Project Squirrel

Citizen Scientist Guide to collecting the Giving Up Density

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Cover photo: A Fox Squirrel *Sciurus niger* in Brookfield, Illinois

Acknowledgements

Project Squirrel has been investigating tree squirrels throughout the Chicago Wilderness region for more than a decade. The project was initiated by Joel Brown and Wendy Jackson in 1997, further developed by Marius van der Merwe, and expanded by Steve Sullivan in 2009. Over this time, thousands of citizen scientists have submitted observations and collected data that have resulted in the publication of several scientific papers and a better understanding of squirrel ecology in this region and beyond. As our understanding of one aspect of squirrel biology develops, we can better explore additional aspects. None of this understanding would be possible without the regular and enthusiastic support of citizen scientists.

This work has been supported by the University of Illinois at Chicago, the members of the Brown Lab at UIC, the Chicago Academy of Sciences and its Peggy Notebaert Nature Museum, and all of the citizen scientists from all ages and walks of life, throughout the United States and in many other countries. Thanks to all of you for your past and continued contributions to Project Squirrel.

A white Gray Squirrel, *Sciurus carolinensis*, in Olney Illinois. Most all white or all black squirrels in North America are simply Gray Squirrels with an unusual coat color.

Message to Volunteers, Instructors, and Students

Thank you for your interest in Project Squirrel. As you read through this guide I hope you will find that studying squirrels presents a range of fun and educational opportunities. Project Squirrel activities can involve people of all ages and add a scientific purpose to backyard wildlife observation. School teachers will find that Project Squirrel can be used as a tool to teach real-life application of math and science skills and as a foundation for a range of reading, writing, math, and geography exercises. University instructors are invited to incorporate Project Squirrel into ecology labs and field techniques courses.

Participation in this project will help you understand your neighborhood squirrels and general ecology more clearly and by contributing the data you collect, we will be able to illuminate regional patterns of biodiversity, demographics, and ecology. If you already love squirrels, this understanding is likely tohelp you enjoy squirrels even more. If you hate squirrels, this understanding should help you mitigate the problems squirrels can cause. Love them or hate them, squirrels are excellent organisms for documenting urban ecology and it is my hope that this guide will encourage citizen scientists everywhere to develop their skills in observing and enjoying the ecology of their neighborhoods while contributing to a focused, long-term data set that is illuminating the relationships between humans and our urban environments.

I look forward to seeing your data sets over the coming seasons. Happy Squirreling,

Yours,

The Project Squirrel Team

Contacts

ProjectSquirrel.org has everything you need to be a scientific squirrel watcher: links to datsheets, pictures, frequently asked questions, and more. You can efficiently report your squirrel data through ProjectSquirrel.org and we hope you'll encourage your friends to go there and participate, too.

For additional questions, including support for GUD collectors, contact sciurus@uic.edu.

Introduction

Project Squirrel in a nutshell

Project Squirrel is a long-term study that partners with citizen scientists to collect broad-scale, fine-resolution data about squirrel population density, diversity, and behavioral characteristics as indicators of local and regional ecology. Said another way, Project Squirrel is a way to see the world though squirrel's eyes--and the more people submitting data, the better our understanding.

Squirrels are ideal candidates for understanding ecology at both local and regional scales for a wide variety of reasons. Squirrels can be found in most American cities yet individual squirrels inhabit relatively small home territories. Squirrels are diurnal and active year round (unlike most local wildlife that either migrates, hibernates, or is nocturnal) so they are easy for people to see and the different species of squirrel are easily identified. Resources that are key to the persistence of squirrels are also important to a wide range of other animals and, similarly, predators that impact squirrels often impact many other species as well. Fundamental squirrel ecology is well understood so we can make and test hypotheses based on a solid foundation. Finally, most people have an opinion about squirrels—love them or hate them, people notice squirrels.

One more characteristic makes squirrels especially powerful indicator species: the mechanism of coexistence between grey and fox squirrels. Grey squirrels are a species that naturally lives in the interior of forests, while the somewhat larger fox squirrel lives on the forest edge. This means that a grey squirrel's nearest neighbor is likely to be another squirrel, but that a fox squirrel is more likely to encounter predators as they come and go from the forest. As a result, grey squirrels manage other squirrels well, while fox squirrels are very good at managing predators. So, while the large fox squirrel may be able to deal with the presence of predators, it will eventually be outcompeted by the scrappy little grey squirrel.

