

COSTS AND BENEFITS OF GROUP LIVING: VIGILANCE BEHAVIOR IN RING-TAILED LEMURS. Wood, K. D. and White, F. J., Department of Biological Anthropology and Anatomy, Duke University, Durham, NC 22708, USA

The most commonly-cited advantage to group living is that more individuals are present to watch for predators, so that any individual can spend less time being vigilant. This benefit is usually balanced against the cost of increased competition for food. Other costs must also be incurred, however; for example, a larger number of individuals in the social group may increase social disturbance and adversely affect time budgets.

From 1989 to 1996, vigilance behavior was observed in two groups of free-ranging ring-tailed lemurs (*Lemur catta*) at the Duke University Primate Center. All observations were conducted outside the mating season and during periods of rest, defined as times when most animals had their eyes closed and heads down. The number of animals in each huddle was recorded at the beginning of the sample, and any changes in huddle sizes were noted. Temperature was recorded to test for correlations with huddle size. Because the groups were provisioned, feeding competition was not measured. A focal adult in a resting huddle was selected at random, and the frequency and duration of looking up were recorded. Four categories of looking up were defined: (1) Environmental disturbance, either from abiotic factors such as airplanes, or from non-conspecific lemurs within the enclosure; (2) Social disturbance, noted as either within or outside the huddle; (3) Alarm calls from another ring-tailed lemur; and (4) Vigilance. Vigilance was further divided into Social vigilance, defined as watching a conspecific, and Predator vigilance, defined as scanning the area without looking at another individual.

As predicted, the amount of time spent in predator vigilance decreased with group size. However, social disturbance and social vigilance both increased with group size, disrupting periods of rest. This suggests that there are non-feeding costs associated with group living in lemurs. Females usually rested more in huddles, whereas adult males often rested on the periphery or outside of a huddle. It has been argued that the advantage of extra males in a lemur group is added alertness to predators, but males in this study were found to have the lowest rates of vigilance.