

## Publication

### Genetic differences between the two remaining wild populations of the endangered Indian rhinoceros (*Rhinoceros unicornis*)

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The management of rare and endangered species in the wild and in captivity requires an understanding of the characterization of the genetic units within each species and their relationships to each other. The Indian rhinoceros (*Rhinoceros unicornis*) is an endangered species with a current population size of c. 2800 individuals. We analyzed 26 individuals of known origin kept in captivity and 21 wild ranging individuals of the two remnant large wild populations in Assam (India) and Nepal employing mitochondrial and microsatellite markers to determine whether the two geographically isolated populations show distinct patterns of genetic diversity, and whether the genetic diversity of the populations is influenced by past demographic bottlenecks. We identified 10 different mitochondrial D-loop haplotypes, of which 4 were specific to the Assam population (10 sequences examined) and 6 specific to the Nepal population (19 sequences). Similarly, the microsatellite analysis demonstrated a strong genetic differentiation between the Assam and Nepal populations and allowed to assign each individual to its origin with high confidence. Furthermore, our analyses revealed the occurrence of a bottleneck in the Assam population long before the reported bottleneck in 1908, and it revealed that the Nepal population is a recent (probably post-glacial) colonization. In summary, the extent of genetic divergence between the two remnant *R. unicornis* populations suggests separate conservation programs (even for captive individuals) as long as the persistence of the entire species is not severely threatened. The microsatellite markers can also be used to determine the origin of confiscated material such as horns.

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