BOOK REVIEW

The hairy rhinoceros. History, ecology and some lessons for management of the last Asian megafauna

John Payne

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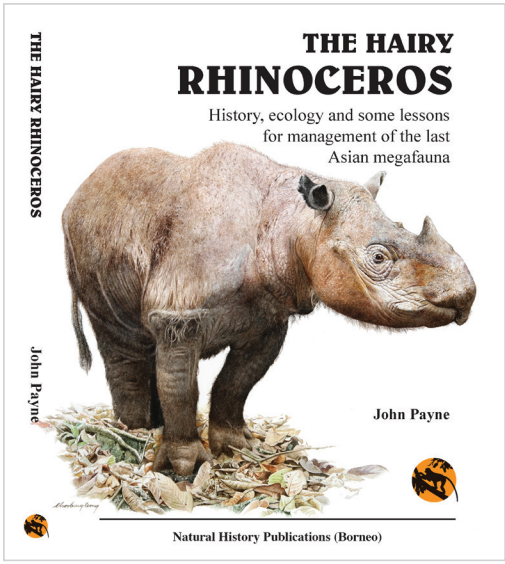

This is a curious, sad and, I think, important book that deserves the attention not just of rhino specialists but of conservationists at large.

Curious, because it reads in places more like a set of notes and appendices than a structured narrative. These summarise the evolution, biology and ecology of what John Payne takes care to call the hairy (rather than Sumatran) rhinoceros; then recap the species' history—including a diary-like chronology of events since 2005; a review of what is known about how to capture, translocate and care for captive animals; and in the most interesting final third, the author's views on why conservation has failed *Dicerorhinus*, and what lessons might be learnt.

The book is unremittingly sad. It describes the inexorable decline to now near-inevitable extinction of an extraordinary animal. It also argues that while habitat loss and hunting have clearly been the long-run threats to hairy rhinos, conservationists and conservation organizations are to blame for our inability to stem their slide into oblivion. By the 19th century hunting had greatly reduced the abundance and range of a creature once found from India and China down to the Greater Sundas. By the 1930s concerns were already being raised about the species heading towards extinction. In the 1980s a bold strategy of bringing isolated rhinos into captivity while protecting 12 or so remaining clusters of wild animals was agreed. Yet despite dozens of international meetings and workshops involving many hundreds of stakeholders, the hairy rhino's decline has gone unchecked. It turned out that isolated female rhinos commonly develop uterine cysts and fibroids, probably as a consequence of repeatedly failing to find mates. By deliberately focusing on stragglers, captive breeding has thus proved exceptionally difficult, with the capture of more than 50 animals yielding just six births. Meanwhile numbers in the wild have continued to collapse. By 2021 it seems that free-ranging rhinos persisted in just one cluster in Gunung Leuser, Aceh, northern Sumatra, with scattered individuals in three or four sites elsewhere in Indonesia. And the captive population now stands at only nine animals, again entirely in Indonesia. The extinction of the hairy rhinoceros and with it this century's first

loss of an entire mammal genus may be just a few years away.

John Payne's book is important, in my view, because of what he says about why, over four decades, conservation efforts have so consistently failed hairy rhinos, and what this might mean for the conservation enterprise more broadly. On the specifics of the ongoing freefall of the species, he advances two sets of arguments. First, that there has been a long-run strategic failure to accept that regardless of the historic importance of habitat loss and hunting, the overwhelming contemporary threat is the collapse of recruitment as a result of reproductive pathology. Not recognising this decisive threat, he argues, has perpetuated the misplaced notion that already-reduced clusters of wild rhinos could, if protected, recover their numbers; and undermined the idea of instead drawing on those clusters for young, still-fertile females for captive breeding. Beyond the biology, Payne also takes aim squarely at the conservation processes that have enabled such consistently flawed decision making. Whereas successful recoveries of critically endangered large mammals like European bison and Przewalski's horses have typically been driven by nimble groups of passionate individuals, he believes attempts to save hairy rhinos have become bogged-down in vast, multi-stakeholder meetings where the views of local experts are drowned-out by those of a rolling cast of people with limited experience of the species. Key decisions have been made by politicians fearful of public criticism by loud yet unrepresentative lobby groups. And international rivalries have repeatedly hampered urgently needed international cooperation.

I know very little about hairy rhino politics or conservation, so can't meaningfully comment on these arguments. But Payne's book goes beyond these specific points to offer insights for conservation more generally. He makes the case, from exploring prospects for a dozen or so other endangered south-east Asian mammals, that hands-on population management—moving animals between clusters, captive-breeding, assisted reproductive technologies—will be essential for these species' persistence. The era of protected area expansion, he suggests, is drawing to a close, yet reserve coverage is insufficient, so without additional, intensive interventions the rhino's fate "will befall all large vertebrates. It is just a matter of time." The reproductive pathology that underpins this argument for rhinos may be unusual, but Payne makes a reasonable case that under laissez-faire conservation some other species may face be equally doomed. Good examples are isolated groups of wild cattle (for which relevant technologies are already well-developed), and pangolins (which might prove easier to protect in private oil palm and forest landscapes than in government nature reserves).

This book calls for changes too in how we go about achieving conservation in general. Payne makes a clear case for returning to a species rather than habitat or ecosystem-service basis for conservation (though I personally would argue, as Georgina Mace has done, that each approach deserves support [Mace 2014]). He sets out a series of aspects of human psychology—risk aversion, temporally shifting baselines, nationalism, distraction by fashions, and an alarming suite of cognitive biases—which we need to be much more aware of if we are to improve our ability to diagnose and respond effectively to the extinction crisis. And he argues for far more weight in designing interventions to be given to well-informed experts, who provide clear technical direction prior to consultation with government and civil society.

In closing, Payne argues than even now, the fate of the hairy rhino is not irreversible. If the entire population—all wild as well as remaining captive animals—is brought together and managed intensively as a single unit, and if full use is made of international expertise in delivering advanced reproductive technologies, the genus may yet be saved. Just weeks before her death, eggs were being harvested from Imam, the last-surviving Malaysian female, and used for attempted IVF. In June 2021 a German team successfully created pluripotent stem cells from a skin biopsy of a captive animal that had died four years earlier. Whether these frenzied efforts will succeed is far from clear. But either way, it seems inescapable that to date conservation has not helped the hairy rhinoceros very much. This book provides some provocative suggestions about how we might do better in future—let us hope that we still have time!

References

Mace GM. 2014. Whose conservation? *Science* 345: 1558–1560.

Natural History Publications. 2022. Kota Kinabalu; Borneo.