, the hide was an essential raw material that perhaps had a multipurpose utility value probably as armour or as a container, which is further supported by the ancient Sanskrit text as well as the use of hide as armour, much practiced during the medieval times in India. Rhino hide used in a coat of mail was called *Khadga-kavacha* in ancient times. Its use for making shields was prevalent right up to the 18th century in Rajasthan (Hosten 1912). The rhino presence at several archaeological sites is yet another significant piece of evidence for reconstruction of palaeoecology.

As regards rhinoceros' oldest representation in the Indian art other than rock, paintings are available to us as terracotta figurines, depiction on square seals, amulets and copper tablets from the Indus valley Civilization around 2000 B.C. These objects have been recovered from several Harappan settlements from India and Pakistan. It is certain that rhinoceros played an important part in the life and religion of the Harappans, and may have been a sacrificial animal (Bautze 1985). The artistic impressions of an animal are an acknowledgement of incredible power the animal possesses.

Al Beruni's account shows that rhinos existed in the Gangetic region and there are a series of references to the occurrence of the species from Peshawar across the Indo-gengetic region during the historical times (Rookmaaker 2002). Even in subsequent years, the rhino hunting continued throughout the history of India. The population shows no depletion as Kirkpatric (1793) in his *Accounts of the Kingdom of Nepal* reports that... ..."*the forests along the southern slopes of Nepal were greatly infested with them*". Their former range along the base of Himalaya to Peshawar until the 15-16th century is further known to us from the accounts of rhino hunt in the northwest by the Mughal emperor, Babur. There is a frequent mention of the rhinoceros in *Babur Nama* indicating that Babur indulged in pursuing it more as a game. *Babur Nama* is also considered the first book on the Natural History of India with such lucid details of people, animals, birds, and vegetation with a great sense of precision and brevity. Some of the illustrations (e.g., rhinos, tigers, elephants and variety of birds etc.) turn out to be the first natural history paintings in India. The illustrated manuscripts of *Babur Nama* have one such painting of a hunting scene dated 10th December 1526 near Bigram (Peshawar), where *Babur* crossed a river Siyāh-āb, and formed a hunting circle down-stream. The miniature paintings put up a brave record of the hunt. Sometimes rhinos are portrayed either as an object of hunt or shown among peaceful animals, or a major object with no confrontation meant. Hobson-Jobson in 1903, brings out his edited accounts of Mughal records which highlight how easy the rhino sightings must have been in their former home range.

After sending the army towards the river (Indus) I myself set off for Swati, which they likewise call Karak-khaneh (kark –khana, "the rhinoceros haunt" to hunt the rhinoceros, but as the country abounds in brushwood we could not get at them. A she rhinoceros that had whelps, came out, and fled along the plain. Many arrows were shot at her, but ...she gained cover. We set fire to the brushwood, but rhinoceros was not to be found. We got sight of another, that having been scorched in fire, was lamed and unable to run. We killed it, and every one cut off a bit as a trophy of the chase.

By the end of 16th century, the rhinoceros becomes a common element in Mughal paintings. *Hamza Nama* refers it to the vehicle of the villains. Thus, the story in *Hamza Nama* dictates that several rhinos are slain by the heroes to prove the point (Egger 1974). However, as we enter the later part of 18th century, its distribution is referred more or less to the present range except that they are in great abundance. It is thus not surprising that a French Map dated 1781 declares North Bengal and Assam as '*Contree de Rhinoceros*'.

It surely tells us the interest Europeans have had in Indian fauna and we are also reminded of the export of a rhinoceros to Portugal in 1553A.D. '*Persiles and Sigismunda*', a novel by early 17th century naturalist called Cervantes describes Lisbon as the greatest and most flourishing city just because "*Here come the treasures of the Orient, and from here men go out into the whole world*". Obviously he meant that the wealth came from the east. Besides the spice trade, it related to the animal world as well. The wealthy pursued the show of exotic animals they acquired from Africa and Asia. The Renaissance ideal

of beauty put more emphasis on such exotic appearances rather than those coming from the New World. As a result animals like lions, tigers, leopards, elephants, rhinoceroses, ostriches and so on continued to be the main attraction in the menageries. Renaissance zoos boasted of such 'beautiful animals' as gifts from oriental princes and there also continued a regular trade in exotic animals. No matter how expensive, fanciers were keen on possessing them! It is during this time that in 1553 A.D. the Portuguese, in order to gain favour of the Pope Leo X, imported a rhinoceros from India as a present to him. However, it is reported to have been lost while being forwarded as a gift to the Pope.

