new researcher in the field will not miss any of the important literature. On the other hand are the syntheses; these are articles that go beyond literature compilation to provide a more personalized treatment of the field from the author's perspective. Another category is an opinion piece. In this category, an article may provide only a selective review of the literature to highlight particular aspects that the author may believe to be important to further research in the area. Still another category is a review that cannot quite be classified as such because it is too dispersed without a clear focus but, in fact, does reflect the state-of-the-art of a field, especially one with fledgling status. In such a case, the authors try to pull together diverse strands and suggest where future research may be directed. This volume has representative articles from all these categories, and this makes for good editorial strategy as old familiar subjects rest cheek by jowl with young upstarts. In this context, I must confess to a sense of disappointment while reading the article by Goulson *et al.* titled 'Decline and conservation of bumblebees'. This article seemed to fit into none of the categories. I would have liked, for example, to have seen a comparison between a decline in honeybees (social bees) and bumblebees (solitary bees), and for a discussion of similarities and differences in their vulnerability to current threats. This is especially important because of the vast literature and also numerous reviews (some controversial) on the pollination crisis resulting from global honeybee decline. Since *Bombus* (bumblebees) also occur in the Himalaya, and research is being conducted on the pollination crisis in Himalayan plants, I would also have liked to have seen a more global treatment of this problem. But these are small quibbles.

In summary, the *Annual Review of Entomology* has provided us once again with an exciting crop of data and ideas, combining the elements of classical whodunits (*quis*, *quid*, *ubi*, *quibus auxiliis*, *cur*, *quomodo*, *quando* [with apologies to Ngaio Marsh, *Death in a White Tie*, 1938]) with the murkiness of new intellectual frontiers to be invaded.


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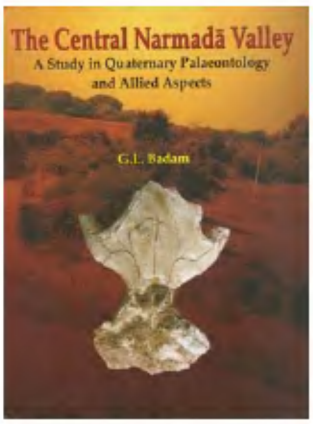


**The Central Narmada Valley – A Study in Quaternary Palaeontology and Allied Aspects.** G. L. Badam. Indira Gandhi Rashtriya Manav Sangrahalaya, Post Bag No. 2, Shamla Hills, Bhopal 462 013 and D. K. Printworld (P) Ltd, 'Srikunj', F-52, Bali Nagar, Ramesh Nagar Metro Station, New Delhi 110 015. 2007. 210 pp. Price: Rs 1600.

Narmada, originating at Amarkantaka in the east and flowing across the country to meet the Arabian Sea in the west, is a sacred river of India. It exposes magnificent geological sections along its course that are potential archives of geological and cultural evolution of this part of the country. The alluvial plains of the Narmada are extensively studied for their mammalian and cultural records. In recent years, its terraces in the western part have been the subject of intensive geological studies to understand Quaternary palaeoclimate and neotectonics. The Quaternary alluvial records of the Narmada have yielded a diverse assemblage of mammalian fossils. The Central Narmada Valley became a point of attraction with the discovery of a skullcap of *Homo erectus narmadiensis* in 1984. Later, a human clavicle (collarbone) was also reported in 1997. These findings were significant from the viewpoint of the origin of early *Homo* in South Asia. The mammalian-bearing horizon is well-constrained in time, both by biostratigraphy and by radiometric dating of the associated Toba volcanic ash (~75 ka), and middle to late Pleistocene age is assigned to it. The alluvial archives of the Narmada are also well known for their middle Palaeolithic and Acheulian tools. While sections along the Narmada have yielded relics of human culture, caves in the surrounding areas are known for their records of artistic expressions of early man of Palaeolithic and later times. Bhimbetka, a UNESCO heritage site, has encouraged a number of researchers to study people–landscape interaction as depicted in its cave paintings. The Indira Gandhi National Centre for the Arts, New Delhi, has taken a major initiative in documenting the rock arts.

The records of mammalian life, including that of man, cultural tools and paintings in caves by early man make the Narmada Valley an ideal field museum to study human evolution in an integrated perspective. The Indira Gandhi Rashtriya Manav Sangrahalaya, Bhopal, initiated a project to understand Pleistocene environment and man–land relationship in the Central Narmada Valley. This book reports the findings of this project. G. L. Badam, the Principal Investigator of the project and author of the book, has spent nearly three decades in studying the palaeontological records of the Narmada. Although in this book he has primarily documented the Pleistocene mega-vertebrate fossils, the microvertebrates, Stone Age tools and rock paintings are also discussed briefly.

