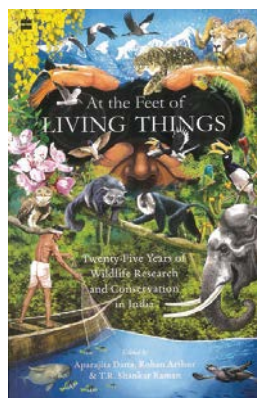


black-hole, depending on the relative value of tidal disruption radius and the event horizon radius. If the mass of the black-hole is  $<10^8 M_{\text{Sun}}$ , the tidal radius is larger than the event horizon radius and the star is disrupted. For more massive black holes, the star is captured as a whole by the black hole. In the case of disruption, the bound fraction of the debris falls into the black-hole, emitting a luminous flare of radiation and forms an accretion disc around the black-hole. The timescale for this is in months, so that formation of the accretion disc and a jet can be observed in real time. In her article on TDEs, Gezari first describes the observed properties of the 56 TDE candidates which have been discovered to date in the optical, ultraviolet, X-ray or gamma-ray bands. She then discusses the tensions between observations and theory of TDEs, and how the observations have outpaced theory, so that there is no basic understanding yet of a physically motivated model for the disruption debris and formation of the disc. Understanding TDEs is important as the rates at which stars are disrupted depends on black-hole properties like their mass and spin, the nuclear stellar density and its orbital distribution, presence of a binary black-hole, and so forth. The TDEs can therefore act as a probe for massive black-hole demographics. Gezari ends with a discussion of improving search strategies, detection of intermediate mass black holes through the tidal disruption of white dwarfs and TDEs as multimessenger sources.

The articles in the volume are all highly readable. They provide a concise state-of-the-art summary useful for the expert as well as for readers new to the field. The production quality of the volume is high, and reading from it is a pleasant experience than reading a preprint of the article on a screen. I highly recommend this volume.

AJIT KEMHAVI

*Inter-University Centre for Astronomy  
and Astrophysics,  
Ganeshkhind,  
Pune 411 007, India  
e-mail: akk@iucaa.in*



**At the Feet of Living Things: Twenty-five Years of Wildlife Research and Conservation in India.** Aparajita Datta, Rohan Arthur and T. R. Shankar Raman (eds). HarperCollins Publishers India, 4th Floor, Tower A, Building No. 10, Phase II, DLF Cyber City, Gurugram 122 002, Haryana. 2022. xxx + 378 pages. Price: Rs 599. ISBN 978-93-9440-785-5.

During the past 50 years, India has shown determination in combating the loss of species and their habitats. The approach has been one of setting aside protected areas throughout the country. This initiative backed by legislation has proved to be robust. A network of more than 800 protected areas covering a meagre 5% of the country's geographical area has resulted in endangered species like the tiger, elephant, rhinoceros, lion and several other lesser-known species of wild animals showing heart-warming recovery. While wildlife enthusiasts have hailed the success and demanded that more habitats should be brought under the system of legally protected areas, human rights activists and organizations have criticized the move as one that is indifferent to the livelihood of the local communities. They contend that human communities which live in and around the protected areas have been deprived of their fundamental rights to land and the access to natural resources. In addition, increase in the population size of many animals has led to spillovers and frequent conflicts with humans who live in and around the protected areas. Such conflicts have resulted in the loss of crops, livestock and the lives of both humans and animals.

Starting with the Man and Biosphere Programme, several strategies have been adopted to minimize and mitigate human-wildlife conflicts and make wildlife conservation more inclusive. Besides establishing 18 biosphere reserves, the Government of India has also launched people-centric pro-

grammes such as the joint forest management programme and eco-development projects around protected areas throughout the country. Newer forms of less stringently protected conservation areas such as community reserves and conservation reserves have also been established. However, these interventions have had only limited success in earning the goodwill and unconditional participation of the local communities. Several conflicting issues have not been fully addressed.