RHINOCEROS IN LITERATURE

The behavioural aspect of rhino can be best seen even in recent folk tales as well as the fables across the Indian subcontinent. One such example can be cited from the folk tales of Rudyard Kipling, a well known writer of the 19th century India that stands as a unique testimony to the rhino behaviour "*....he had no manners then, and he has no manners now, and he never will have any manners*", reflecting actual behaviour of this formidable animal which is well ingrained in human psyche since times immemorial. The folk tales of Myanmar describe the beast's capabilities of devouring fire and its foe (Rookmaaker 1983). In Java and Sumatra, the belief that keeping the rhino horn in water prevents oneself from the witchcraft and the devils while in Laos the people connects it to the bad spirits. Ancient Cambodia elevated it to the status of a vehicle of god of fire (*agni devata*) which can be seen in the bas reliefs of the Angkor Wat Temple complex (Roveda 1997).

The beast's reference, either in folklores or ancient literature, continues to come frequently from the literary records of the 6th century B.C. onwards, such as the Edicts of King Aśoka. In his 5th pillar edict, Aśoka proclaimed that animals like rhinoceros, parrots, mainas, white doves, domestic doves and all the quadrupeds which are neither useful nor edible should not be killed (Hultzsch 1925). But the rhino fights were a great entertainment to Chandragupta Maurya. King Aśoka addressed the rhino as *palasata*, derived from Sanskrit *parasvat*. The rhinoceros is not only mentioned in a few *Jatakas*, viz., *Sudhăbhojana Jataka (545)*, *Vidhurapaṇdita Jataka* (535) (Fausboll 1891) but another text, *Khaggavisanasutta*, is named after animal itself. It is worthwhile to mention the 'rhinoceros slayer' coins of Kumaragupta I (415-455A.D.). The coin depicts the ruler on horseback, attacking the rhinoceros (Altekar 1957: pl. XXII, no. 36).

The question arises as to when the animal became sacred in Indian history. There is a reference to great utility and religious value assigned to rhino meat, hide and horn that can be traced back to the ancient times. It is referred time and again and a recent anecdote of early 20th century goes on to highlight the value of hide in making the shields, oblation vessels made out of the horns for the purpose of offerings to the manes. Even in the twenties of the last century, the Royals of Nepal believed that flesh and blood of the rhinoceros are pure and highly acceptable to the manes. The rings made of the horn were worn by the *yogis*. The powdered hide of rhino was used by them for treating the wounds as antiseptic. Until the middle of last century, the rulers of Nepal as well as other visitors to the Zoological Gardens of Calcutta were seen worshipping them. A bold reference to 'the sight of a killed rhino, butcher's knife and bank, new cooking pot and a cart loaded with firewood' points to the practice of eating rhino meat in *Vedic* period (*Rigveda X 86, 18*, Lüders 1973). Several ancient Indian treatises refer to the meat of rhinoceros as most satisfying food for the ancestors. Bühler (1892:78) refers to *Apastamba Dharmasutra* (II 7, 17, 1) which says that when "*the Brahmanas seated on the rhinoceros skin are given the rhino meat, the manes are satisfied.*" Interesting reference has been found with regard to "*mixing it with honey to make it more potent in satisfying the manes for a very long time*" (*Gautama Dharmasutra* XIV, Buhler 1969, I: 256). There is a reference to rhino meat as a special offering to the goddess to please her for five hundred years (*Rudhiradhyaya, Kalika Purana, as* cited in Briggs 1931:281). Similar quotations in *Manusmriti*, *Matsyapurana* and the *Mahabharata* etc. are pertaining to the rituals that primarily involved rhino for *śraddha dinners* (Jamison 1998). How rhinoceros flesh achieved this exalted status in the food chain is an interesting story that possibly stems from the *Vedic* rituals and the lore about the animal whose textual evidence is not available. Even though the horns are believed to have certain medicinal properties, it will not be surprising that this part of unwritten folk memory has deep roots in promoting

the myth of its being an aphrodisiac and resultant poaching for several millennia. Interestingly, the medieval Europe believed in poison detecting powers of the rhino horn. Goblets were made out of the horns that were supposed to counteract poison in liquids. Such goblets were used in court ceremonies in France as late as towards the end of 18th century to test the royal food for poison.

CONCLUSIONS

Whether the rhinoceros inspired the Chinese to paint its picture on their chariot wheels, or it had carved a special niche in the minds of the ancient Indians as a beast of super magical powers and provided great many utility values; today's 'rhino-perspective' confronts a major concern for its survival in the midst of misconceptions regarding its horns and increasing environmental deterioration and human interference. Rhinoceros as a symbol of rich ecological diversity, a rich and steady source for ancient human subsistence and an inspiring force for the human psyche offers the best example of man-animal relationship that began with the descendents of the rhino's ancestors, which had different levels of interactions with the contemporary human populations since the prehistoric times in India.