The Narmada is flanked by the Vindhyans in the north and the Satpuras in the south. It also cuts across the Precambrians and Gondwanas. The book starts with a brief geological description of the Narmada Valley, followed by Quaternary lithostratigraphy of selected sections. The alluvial sections and cultural tools recovered from these sections are illustrated. In recent years the stratigraphic investigations in the western part

of the Narmada have contributed significantly to the understanding of palaeoenvironment and palaeoclimate. Some discussion on this aspect in the book would have been useful for the readers, particularly to get a holistic view of palaeoecology that the author has tried in later chapters. The systematics of the mega vertebrates collected from selected sites in the Central Narmada Valley is described in two chapters. It would have been better to combine the two chapters and append taphonomic observations wherever required, rather than duplicating the descriptions in some cases. Also, there is no uniformity in the descriptions. Synonymies are given for some species, but are missing for others. The mega vertebrates recovered in this study are referred to the families Bovidae, Elephantidae, Hippopotamidae and Equidae. A number of microvertebrates belonging to rodents, insectivores, reptiles, pisces and amphibians are also reported. The book integrates the fossil assemblages, their taphonomic attributes, cultural tools and observations of animals in the cave paintings for palaeoecological reconstruction of the Narmada Valley. It is suggested that the valley was a vast savannah land with flood plains, back swamps and water pools inhabited by hoofed mammals and reptiles. The climate was similar to the present-day tropical climate, that enabled the animals to migrate from the north during the glacial period to survive almost up to 15,000 years ago. The concluding chapter is about the life history and palaeoecology surrounding the river Narmada. It would have been better if some of the inferences from microvertebrates and rock paintings, given as appendices, were in the main text to complete the story.

Overall, the book nicely documents the fossil finds with adequate descriptions and illustrations. Printing is of good quality, but the cost should have been low to make it within the reach of the general readers. Narmada, with its vast heritage will continue to attract researchers with wide-ranging interest in palaeontology, anthropology and archaeology. The book with its holistic approach will be useful to all.

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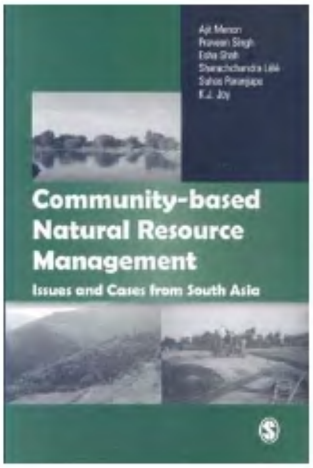


**Community-based Natural Resource Management: Issues and Cases from South Asia.** A. Menon *et al.* Sage Publications India Pvt Ltd, B1/11, Mohan Cooperative Industrial Area, Mathura Road, New Delhi 110 044. 2007. 362 pp. Price: Rs 450.

Community-based natural resource management (CBNRM) is the joint management of natural resources by a community based on a community strategy, through a participatory mechanism involving all legitimate stakeholders. The approach is community-based in that the communities managing the resources have the legal rights, the local institutions and the economic incentives to take substantial responsibility for sustained use of these resources. This implies that the community plays an active role in the management of natural resources, not because it asserts sole ownership over them, but because it can claim participation in their management and benefits for practical and technical reasons[1–4]. This approach emerged as the dominant conservation concept in the late 1970s and early 1980s, of the disillusionment with the developmental state. Governments across South and South East Asia, Africa and Latin America have adopted and implemented CBNRM in various ways, viz. through sectoral programmes such as forestry, irrigation or wildlife management, multisectoral programmes such as watershed development and efforts towards political devolution. In India, the principle of decentralization through 'gram swaraj' was introduced by Mahatma Gandhi. The 73rd and 74th constitution amendments in 1992 gave impetus to the decentralized planning at panchayat levels through the creation of a statutory three-level local self-government structure[5,6].

The strength of this book is that it includes chapters by CBNRM advocates based on six seemingly innovative initiatives being implemented by non-governmental organizations (NGOs) in ecologically vulnerable regions of South Asia: two in the Himalayas (watershed development programme in Lingmutechhu, Bhuthan and Thalisain tehsil, Paudi Grahwal District, Uttarakhand), three in semi-arid parts of western India (watershed development in Hivre Bazar, Maharashtra and Nathugadh village, Gujarat and water-harvesting structures in Gopalapura, Rajasthan) and one in the flood-plains of the Brahmaputra–Jamuna (Char land, Galibanda and Jamalpur districts, Bangladesh).

Watersheds in semi-arid regions fall in the low-rainfall region (500–700 mm) and suffer the vagaries of drought 2–3 years in every five-year cycle. In all these locations, the major occupation is agriculture, most of which is rainfed or dry. The other two cases (in Uttarakhand) fall in the Himalayan region (temperate/sub-temperate climate), which has witnessed extensive deforestation in the last century and is now considered as one of the most vulnerable locations in South Asia. Terraced agriculture is being practised in these locations for a long time. The last case (Gono Chetona) falls in the Brahmaputra–Jamuna charlands which are the most ecologically vulnerable regions in the sub-continent with constantly changing landscape. Agriculture and livestock rearing are the main occupations, and there is substantial seasonal emigration for wage labour by the adult males. River erosion and floods force the people to adopt a semi-migratory lifestyle.

The book attempts to analyse the potential as well as limitations of NGO-driven CBNRM endeavours across agro-climatic regions of South Asia with emphasis on four intrinsically linked normative concerns, namely sustainability, livelihood enhancement, equity and demographic decentralization in chapters 2–7. Comparative analysis of these case studies done in chapter 8, highlights the issues that require further research while portraying the strengths and limits of NGO-driven CBNRM. In Hivre Bazar, the post-watershed intervention scenario is such that farmers often grow three crops in a year – kharif