

Chapter 1 1
How Ecological Conditions Affect 2
the Abundance and Social Organization 3
of Folivorous Monkeys 4

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Abstract A fundamental issue in ecology is identifying factors influencing animal density, and this issue has taken on new significance with the need to develop informed conservation plans for threatened species. With primates, this issue is critical, because tropical forests are undergoing rapid transformation. Similarly, a fundamental question in behavioral ecology is understanding how ecological conditions shape the social organizations of animals. During the past two decades, our research group has been investigating the ecological variables influencing the abundance and social structure of two folivorous monkey species, the red colobus (*Procolobus rufomitratus*) and the black-and-white colobus (*Colobus guereza*) in Kibale National Park, Uganda. We have documented much variation in the abundance of these colobus monkeys over very small spatial scales. This variation is partially caused by variation in quality of the food resources, particularly the availability of high-protein resources relative to their fiber content. However, this is not the whole story, and minerals, disease, and the interaction between disease and stress also appear to play important roles. Further, despite examining all these factors over multiple decades, our understanding is too limited to explain observed changes in colobine abundance over the past 40 years. Emerging from our studies of determinants of primate abundance were investigations of feeding competition. Our findings suggest that, counter to previous claims, feeding competition is occurring

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J. Yamagiwa and L. Karczmarski (eds.), *Primates and Cetaceans: Field Research and Conservation of Complex Mammalian Societies*, Primatology Monographs, DOI 10.1007/978-4-431-54523-1_1, © Springer Japan 2014