Description of Primate Data•

The Sample

Data are available on the total adult brain weights (in grams) for 124 species, compiled from secondary sources by Tanya Mueller (Barton, 1999; Harvey et al., 1987). From these data, this analysis was restricted to 91 species for which each of the following six variables were known: mean adult body weight (in grams), age at first breeding for females (in months), maximum lifespan (in years), maximum home range (in hectares), and percent frugivory. Much of the data came from secondary sources (Barton, 1996; Barton, 1999; Dunbar, 1992; Harvey et al., 1987; Ross, 1992). These data differ, however, from previous analyses in a heavier reliance on primary field data for female age at first breeding, maximum home range, and percent frugivory. They may thus more accurately represent the selection pressures faced by wild individuals, which are assumed to be living in conditions much more representative of the context in which these features co-evolved.

Data issues

Due to the variety of habitats in which some of the species have been studied, it was necessary to make several judgment calls in the compilation of species values for the variables of interest. Overall, favor was given to studies that appear more comprehensive and methodologically sound, as judged by the duration of the study (including both total time involved as well as an accurate representation of all the seasons that occur each year), the number of individuals and/or groups included in the study, the methods by which data were collected, and the replicability of the study (e.g., similar values reported for more than one study that utilized the same study population). One inherent problem is that populations of the same species living in very different habitats may exhibit very different ecological adaptations, expressed either through home range size or dietary composition. Hence, studies of populations with a high degree of reliance on human intervention or human settlements (i.e., temple dwelling macaques, garbage dump baboons, etc.) were excluded from consideration. Details about sources of information and exact values used can be found at the following website (www.unm.edu\~hkaplan). Additional decisions were made regarding the following variables.

Mean adult body weight. Mean adult body weights were taken from the secondary literature, representing averages for species that do not necessarily take into account varying degrees of sexual dimorphism. Data on mean adult female body weights and mean adult female brain weights would be preferred, but until more comprehensive data become available on sex differences in brain weight, it is necessary to use species averages without reference to sex.

Female age at first breeding. Many of the reports for female age at first breeding have been for captive individuals, which underestimate the age at maturation for wild individuals. Hence we used wild data where possible. In situations where there was no data on the age at first breeding, but the age at sexual maturity was reported, sexual maturity was used as a proxy for age at first breeding.

Maximum lifespan. The data on maximum lifespan come primarily from (Hakeem et al., 1996), which reports the oldest recorded or living individuals of various species in captive situations (primarily zoological gardens). These values are generally higher than

those used in previous analyses, but may still not be representative of the maximum lifespan. These data include values for individuals still alive, and thus future publications may report a value higher than that included here.

Maximum home range. The data on maximum home range comes both from secondary sources and the primary literature. Though the maximum reported home range is not necessarily the value most typical for species, it may better reflect historical selection pressures for cognitive capabilities regarding range size.

Percent frugivory. The data on percent frugivory were taken from both primary and secondary sources. Many of the values used for this analysis agree (within five percent) with those used for previous analyses. Differences are due mainly to excluding seeds from our measures and including only fruit, per se. An additional problem arose when studies of the same species reported very different values for this measure, either due to different populations residing in different habitats, or the same populations in different seasons. Values from the most comprehensive studies were chosen. Additionally, studies that reported the entire dietary composition, rather than just a value for percent frugivory, were favored. When neither method favored one value over another, we relied on personal communications with primary researchers.

References cited:

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• A more detailed discussion of these data and a more thorough analysis is presented in are available in (Kaplan et al., unpublished ms.)