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The Importance of Seasonality in Primatology

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In August, 1996 a symposium on Seasonality in the Great Apes was held at the 1996 Joint Congress of the International Primatological Society and the American Society of Primatologists. This symposium brought together papers by 22 researchers from the United States and Japan, who presented new information from seven great ape study sites in Africa and Asia. This special edition of the *International Journal of Primatology* presents many papers from the symposium as well as others that grew out of discussions of the meeting.

Most field primatologists acknowledge the importance of seasonality in ecology on many aspects of primate behavior and ecology. This important area has, however, received little study. Tropical forests have often been classified as either seasonal or nonseasonal, depending on the degree and annual distribution of rainfall. Nonseasonal, evergreen, rain forests are assumed to contain more continuously available food resources than seasonal rain forests. However, in both seasonal and nonseasonal forests, the production, duration, and synchrony of primate foods, including fruit, flowers, and new leaves, can be related to variations in many abiotic and biotic factors (van Schaik *et al.*, 1993). Abiotic factors including temperature, rainfall patterns, day length, and amount of available daily sunlight are all implicated in the phenological patterns of tropical forests (Rathcke and Lacey, 1985; van Schaik *et al.*, 1993). Phenological patterns are also influenced by biotic factors including plant-animal interactions. Such phenological patterns represent adaptations to benefits received by the plant, such as pollination (Carpenter, 1978; Sussman and Raven, 1978; Janson *et al.*, 1981; Feinsinger, 1981) and seed dispersal (Howe and Smallwood, 1982; Janzen, 1982; Milton *et al.*, 1982; Chapman, 1989; Smythe, 1989; Wrangham *et al.*, 1994; Chapman and Chapman, 1995; Jordano, 1995). In contrast, these pat-

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terns may have evolved to minimize costs of such factors as seed predation (Janzen, 1971; 1976; Roosmalen *et al.*, 1988; Schupp, 1992).

The importance of phenological patterns on primate socioecology is immense. Such patterns have been shown to have important impacts not only on seasonal changes in primate diets (Terborgh, 1986; Gautier-Hion, 1989) but also on ranging, habitat use, and ultimately reproduction (Fogden, 1972; Medway, 1972; Leighton and Leighton, 1981; Nash, 1983; Schaik and Noordwijk, 1985; Schaik, 1986; Butynski, 1988).

The papers in this issue represent a first step to document the impact of seasonality in a small group of primates; the great apes. We encourage other primatologists to further our understanding of this important topic.

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