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TABLES

TABLE 1: OCCURRENCE OF *RHINOCEROS* AT PROMINENT FOSSILIFEROUS LOCATIONS IN INDIA

Locality/ Site	Formation	Species	Chronology	Human activity (if applicable)	Skeletal Elements (where specified)
Upper Siwalik Region (Badam 1979)	Pinjor	*R. sivalensis, R. palaeindicus, Chilotherium intermedium*	2myr to 600 kyr B.P.	None	*R. sivalensis* • 3 Crania • 1 Occiput • 1 LM_3 • 1 Right maxilla • Numerous bone and tooth fragments *R.palaeindicus* • 1 Mandibular symphysis • Vertebrae • Limb bone fragments *C. intermedium* • Part of left Deciduous maxilla • Part of left ramus • Part of right ramus
Central Narmada Valley, Madhya Pradesh (Badam 1979)	Sandy, pebbly gravel	*R. c.f. unicornis*	150,000 to 40,000 B.P.	Associated with Lower and Middle Palaeolithic cultures	Unspecified
Ghataprabha Valley, Karnataka (Foote 1876)	Bouldery, Pebbly, or Sandy Pebbly gravel	*R. deccanensis*	Approximately 39,000 to 30,000 B.P.	None	Part of Maxilla
Manjra Valley Latur district, Maharashtra (Sathe 2009)	Sandy, pebbly gravel	*Rhinoceros palaeindicus?*	34,000± 2070 26820± 750 B.C.	Found in association with artefacts of Acheulian affinity	• 3 mandibles • 1 radius • 1 metapodial
Middle Son Valley (Blumenschine and Chattopadhyay 1983)	Baghor	*R. c.f. unicornis*	30,000 to 10,000 B.P.	None	Maxillary fragment with 3 cheek teeth
Sathankulam Tirunelveli district, Tamil Nadu (Badam and Jayakaran 1993)	Unspecified	*R. unicornis*	Late Pleistocene to early Holocene	None	Partial skull Tooth, rib and postcranial fragments.

TABLE 2: OCCURRENCE OF RHINOCEROS AT NOTABLE ARCHAEOLOGICAL SITES IN INDIA (IN CHRONOLOGICAL ORDER)

Site	Species	Chronology	Culture	Skeletal Element	Human Activity
Kurnool Kurnool District, Andhra Pradesh (Murthy 1979)	*Rhinoceros kurnoolien-sis.*	20,000- 10,000 B.P.	Upper Palaeolithic	Unknown	Unknown
Damdama Pratapgarh District, Uttar Pradesh (Thomas et al. 1995)	*R. unicornis*	6690 ± 65 B.C. or 6915 ± 65 B.C.	Mesolithic	Unspecified	Cut marks and accidental charring. bones were possibly collected from carcasses or isolated deposits and dumped at the site for use in making tools.
Kalibangan Sriganganagar District, Rajasthan (Nath 1969)	*R. unicornis*	3500-1750 B.C.	Proto-Harappan to Harappan	Unspecified	Unspecified
Mahadaha Pratapgarh District, Uttar Pradesh (Joglekar et al. 2003)	*R. unicornis*	2675-2515 B.C. to 1385–885 B.C.	Mesolithic	• Teeth • Mandible • Cervical Vertebra	Charring
Harappa Sahiwal District, Punjab, Pakistan (Meadow 1991, Joglekar & Thomas 1994)	*R. unicornis*	2600- 2000 B.C	Harappan	Unknown	Sporadic occurrence hints at exploitation for tool working rather than subsistence.
Langhnaj Mehsana District, Gujarat (Clutton-Brock 1965)	*R. unicornis*	2500 B.C.	Mesolithic	• Right humerus • Left Scapula • Talus • Molar fragment	Probable Consumption, Bones used as anvils for chipping microliths
Lothal Ahmedabad District, Gujarat (Nath & Sreenivasa Rao, 1985)	*R. unicornis*	2450 B.C.	Harappan	Mandible Fragment	None
Surkotada Kutch District, Gujarat (Sharma 1990)	*R. unicornis*	2300-1700 B.C.	Harappan	Unspecified	Excessive fragmentation- possible bone tool working
Palavoy Anantapur district (Reddy 1978-79, Joglekar and Thomas 1994)	*R. unicornis*	2278- 1680 B.C.	South Indian Neolithic	Unspecified	Unspecified, but the site has evidence of extensive hunting of wild animals and bone tool working.
Kanewal Kheda District, Gujarat (Shah 1980)	*R. unicornis*	3rd – 2nd millennium B.C.	Mesolithic	Unspecified	Cut marks and charring
Kuntasi Rajkot District, Gujarat (Thomas *et al.* 1996)	*R. unicornis*	1900-1700 B.C. (Pd. II)	Late Harappan	Isolated third Phalanx	Unknown
Chirand Saran District, Bihar (Nath and Biswas 1980)	*R. unicornis*	1755±155 B.C.	Neolithic	Long bones, Isolated maxillary dentition	None
Ramchandrapur village, Sonarpur, S-24 Parganas, West Bengal (Ghosh *et al.* 1992)	*R. unicornis*	3030-2500 B.C.	No association	• Broken mandible-horizontal ramus with embedded I2 (both sides), P4,M1, M2, and M3 on right ramus • Sternal bone • Three fragmentary ribs • 7th thoracic vertebra • Distal end of right radius • Cuneiform of right manus • Right astragalus	None

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