

Effects of Diet on Nutritional Content of Prey Species fed to Captive Raptors

Nancy J. Clum¹, Marianne P. Fitzpatrick² and Ellen S. Dierenfeld²

¹*The Peregrine Fund Inc., Boise, Idaho*

²*Department of Nutrition, Wildlife Conservation Society, Bronx, New York*

We measured proximate composition (moisture, lipid, protein, ash), vitamin A and vitamin E content, and six minerals (Cu, Fe, Zn, Mg, Mn, Ca) in quail, rats, mice and guinea pigs raised on at least two different diets per species. The objectives of this work were 1) to assess the variability of nutrient composition in some commonly used, commercially available diets, 2) to assess the impact of this variability on body composition of prey commonly fed to raptors, and 3) to assess the relative responsiveness of different species to changes in diet. Feed composition varied substantially but erratically in lipid, vitamin A, vitamin E and mineral content. All unsupplemented feeds had less vitamin E than NRC recommendations and most feeds contained less Mn than recommended. Most feeds deviated from the manufacturer's guaranteed analysis. There were significant effects of diet on body mass, moisture, lipid, ash, vitamin A, vitamin E, Ca and Cu content for quail. There was a significant effect of diet on vitamin A content of mice; there were no other effects of diet on mammalian species. There was no correlation between diet composition and body composition for any species. Rats and mice differed significantly in vitamin A, Fe and Cu content when raised on the same diet. We suggest that 1) it is difficult to assume or assess composition or adequacy of commercial diets without laboratory analysis, 2) supplementation of diets with whole foods can potentially reduce diet quality, 3) nutrient differences in quail are related to differences in growth and such age-related differences may be more important in determining nutrient content than diet, 4) there were significant species differences in responsiveness to changes in diet, and 5) whole domesticated prey are a potentially inadequate source of vitamin E for raptors and of Mn and Cu for all carnivores.

Key words: vitamins, minerals, body composition, feed composition, growth