



## **MAMMALOLOGY LAB 9**

### **SQUIRREL FORAGING EXPERIMENTS**

#### **Time Table & Due Dates**

- ❑ Project Idea/Group Presentation: **TUES 4/14 – THURS 4/16**
- ❑ Rough Draft for Review (OPTIONAL): **TUES 4/28 – THURS 4/30**
- ❑ Completed Lab Report: **TUES 5/5 – THURS 5/7**

For this lab report, you will be divided into groups of approximately four people and each group will do an experiment on some aspect of gray squirrel (*Sciurus carolinensis*) foraging behavior. Gray squirrels are found almost everywhere on the University of Maryland campus that trees are found. Their natural diet includes a great variety of nuts, seeds, fungi, and fruit. They nest in large holes in trees or, as commonly seen here on campus, in leaf nests constructed in the branches of trees (look for a basketball-sized wad of dead leaves in the branches). Home range size is 0.8ha to 2.8ha.

#### **Project Ideas & Guidelines**

For this project it is best to keep your experimental ideas simple. Try to focus your tests on one aspect of squirrel foraging behavior. As you develop your question, think about what sensory faculties of the squirrel you will be testing. You are permitted to manipulate the following variables:

- Type of food item (you can use nuts, sunflower seeds, and pieces of dry cereal; choice of appropriate food items will allow you to vary energy content or handling time, for example)
- Time of day of observations
- Location on campus (as a way of manipulating the level of human presence, for example)
- Color cues (by wrapping food items in colored paper or cellophane, or by placing food items on pieces of paper of differing color)
- Other visual cues, such as conspicuousness (for example, by covering some food items with a leaf while leaving other visible)
- Food odor cues (by wrapping some food items in cellophane to eliminate odor cues)
- Predator odor cues (by placing food items near/on filter paper soaked in urine from predators or non-predators)
- Spatial distribution of food items (clustered vs. evenly spaced, or at differing distances from physical landmarks such as trees)
- Size and/or weight of food items (by choosing food items of different sizes and weights, or manipulating the size and weights of food items by, for example, removing one half of a shelled peanut and gluing the shell back together with non-toxic Elmer's glue)

You have SOME flexibility in creating your project, (creativity *is* encouraged) but due to Animal Care and Use regulations any project you design must be approved first. You cannot conduct projects that are not approved.

Be sure to address the following questions in your project description. What type of materials will you use? What type of controls will you have? How will you arrange your treatments? How many animals will you test? When will you test them?

### **Important things to remember**

**Hand feeding of squirrels is prohibited.** Hand feeding trains animals in inappropriate behavior, familiarizes them with human interaction and increases the risk of bites.

**Seek medical attention if bitten or scratched.** Any bite or scratch by a squirrel or other wild animal carries a risk of serious zoonotic illness.

### **Project Descriptions and Group Presentations**

Each group will give a brief presentation in class on the dates indicated above. The presentation is an opportunity for you to get feedback from your TA and the rest of the class before embarking on your project, so the more thorough your presentation, the more helpful the feedback will be. The presentation should give some background on the project being proposed (Why is this aspect of squirrel foraging behavior being studied? What is already known about this aspect of squirrel foraging behavior? What is known in other species?), explain the methods that you intend to use to answer this question. Each group will have 10 minutes to present and 2 minutes or so to entertain questions from the rest of the class. You are encouraged to use audiovisual aids in your presentation (a computer and projector are available for any groups that want to do a power point presentation, or you can keep it simple with overheads or handouts). It is up to each group to decide whether the presentation will be given by one member of the group or by more than one member. No matter who gives the formal presentation, it is expected that all group members will have made substantial contributions to the project as a whole.

### **Materials**

We have some supplies on hand that you are welcome to use for your project. We will set aside the materials that are available for you to use/borrow. These will be available on a first come/first served basis. If you need additional materials, you will need to purchase them yourselves, so try to keep this in mind as you design your project.

### **Working As A Group**

You must schedule the time necessary to complete your project. Keep in mind the due dates for the Rough Draft Review and Completed Lab Reports above. *Do not wait until one or two days before the due date to begin your experiments! It will be too late!*

Each group will work together to produce the lab report. This means that each group member must participate equally in project development and execution. This includes not only hypothesis formulation, but also library research, behavioral observations, data analysis, and write up. It is okay for each of you to write up separate sections of the lab report, but each group member must be involved in library research, behavioral observations and data analysis if your project is to be successful. Final reports must be submitted with the same typeface for all sections of the lab report (e.g., Times New Roman, 12pt.)

Each student will be required to attach a statement to the final group report stating his or her contribution to the project. Five points (12.5%) of your grade on this report is dependent on your equal participation in the project. **Any student not attaching a participation statement will not receive any credit for the project!**