Fallback Foods of Red Leaf Monkeys (Presbytis rubicunda) in Danum Valley, Borneo

Abstract

Animals in Southeast Asia must cope with long periods of fruit scarcity of unpredictable duration between irregular mast fruiting events. Long-term data are necessary to examine the effect of mast fruiting on diet, and particularly on the selection of fallback foods during periods of fruit scarcity. No such data is available for colobine monkeys, which may consume substantial amounts of fruits and seeds when available. We studied the diet of red leaf monkeys (Presbytis rubicunda, Colobinae) in Danum Valley, Sabah, northern Borneo, using 25 mo of behavioral observation, phenology and vegetation surveys, and chemical analysis to compare leaves eaten with nonfood leaves. The monkeys spent 46% of their feeding time on young leaves, 38% on seeds, 12% on whole fruits, 2.0% on flowers, 1.0% on bark, and 1.2% on pith. They spent more time feeding on seeds and whole fruit when fruit availability was high and fed on young leaves of Spatholobus macropterus (liana, Leguminosae) as fallback foods. This species was by far the most important food, constituting 27.9% of the total feeding time, and the feeding time on this species negatively correlated with fruit availability. Consumed leaves contained more protein than nonconsumed leaves, and variation in time spent feeding on different leaves was explained by their abundance. These results suggest that red leaf monkeys show essentially the same response to the supra-annual increase in fruit availability as sympatric monogastric primates, increasing their seed and whole-fruit consumption. However, they depended more on young leaves, in particular Spatholobus macropterus, as fallback foods during fruit-scarce periods than did gibbons or orangutans. Their selection of fallback food appeared to be due to both nutrition and abundance.