

be supportive; that public revenues are needed to fund targeted poverty alleviation projects; that well-defined property rights and clarity about who is going to pay for what are essential foundations of any project aimed at improving the plight of the poor; that water is essential to sustaining life; that individuals often fail to favour the interests of distant communities at cost to themselves; that wealth can cause more damage to ecosystems than poverty. Many good points, long known.

The book would have benefited from a biologist to help with fact checking, thereby avoiding calling elephants 'keynote species'; naming Costa Rica and South Africa as 'the two countries best known for their biodiversity' (this will come as a surprise to Brazil and Indonesia, for example); or claiming that a wetland in Costa Rica was declared a Ramsar Site in 1951, a few decades before the Convention on Wetlands of International Importance came into force. Small problems, easily fixed.

While the conclusions may be familiar, it is useful to have some specific examples, backed up by economics, to give them greater currency and broader application. Who knows, if enough people can recognize that poverty alleviation is likely to be beneficial to conservation when these two enterprises are undertaken appropriately and in recognition of relative costs and benefits, then maybe loss of biodiversity can be slowed and eventually stopped. This book helps clarify the challenges that need to be faced before this happy state can be reached.

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Exotic Aliens: The Lion and the Cheetah in India by Valmik Thapar, Romila Thapar & Yusuf Ansari (2013), 304 pp., Aleph Book Company, New Delhi, India. ISBN 978-9-382-27755-2 (hbk) GBP 26.50.

When I was young the conservation world was much simpler and nature seemed to be easy to identify, if not to save. It is getting harder and harder to even figure out what we're supposed to save—we just don't seem to know what nature is any more. Novel ecosystems, alien species, forest composition altered by long absent humans, overabundant species, native

species expanding their range, and changing ecosystems—the list goes on and on.

Exotic Aliens has made the task even harder. Perhaps you already know about the Gir lions, that small population of lions found in the western Indian state of Gujarat—the only lions currently occurring outside Africa. There have been lots of explanations for how the distribution of lions had to have collapsed, leaving only this remnant population. But no one that I read ever contemplated that these lions may not in fact be native to India but were in fact established by humans with animals shipped in from Africa. The same argument holds for Indian cheetahs.

The book makes this bold argument, but in humble fashion. The lead author says that what he wants is for the book to create a stir in the natural history world and inspire people to do more detailed research. I hope he gets his wish. The principal author, Valmik Thapar, is a self-styled naturalist who has done much to publicize the natural history of Indian tigers and who stumbled on this topic while researching 500 years of recorded tiger sightings. He observed that for every thousand tigers recorded as killed per year there were fewer than a handful of lions and cheetahs. This finding diverted him from his tiger research and on to the path that produced *Exotic Aliens*. To help him build his argument he enlisted two historians, Romila Thapar and Yusuf Ansari, who contributed three chapters reviewing what is known about the pre-history and history of cheetahs and lions in India.

The major conclusion of the book is that lions were imported from Africa and Persia, starting 2,500 years ago, to meet the demands of the Indian royalty, who bred and propagated them as court symbols and for hunting. The desire for lions was also an import, coming from the Greeks and Persians, for whom the lion was the symbol of power and the killing of a lion the ultimate sign of personal (royal) strength. The cheetah's story was both similar and different. It was imported as a pet and as a domesticated hunter that at times escaped and created small, feral populations.

The Indian royals were great hunters, both in the wild and in hunting gardens. These walled enclosures were stocked with game that was killed at leisure and with the occasional aid of opium to drug the prey. If you needed to kill a lion and there were no wild lions at hand then lions had to be bred to be released for the hunt. So there was apparently active lion husbandry going on. And some escaped

or were released when the the hunting garden tradition was abandoned. And thus we got the Gir lions. Cheetahs were imported and trained to hunt antelope and it was not uncommon to see cheetahs and their trainers in many parts of India.

The major point that Thapar makes is not a new one, and he acknowledges on the first page of the prologue that: 'the debate about the origins and prevalence of lions and cheetahs in India must have been vigorous in the eighteenth century'. But that debate sank beneath the waves and left us with the puzzle of how to use our high-powered genetics and biogeography to explain this distributional anomaly. As an example, a recent paper by Bertola et al. (2011, *Journal of Biogeography*, 38, 1356–1367) on African lion genetics concluded: 'West and Central African lions are more closely related to Asiatic lions than to the southern and East African lions. This can be explained by a Pleistocene extinction and subsequent recolonization of West Africa from refugia in the Middle East'. Or, by the Thapar thesis!

Why do I think this is more than a historical curiosity to recount to young graduate students or impressionable dates? My training in ecology (in the late 1970s and 1980s) was curiously a-historical and treated humans as being outside ecology. That is no longer the case but we have still not reconciled ourselves to the important role history has played in determining what we think of as natural, and therefore worth saving. Books such as this flush us out of our scientific cover and force us to confront the values and relativistic nature of our science and how they both inform what we choose to conserve. So what if lions are not native to India? They've been there for hundreds of years, are functional components of a (deeply human-altered) ecosystem and firmly imbedded in Indian culture. India wants more lions—witness the recent Indian Supreme Court case in which the state of Gujarat was forced to share a few of its lions with the state of Madhya Pradesh, to create a new population. Or are they alien species that should be returned to zoos? So who decides and on what basis? This is a great book to use as part of what I hope will be a new graduate training seminar—historical ecology, humans, and the conservation of the future.

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