

THE RHINOCEROS AND THE SIXTH EXTINCTION ...

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Picture yourself in a sea of tall elephant grass on a warm summer afternoon. The grassland is almost impenetrable, barring the tunnels created by the movement of large animals. This sea is interspersed by numerous swamps and small pools, and in one of them wallows a large animal, weighing almost two tonnes and standing above 5 feet at the shoulder. It is twitching its ear, irritated by the movements of a small fly that is trying to pierce its proboscis through its skin. The Rhino is unperturbed by everything else.

This scene of a megaherbivore and its irritant arthropod is a reflection of the scene of life-forms on the earth today, where giant animals have disappeared and the most successful biota are the insects. If this were a similar calm, warm Oligocene day 25 million years ago, one would perhaps see in its place a similar animal, but twenty feet long and standing as tall as a double-decker bus. The Giraffe Rhinoceros (*Paraceratherium grangeri*) that dwelt in the south Asian lowlands was the largest land mammal to tread upon this earth, dwarfing even prehistoric elephants and mammoths. Today this species survives only in the form of fossils at the base of the Siwalik Hills.

Giant life-forms have gone extinct, and the few surviving are at a very high risk of going so. Our planet has been shaken by five major extinctions in the four billion year history of life. The first occurred 450 million years ago shortly after the evolution of the first land-based plants. The last occurred 65 million years ago at the end of the Cretaceous period, ending the reptilian dominance of the earth, and leading to the current mammalian domination. We are now at the threshold of the next one. But this impending collapse – the Sixth Extinction – will largely be due to the arrival of a species that has devastated diversity wherever it has traveled: *Homo sapiens*.

The manner by which man has interacted with the environment has shaped his culture, a culture that in turn has moulded and altered the environment from which it arose. We cannot think of extinction as a naturally occurring phenomenon alone, and throughout history we find man hunting the Rhino for various purposes. The *Ā'in-i-Akbarī* mentions that the best bowstrings are made from rhino hide and shields made from this material are housed in the Assam State Museum today. In Assam, there are records of the coulter of a plough being made from rhino hide instead of the customary iron. It is highly likely that there was demand for the rhino hide, and this may have led to declines in populations in the medieval period itself, although thorough historical facts need to be produced in order to establish this as certainty. Ptolemy, in his geography, mentions that Rhino horn was a part of ancient trade products from Assam. Medieval rulers all over the world believed that a goblet made from rhino horn had powers of detecting poison. European Monarchs, Popes, Sheiks, all carried their personal goblets, some of which can still be viewed in museums today. The rejuvenating properties of the horn and its prowess as an aphrodisiac are still believed in certain cultures today.

The earliest depiction of the Indian Rhino is perhaps from the 3,000 B.C. Mohenjo Daro seals. Perhaps the epic of rhino illustration is Albrecht Dürer's woodcut of 1515, an image that has retained its appeal for nearly half a millennium. Dürer never saw the

rhino himself, but drew it with the help of the account of an eye-witness and a sketch made on the spot. The animal that had arrived in the harbour of Lisbon was a present from Sultan Muzafar II, of the then kingdom of Gujarat, to the Portugese King, Manuel I. Within a year, it was decided to send the rhino to Rome as a present to Pope Leo X. The rhino never reached Rome as it drowned after a shipwreck off the Italian coast in January 1516.

It is surprising that despite being prime rhino country, there are very few illustrations of the rhino in the surviving Assamese manuscript paintings. One such instance is the 19th Century *Hāti-Puthi*, where a rhino can be seen amidst a group of other animals. There are, however, vivid illustrations of rhinoceros hunting in medieval Mughal manuscript paintings, notably one showing Jahāngir hunting rhinoceros from elephant-back (c. 1600-1605). It is likely that the Āhom monarchs hunted rhino too, for although there is no direct reference, tiger hunting from elephant back was not unknown. In the *Bihu* folk songs of Assam there is mention of rhino hunting:

Parbatat mārilo nodokā Gāhori, bhayāmot mārilo Garh

(= in the hills I hunted the fleshy boar, and in the plains I hunted the Rhino)

Rhino hunting was common sport amongst the Raj during colonial times, and the Maharaja of Cooch Behar was known to have bagged several rhinos in his lifetime. The establishment of the Rhino Preservation Act 1915 was a big step in rhino conservation history. The setting up of reserves such as Kaziranga to protect this animal had met with a lot of opposition from sportsmen during those times, and it was only the effort of a handful of dedicated personnel that made this possible. The 1915 Act changed things as this prohibited the hunting of the animal totally.

It may be of interest to the reader to know that till the turn of the century, besides the Indian Rhino, the two other species of Asian rhino occurred in India. The Javan Rhino *Rhinoceros sondaicus* and the Sumatran Rhino *Dicerorhinus sumatrensis* are now perhaps extinct within our limits, and it is only a matter of time before the Javan Rhino disappears from the face of this earth. Till the medieval period, the Indian Rhino ranged from the Indus valley, east along the base of the Himalayas to Assam. Today it is a denizen of the open and marshy habitats of the *terai* and the Brahmaputra floodplain.

The ecology and biology of the rhino largely stems from the unique habitat in which it lives. The constant shifting and erosion of the Brahmaputra results in the formation of extensive sandy islet tracts (*chars* and *chāporis*), that are in turn colonized by pioneer grass species. These grasslands are gradually invaded by trees and over time are converted to riparian forest. Thus the *rhino is an inhabitant of one of the most dynamic habitats in the world*, and its ability to live in such a changing habitat structure is an example of adaptability. Weighing almost two tonnes, the feeding habits of this megaherbivore has a great impact on the environment in which it lives. Rhinos are landscape-architects, and their presence influences to a certain extent the nature of the vegetation in the ecosystem. With the disappearance of the rhino, certain phenomena it induces will disappear too: this landscape architecture can be called an 'endangered phenomenon'.

It is perhaps most meaningful to look at the rhino scenario in Assam and the rest of the country from a metapopulation perspective. Unlike the conventional idea of populations

as a single entity undergoing an increase or decrease, contemporary ecologists dislodge this monolith look at it as a collection of subpopulations, each occupying a suitable patch of habitat in a landscape of otherwise unsuitable habitat. This is what the rhino population in India is at present – they are strewn across a few parks and sanctuaries in the Brahmaputra floodplain and neighbouring West Bengal. According to metapopulation ecologists, a subpopulation can go extinct in a patch, while recolonization can take place in another. The local extinction depends on conditions prevailing in the patch, while colonization depends upon dispersal ability. If we look at trends in the metapopulation, we see that in the 1980s Manas had 80 rhino, Laokhuwa 40 and Orang a hundred. Today rhino is totally extinct in Manas, the population of Laokhuwa has been wiped out, and Orang has only 36. Kaziranga and Pabitora are the only parks to register an increase (Kaziranga from 1100 in the early 1990s to the current 1550 and Pabitora from 56 to 64). On the other hand several smaller populations that existed in Assam the 1970s and 80s (Kukrakata, Panidihing, Sonai-Rupa) have been wiped out. As these reserves are now islands amidst a sea of human habitation, dispersal of rhino has become impossible.

Looked at from this broader perspective, it seems as though we are looking at a slow and gradual extinction process. And with the rhino will disappear several other life-forms that it shares its habitat with, and whose environment it greatly influences. Dominant as no other species has been in the history of life on Earth, *Homo sapiens* is in the throes of causing a major biological crisis, the Sixth Extinction.