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BOOK REVIEW

The return of the unicorns: the natural history and conservation of the greater one-horned rhinoceros

Eric Dinerstein

Columbia University Press, New York
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review by Kees Rookmaaker

Rhino Resource Center, c/o IUCN Species Survival Programme, 219c Huntingdon Road
Cambridge CB3 0DL, United Kingdom; e-mail: rhino@rookmaaker.freeserve.co.uk

Dinerstein first went to Nepal in 1975 for a short study of tigers and their habitat and returned in 1984 to start four years of fieldwork on the rhinoceros in Royal Chitwan National Park. The data gathered during that period about the natural history and ecology of these fascinating animals constitute the main part of this book. The author returned annually to Nepal, working on large mammal conservation, and therefore has been able to supplement and update his original findings. This is a serious book full of essential information, and one that has but few rivals. Although the Indian rhinoceros (*Rhinoceros unicornis*), or the greater one-horned rhinoceros, as Dinerstein calls it to avoid the geographic epithet, has been studied in the field, both in Chitwan and in Kaziranga National Park in Assam, the results have often only been summarized. An earlier comprehensive field study of the rhinoceros in Nepal was undertaken by Andrew Laurie in the 1970s, and while his results are available in summary form, the main data are still found only in his unpublished dissertation (Laurie 1978, 1982). If only for that reason, Dinerstein's book should be consulted regularly.

At first glance, the book looks very attractive, with a colourful cover after a painting by Stuart Gentling and Nancy Ferguson. It has a foreword by George

Schaller of the Wildlife Conservation Society, and all essential supplementary matter like a list of references and a comprehensive index. When I first continued to leaf through the book, without reading any of the text, I felt that Dinerstein has been poorly served by his publisher. The print quality of many photographs (all in black-and-white) is inadequate with essential subject matter hidden in the shadows. In many maps (like those on pages 248 and 250) the shades of grey are almost impossible to make out, perhaps because they were originally produced in colour, thereby obstructing a proper understanding.

The book is divided into three parts. The first part, on 'vanishing mammals, vanishing landscapes' is an overview of the world's rhino populations and the threats to their existence. Although it has all the necessary components and information, it shows that the book was ready for publication many years ago. For instance, Dinerstein (p. 16) gives the number of African rhinos in the wild in 1994, which could so easily have been actualized by reference to the status survey by Emslie and Brooks (1999). In case of the Asian rhinos, the author refers to the action plan of 1997 (Foose and Van Strien 1997), but in his table 1.1 (p. 24) with estimated numbers of *Rhinoceros unicornis*

in India, Nepal and Pakistan, the latest figures are for 1995.

The second part, which comprises 40% of the book (120 out of 316 pages), is the core of the book, the reason why it was written and the reason why many of us would want to buy it. Here we find the findings of Dinerstein's fieldwork, properly put in the right context and with discussion of their validity and significance. There is a chapter on the measurements and sexual dimorphism of the animals in the Chitwan population, with appropriate tables (and all methods are carefully explained in the appendices). This is followed by data on the characteristics of the population, including age structure, fecundity, mortality and genetic diversity. Another chapter tells us about the behaviour of the rhinoceros in its habitat with details on home range, movements, diet, activity patterns and thermoregulation.

During his field work, Dinerstein developed and tested the 'incisor-size hypothesis' which says that the size and condition of the tusks (upper incisors) in breeding-age male rhinos help to determine dominance, access to oestrous females and reproductive success. He also studied the effects of the rhinoceros on the ecosystem and the landscape in which they live by eating and dispersing certain fruits. These are complex issues, important to ecologists and conservationists alike, and they are treated with admirable clarity. Dinerstein guides us with ease through the various theories and data systems, and one does not need to be a professional scientist to follow his arguments.

Dinerstein really finds himself in the third part of the book, where he discusses how different projects and scenarios contribute to the long-term conservation of a large mammal like the Indian rhinoceros. It is obvious that he has immersed himself in the subject during the more recent years, and his explanations and summaries are clear and to the point. He discusses conservation strategies like relocation to in-

dustrialized nations, dehorning, rhinoceros farming and captive breeding, and dismisses these as viable options. He does give an alternative, a comprehensive strategy for the long-term viability of rhinoceros and other large mammals, which includes elements of conservation of large core areas, economic incentives, legislation and public awareness, anti-poaching information networks, identification of leaders and translocation of animals from one reserve to another. Not everybody will agree with him, debate will continue, and not all strategies are necessarily equally effective in every situation. Dinerstein presents us with the situation in Nepal, where his strategy has been effective to protect the rhinoceros in the wild where it properly belongs.

Dinerstein's book is a welcome contribution to the areas indicated in his subtitle: the natural history and conservation of the rhinoceros in Nepal. It is not too technical, concepts are clearly explained, and the data are presented neatly and comprehensively. The book should not be bought for the illustrations, but the text is well worth the price.

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