

# Primary reserch (squirrels behaviour)

[Science](#), [Biology](#)



Primary Research (Squirrels' Behavior) Kotler B. P, Brown J. S, Hickey M. " Food Storability and the Foraging Behavior of Fox Squirrels (*Sciurus niger*). " American Midland Naturalist, Volume 142 (1999): 77-86. Print

#### Question # 1a

Kotler et al, in this article, examine how supplemental food items affect the foraging behavior of fox squirrel (*Sciurus niger*). Giving-up densities (GUDS) of non-cacheable food were used to investigate the squirrel behavior, in artificial food patches. The main purpose of this study is to determine how foraging affects the seasonal behavior of squirrels, during winter and summer. My research project is focused on determining squirrels behaviors that follow a certain pattern. This makes this article similar to my research project because it focuses on determining why squirrels gather food, during the summer, and rest during winter, while consuming the stored food.

#### Question # 1b

The researchers chose fox squirrels living under natural conditions at The Morton Arboretum. *Sciurus niger* is a specie of squirrels that store acorns and nuts, during winter months, for future use (Kotler et al, 1999 p79). Their food structure is highly complex, thus making this analysis call for a special training. For example, training is needed to determine the supplemental food, which differs in cacheability, to present to the squirrels. Additionally, training is required to determine the behavior of the squirrels, in the assesment trays.

#### Question # 1c

The results indicated that squirrel do much of the food gathering during the summer, and retreat to shelter during winter.

## Question # 1d

Animal's foraging behavior is significantly affected, in several ways, when its food has future value and is cacheable. When a forager collects food, its marginal value of energy usually declines, thus cost of predation is increased (Kotler et al, 1999 p81). This mostly happens during the summer when dropped supplemental food items such as pine seeds and corns are spread on the ground surface. Food gathering increases to a point that the forager stops collecting more food and moves to a shelter, and this happens during winter. In this experiment, it was determined that food of future high value has less effect on the squirrels current and subsequent food gathering activities (Kotler et al, 1999 p81). However, stored perishable food influences the subsequent behavior of the squirrels. This implies that supplemental food items directly influences behavior of squirrels, during the summer and winter (Kotler et al, 1999 p81). In other words, food gathering is mainly done during the summer, and squirrels rest during winter while consuming the stored food.

Shuttleworth C. M. " The foraging behaviour and diet of red squirrels *Sciurus vulgaris* receiving supplemental feeding." *Wildl. Biol* (2000): 149-156. Print

## Question # 2a

Shuttleworth, in this article, is determined to establish how the nutritional content of food items affects the feeding behavior of red squirrels (*Sciurus vulgaris*). According to this study, the nutritional content of food significantly affects the dietary composition of tree squirrels thus affecting their foraging behaviors (Shuttleworth, 2000 p154). The objective of this study is related to my research project because it intends to establish why *Sciurus vulgaris*

spend some times feeding on supplementary food on the ground surface, and why some times they forage the canopy.

#### Question # 2b

This study was conducted in a coniferous habitat: a 40-ha piece of land selected within the National Trust Reserve at Formby, England (Shuttleworth, 2000 p150). This research method requires careful sampling and analysis, because the samples involved are free living animals. This, therefore, calls for special training and equipment. Advanced knowledge is required to conduct caching and caching recovery. Focal sampling technique was used to mark the samples, a technique that requires special equipment for testing the caloric and chemical content of cones and buds (Shuttleworth, 2000 p151).

#### Question # 2c

The squirrels exhibited pronounced seasonal changes, in the foraging behavior (Shuttleworth, 2000 p151). The proportion of daily foraging time, during autumn and summer months, directly correlates with the number of food items eaten per squirrel (Shuttleworth, 2000 p151). Additionally, higher proportion of feeding behavior also determines the time spent by a squirrel foraging, in the canopy and on the ground surface.

#### Question # 2d

The nutritional content of food directly affects the foraging behavior of squirrels. The abundance of peanuts and pine seeds, which are rich in crude protein, on the ground, determined the time spent by squirrels foraging on canopy (Shuttleworth, 2000 p154). Squirrels, during autumn and winter, spend most of the time foraging on top of tree gathering low energy natural

food such as fungi, flowers and buds (Shuttleworth, 2000 p155). They spend the afternoon hours foraging supplemental food items such as peanut and corn seeds. This is because they provide the squirrels with 25% to 181% of their basic daily energy requirements (Shuttleworth, 2000 p154). However, these supplement food contain a high amount of enzymes, fats, and phosphorus, which inhibits the absorption of amino acids. This is the reason why the squirrels prefer using low energy natural food.

#### Works Cited

Kotler B. P, Brown J. S, Hickey M. " Food Storability and the Foraging Behavior of Fox Squirrels (*Sciurus niger*). " American Midland Naturalist, Volume 142 (1999): 77-86. Print

Shuttleworth C. M. " The foraging behaviour and diet of red squirrels *Sciurus vulgaris* receiving supplemental feeding." Wildl. Biol (2000): 149-156. Print

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