Long-term studies of primates in Mesoamerica have contributed significantly to our understanding of the behavior, ecology, social organization, and life history strategies of neotropical monkeys. This section of the book highlights recent advances in this area. Long-term projects have focused almost exclusively on white-faced capuchin monkeys and black and mantled howlers. Not surprisingly, the chapters in this section deal with *Cebus* and *Alouatta*—Mesoamerican taxa that, while exhibiting very different adaptive patterns, represent the most geographically widespread and most well studied of New World primates.

The first chapter in this section highlights an important and often overlooked problem in the behavior and ecology literature—that is, the use of average body weight for a species as a predictive tool. These predictions, however, are only as reliable as the body weight data used, and average weights vary widely from...
one sample time to another for the same individual, and from site to site. Ken Glander demonstrates this variability by examining average body mass for mantled howling monkeys (*Alouatta palliata*) from two sites in Costa Rica and one in Panama, including 34 years of body mass fluctuations in one population of mantled howlers. This examination reveals significant variability that is typically hidden in “average” body mass values. In her chapter on developmental plasticity in Costa Rican mantled howlers, Clara Jones further explores the variation expressed within individuals over their lifetimes. Building on the numerous studies that show behavioral plasticity in howlers, particularly with respect to diet, timing of reproduction, bisexual dispersal patterns, and number of males in a social group, Jones describes the results of an exploratory study of female chest circumference variation in response to habitat differences. This functional ecology approach is relatively new in primatology, and Jones argues that it will have important implications for primate and other mammalian development, energetics, life history, evolution, and conservation because it involves an understanding of growth, survival, and reproduction relative to environmental regimes. Paul Garber takes a cognitive ecology approach, using feeding behavior to assess cognitive abilities in mantled howlers (with P. Jelinek) and in white-faced cebus monkeys (with E. Brown). In mantled howlers, Garber and Jelinek examine foraging strategies and travel patterns in a group of Nicaraguan mantled howler monkeys, documenting howler path sequences and use of consecutive feeding and resting sites in order to address questions about the degree to which mantled howlers represent spatial information as a route-based or as a metric-based cognitive representation. The degree to which howlers use topological (route-based) spatial representations or geometric (coordinate-based) spatial representations to locate and revisit these feeding and resting sites has been unclear, but in this study howlers were found to take direct routes to feeding and resting sites and reuse the same route segments on several occasions. On the basis of data on canopy visibility, tree distribution, and the distance between sequential feeding sites, the authors conclude that howlers rely on particular landmark cues to orient and reorient their direction of travel, maintaining information about the locations of numerous intersecting routes of travel and landmarks within their home range. Reuse of these route segments is consistent with a typological or route-based spatial representation.

An experimental field study of wild capuchin monkeys explored the extent to which these larger brained omnivores, reported to rely on complex spatial information to locate distant feeding sites, actually use landmark cues to locate