

## The Colobines

### Natural History, Behaviour and Ecological Diversity

The colobines are a group of Afroeurasian monkeys that exhibit extraordinary behavioural and ecological diversity. With long tails and diverse colourations, they are medium-sized primates, mostly arboreal, that are found in many different habitats, from rain forests and mountain forests to mangroves and savannah. Over the last two decades, our understanding of this group of primates has increased dramatically. This volume presents a comprehensive overview of the current research on colobine populations, including the range of biological, ecological, behavioural and societal traits they exhibit. It highlights areas where our knowledge is still lacking and outlines the current conservation status of colobine populations, exploring the threats to their survival. Bringing together international experts, this volume will aid future conservation efforts and encourage further empirical studies. It will be of interest to researchers and graduate students in primatology, biological anthropology and conservation science. Additional online resources can be found at [www.cambridge.org/colobines](http://www.cambridge.org/colobines).

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# The Colobines

## Natural History, Behaviour and Ecological Diversity

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## Foreword

On the dust jacket of *Colobine Monkeys: Their Ecology, Behaviour and Evolution*, which John Oates and I author-edited in 1994, someone had written ‘and will remain a significant and useful reference for many years to come’. Neither John nor I expected that this would apply for a quarter of a century, and we have been humbled by the continued reference to the work provided by a diverse group of inspiring colleagues who were interested in this remarkable radiation of African and Asian primates. It was a great pleasure, therefore, to be invited to provide a foreword to this new compilation of the latest research and thinking on colobine monkeys, and I thank the editors for the opportunity.

In the 40 years since I started researching colobine monkeys, many things have changed, and looking at this volume my first observation is that it is very good to see so many new names and research groups that have taken up colobine studies, especially from colobine range countries. It is also good to see in these pages acknowledgement of many colleagues, some no longer with us, whose insightful research has helped guide our understanding over the years.

The first detailed ecological studies in the 1970s and early 1980s did not involve laptops, or mobile phones, or GPS, or camera traps, and we recorded thousands of hours of field observations with the help of pencils (which didn’t smudge in the rain), carbon copies, topo’ maps and excellent local field assistants. New technologies have been developed with spectacular speed since then to bring new insights today, the most conspicuous of which are advances in genetic techniques. These have supported the proposal in this book that there are 10 genera, 78 species and 124 taxa of colobines, up from ‘at least 30 species which can be grouped into 4–9 genera’, as noted in *Colobine Monkeys*. Yet the lists of scientific name changes confirm that colobine taxonomy is ‘one of the most disputed among primates’, and research is still needed to iron out the taxonomic wrinkles. More scientific name changes can be expected.

This in turn raises the challenge of what common names to use for colobine species. For African species, ‘colobus’ has been widely accepted as the English language name and is used with an adjective – olive, red and black-and-white – for the three genera. For Asian colobines, it is more perplexing. Fortunately, the decision in this volume to include the Indian and Sri Lankan species in a single genus, *Semnopithecus*, gives an opportunity to use the term ‘langur’ for this group of species, which is used by millions of local people throughout South Asia – but not by those in Southeast Asia. The ‘odd-nosed monkey’ is another appropriate English common name for those species that do indeed have odd noses (referred to as ‘snub-nosed’ species in 1994). What is less clear is what to call *Trachypithecus* and *Presbytis* species, which are different from the langurs. The English term ‘leaf monkey’ was used in *Colobine Monkeys* as a collective term for the *Presbytis* species, given that

they eat lots of leaves and live in very leafy rainforests. The Malay word *lutong* is the local name for *Trachypithecus* species at several places in Southeast Asia, although it is little used beyond that, so we will have to await the conclusions of further analysis to resolve this issue of suitable English common names.

In the field, many local names are onomatopoeic and reflect the diversity of languages and the rich cultural heritage in colobine range countries. Good examples include *chengkong* for *T. obscurus*, with its booming adult male loud call in West Malaysia, or *kelasi* for *P. rubicunda*, with its rather truncated and quieter alarm call in Sabah. In fact, the sounds of adult male loud calls are often the first and main feature used for species identification during field surveys, and the lack of a systematic assessment of all colobine adult male loud calls does seem to be a gap in our research knowledge. This would complement the findings of morphological and genetic studies, and could help resolve issues of taxonomy and nomenclature.

This new volume shows that innovative genetic techniques have given us more information on digestive physiology, and yet neither physiology nor dental morphology provides a simple framework with which to predict diet or nutritional strategies. Tooth wear patterns do not correspond with particular diets, and forestomach fermentation does not provide any simple model for resolving feeding strategies to increase the intake of protein, energy and micronutrients *versus* minimizing the intake of digestion inhibitors, toxins and indigestible fibre. A great variety of colobine species live in very varied habitats, confounding simple ecological models.

The early hypothesis that food supply limits colobine numbers probably does apply in many cases, but despite the careful work reported here, it has again been difficult to confirm any general model across all sites. Forest plant species composition, seasonality of plant part production and quality of foliage are all patchy and highly variable. Furthermore, human hunting can have devastating effects, especially for bushmeat in West Africa, and predation by chimpanzees has been shown to greatly reduce colobus numbers at some East African sites.

Protected area management and prohibitions on hunting will continue to be the cornerstones of conservation strategies, which clearly need to be made more effective. And as the tide of land-use change relentlessly rolls in, we need a stronger set of forest management interventions to improve degraded forests and reconnect forest fragments in agricultural landscapes. This will improve meta-population management between forest patches, and keep open options for adaptation to future climate change impacts. In fact, this is probably the most conspicuous change between the two volumes – climate change was not mentioned 25 years ago.

As we look at the evidence from the field and try to ensure that good science underpins future conservation and development strategies, we tend to focus on the direct threats, when the underlying drivers of deforestation also need to be addressed. Our challenge is to connect with and influence governments, businesses and communities to support forest and primate conservation, and this must flow from global policy dialogues, such as the Convention on Biological Diversity and the United Nations Framework Convention on Climate Change, to national strategies that need

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appropriate funding to well-equipped managers of forests and protected areas. And we need to build up and support great conservation leaders for the future.

To conclude, it is much appreciated that authors in this compendium have often referred to work in *Colobine Monkeys* and built our current understanding from those foundations. Looking ahead, it is intriguing to imagine what new technologies will deepen our understanding in the next 25 years and what new conservation challenges we will face. As these processes evolve, it is worth remembering that good work always stands out, and it is a pleasure to see the very substantial amount of new knowledge and thinking shared in this volume. It is essential reading on colobine natural history, and it will certainly be ‘a significant and useful reference for many years to come’.

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