The diversity of endemic human cultures in India, their dependence on natural resources, beliefs and attitudes towards wildlife have together underlined the need to evolve locality-specific and inclusive wildlife conservation strategies. This is a task that no government can handle exclusively. Governments have to work closely with non-government entities so that the conservation goals are fully achieved. It is against this backdrop that the book under review becomes relevant.

It is a collection of 16 essays by more than 20 authors, who are researchers linked to the Nature Conservation Foundation in one way or another. The essays distributed under five thematic sections have been written in a 'storytelling' style, summarizing the authors' experiences while trying to understand and deal with diverse conservation challenges throughout the country. The essays take the reader from Lakshadweep Islands to the Andaman and Nicobar Islands. And then from the Western Ghats to the rainforests of the Eastern Himalaya and the cold plateaus of the Western Himalaya. The authors have been honest in presenting both successes and failures. There are nice black and white illustrations throughout the book.

Coral bleaching in the Lakshadweep Islands, overfishing in the reef and depletion of seagrass beds by green turtles pose contrasting challenges to researchers concerned with the conservation of the Island's fragile ecosystem. Proposals for the socio-economic development of the Island seem like an unsurmountable threat. On the other side, the survival of the dugong in the Andaman and Nicobar Islands hangs precariously under the pressures of tourism and infrastructure development. The future of this marine mammal lies entirely on the patterns of succession in seagrass beds of the Island.

Elsewhere in the Western Ghats, restoration of forest fragments in the Anamalais has given positive results. However, the support of the private sector that manages coffee and tea cultivation in the landscape

is critical to the long-term survival of the restored forest fragments. Several innovative interventions, including early warning systems, have contributed to the reduction of human casualty due to elephants in Valparai. Replication of the intervention in Hassan district, Karnataka has yielded mixed results. Tourism has affected the behaviour of bonnet macaque in Bandipur, Karnataka. The species is evolving in response to the benevolence of the tourists.

Up north, in the cold plateau of the Western Himalaya, coexistence of the snow leopard with the local pastoral communities seems tangible. Attempts to manage snow leopards outside protected areas with the participation of the local herders have yielded positive results. Sensitizing school children about the Himalayan ecosystem has also shown promise. What is frustrating, however, is the apathy of the local bureaucracy.

The situation in Arunachal Pradesh is somewhat different. Forest-dwelling tribes, their love for hornbill meat and the local demand for forest timber have rendered

inclusive conservation more challenging. There is significant inter-connectedness between the people, forests and wildlife. It takes years to fully understand this. Illegal logging is a major threat leading to loss of habitat, thereby further endangering the resident hornbills. Engaging local youth as hornbill nest watchers and the hornbill nest adoption programme have made a positive difference.

Citizen Science is an emerging field of informal science aimed at creating greater awareness and participation of the public. It has also contributed valuable data on various species of plants and animals. Supported by information technology, the science is growing day by day. Thousands of students and professionals are actively involved in this programme. The sheer joy of watching birds continues to drive thousands of bird-watchers to even the remotest corners of the country. There are some who are thrilled churning out a record number of bird checklists. A lot of information which misses the eye of even the most diligent researcher is recorded by these amateur

naturalists. A couple of essays in this book highlight the significance of Citizen Science and bird watching.

This book will be a valuable source of firsthand information on wildlife research and conservation in India. It will be a guide to the young students who plunge into wildlife research and conservation purely driven by impulse. The joys and travails of pursuing wildlife research and conservation in India have been laid bare. Team-building, fund-raising and working without stepping on the toes of the bureaucracy are all traits learnt over time. Most importantly, the message to all conservationists is that achieving the desired goals can take several years. The book offers a ray of hope even to the skeptics.

R. J. RANJIT DANIELS

*Care Earth Trust,  
No 4, 20th Street,  
Thillaiganganagar,  
Chennai 600 061, India  
e-mail: ranjit.daniels@gmail.com*