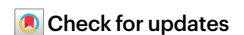


Introducing African cheetahs to India is an ill-advised conservation attempt



To mark the 72nd birthday of India's prime minister, on 17 September 2022, eight African cheetahs (*Acinonyx jubatus jubatus*; currently classified as Vulnerable by the IUCN) were transported from Namibia to India. The national and global interest generated by the culmination of this decade-long plan provided hope for cheetah range restoration initiatives. We argue, however, that the current action plan¹ is ecologically unsound, costly and may serve as a distraction rather than help global cheetah and other science-based conservation efforts.

The Asiatic cheetah (*Acinonyx jubatus venaticus*; currently classified as Critically Endangered by the IUCN) has been extinct in India for 70 years, and there are currently fewer than 50 individuals left, all in Iran². Besides the unknown ecological, disease and genetic risks involved in replacing Asiatic cheetahs with the larger, southern African ones, India's plan is based on three unsubstantiated claims: (1) that cheetahs have run out of space in Africa, (2) that India currently has sufficient and suitable space for them and (3) that conservation translocations have been successful in wild cheetah range restoration efforts. The action plan also speculates that this translocation will trigger conservation of grassland and open forest ecosystems in India¹.

African cheetahs are probably declining, although how many are left in the wild is largely based on guesswork. However, a recent study³ of a free-ranging cheetah population in the prey-rich Maasai Mara landscape in Kenya offers crucial insights (Fig. 1). This study revealed that even in such large, prey-rich landscapes (a 2,400-km² area surrounded by more than 20,000 km² of cheetah habitat), cheetahs are characterized by disproportionately large home range sizes (over 750 km²) and very low population densities (about 1 cheetah per 100 km²). This bolsters the view that cheetah populations can be highly sensitive to offtakes and thereby not recommended as sources for translocation programmes^{2,4}.

By ignoring these, and other similar contemporary scientific insights^{5,6}, the action plan appears to have substantially overestimated



Fig. 1 | Free-ranging African cheetahs in the Maasai Mara, Kenya.

cheetah carrying capacity in the first release site (Kuno National Park), which was identified and prepared for the reintroduction of Asiatic lions (*Panthera leo leo*). The derived carrying capacity of about 3 cheetahs per 100 km² for Kuno was based on an out-of-date density estimate from Namibia¹, where the study area size (around 365 km²) was far lower than the home range size (1,650 km²), which can cause overestimates in density owing to apparent transience⁷. Range quality is also important, with a need for open or semi-open habitat, with sufficient, suitable wild prey, free from anthropogenic pressure and free-ranging dogs. Therefore, we anticipate that neither Kuno National Park, which is only 748 km² in area, unfenced, harbouring about 500 feral cattle and surrounded by a forested landscape with 169 human settlements, nor the other landscapes considered¹ are of the size and quality to permit self-sustaining and genetically viable cheetah populations.

It is also necessary to distinguish free-ranging from fenced-in cheetahs. In Indian conservation practice, 'wild' is assumed to mean 'free-ranging' and the concept of

'fenced-in wildlife' does not exist. However, in southern Africa, wild felids such as lions, leopards and cheetahs also occur within relatively small (less than 1,000 km²), completely fenced areas, where ecological phenomena such as immigration and emigration cannot occur naturally⁴.

Certain small, fenced reserves now harbour cheetahs at densities that are over 15 times higher than their natural, free-ranging counterparts^{3,6}, and these 'surplus' cheetahs are often translocated, usually between fenced reserves. The eight cheetahs that were recently transported from Namibia to India were sourced from such confined circumstances⁸. However, although there have been reported reintroduction successes of such fenced-in cheetahs into other fenced areas or reinforcement successes into known populations, we know of no reintroduction success into an unfenced area yet, even within Africa⁹.

Our broader concern is that if cheetah management practices within small fenced reserves operate independently and do not contribute towards achieving self-sustaining cheetah populations within their extant range,

this will increase the urgency to find release sites⁹ and trigger unplanned, hastily executed translocation programmes. The fenced-in cheetahs from Namibia are envisioned to soon move freely¹⁰ in India where average human population densities are 150 times higher. We anticipate that adopting such a speculative and unscientific approach will lead to human–cheetah conflicts, death of the introduced cheetahs or both, and will undermine other science-based species recovery efforts, both globally and within India.

Contemporary thinking in biodiversity conservation recommends that countries harbouring biodiversity-rich habitats be incentivized proportionately by others¹¹. Given India's demonstrated political will to save cheetahs as a way of correcting historical ecological wrongdoing, we recommend that India redirect its initial, massive 'Project Cheetah' investment of £48 million¹ towards global cheetah conservation efforts involving extensive habitat protection, ensuring adequate wild prey, ensuring connectivity between populations and enhancing human–cheetah relations¹². These should preferably be in other parts of Asia (for example, Iran¹³) but could also be in Africa, where cheetahs – though under severe pressure – still remain extant in 3.1 million km². In addition, large areas of suitable habitat for free-ranging cheetahs are still available². Alternatively, if India is keen to bring back cheetahs, we recommend that the cheetah action plan be radically revised using a fully science-based approach; that is, by rigorously assessing the questions asked and the methods used¹⁴ in contemporary research on free-ranging cheetah populations and their genetics, and accordingly taking steps to secure India's threatened savannahs,

grasslands¹⁵ and their associated fauna (including suitable wild prey for cheetahs), before bringing cheetahs to India. Adopting such a science-based approach will not only increase the likelihood of reintroduction success of wild cheetahs but also will do so without disrupting other ongoing conservation efforts (for example, the reintroduction of Asiatic lions). This will, more efficiently, fulfil India's desire to restore its big cat heritage. We believe that there is an urgent need for international bodies, such as the IUCN and the wider community of cheetah and carnivore biologists, to re-evaluate the purpose and practice of such intercontinental, large carnivore translocation efforts.

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Competing interests

The authors declare no competing interests.