Because of these characteristics, Project Squirrel is able to use a variety of techniques that allow citizen scientists to contribute meaningful data without extensive training and to use that data to make generalizable conclusions about the local and regional ecosystem. It is hoped that participation in the project and the conclusions we draw from the squirrel data will encourage better stewardship of our neighborhood natural resources for the benefit of all urban biodiversity, decrease the tension between humans and neighborhood wildlife, and help people enjoy and appreciate the outdoors in an increasingly urbanized world.

A grey squirrel (note the white-frosted tail) in pursuit of a fox squirrel (note the rufous coloration).

Squirrel Demographics

Ecology is the relationships and interactions of the biotic (living) and abiotic (non-living) parts of an ecosystem. There are several kinds of data about squirrels that can help us better understand our urban ecosystem. One important data set, to which everyone can contribute, is squirrel demographics. How many individual squirrels live in a given area? What is the ratio of fox squirrels to grey squirrels? How does this density and diversity change over the seasons and years?

Collecting squirrel demographic data is easy, just look outside and note how many individuals and what species of squirrel you see. Then, report your observations at ProjectSquirrel.org. You can also go to this website to learn the difference between local squirrel species, share pictures and squirrel stories, and more. Don't see any squirrels? That's a data point too. The persistent absence of squirrels tells us a lot about the ecology of a region, too. You can report about squirrels as often as you like in as many places as you like. It is best that you report about a given location at least once a season because it is likely that the squirrel populations will change from one season to the next. Encourage your friends and neighbors to contribute data, too. The more observations we have, the more complete our understanding will be.

Reporting your observations to ProjectSquirrel.org is simple, yet the data from your reports and those of thousands of other people form the foundation for all of our work. We hope you'll report regularly and tell all your friends too.

Giving Up Densities (GUDs): a tool that allows us to see the world through an animal's eyes

Giving Up Densities, or GUDs, are another kind of data that can tell us a lot about an animal. The GUD is the amount of food left after an animal quits foraging in a patch. It is a reflection of how dangerous and environment is and can also be used to test other environmental and dietary parameters.

Imagine a scientist puts a bowl of your favorite candy on a table near your bedroom door. How much might you eat? Now if the bowl is moved near your neighbor's bedroom, or the middle of the street, or under the kitchen sink, how much you might eat then? The amount of food left in the bowl (foraging patch) when you are done foraging in it is called the Giving Up Density or GUD. Usually, depending on where the foraging patch is located, the amount of candy consumed (the GUD) changes. When the foraging patch is near your bedroom, where you feel comfortable, your GUD is likely to be low—there will be few pieces of candy left. However, near your neighbor's bedroom or in the middle of the street where there are territorial conflicts or other dangers, your GUD will be high—many pieces of candy will remain in the bowl.

More detail on GUDs

Patch use theory and giving-up densities are two important tools that help us evaluate animal motivations and preferences. Patch use theory recognizes that animals live in heterogeneous environments and that resources occur in patches. Shelter is found in one place, water in another, while predators may move from one patch to another. Food can be obtained in yet other places but, as this resource is utilized it is also depleted, making foraging progressively less productive. Patch use theory predicts that a foraging animal will cease using a patch when the costs of foraging are greater than the benefits. Costs may include the inability to watch for predators while handling food, or the difficulty of separating food from a substrate like husks or soil. The relative costs and benefits may change with factors like the health and reproductive status of an individual. For example, a starving individual is likely to take more risks for food than one that has recently fed.

Under patch use theory, a foraging animal should cease using a depletable food patch when the benefits of continuing to harvest from the resource no longer compensates the animal for foraging costs including metabolic, predation, and missed opportunity costs. The benefits and costs an animal perceives can be evaluated by measuring giving-up densities in experimental food patches. These experimental patches produce diminishing returns by blending the animal's food into a substrate. An animal must expend time searching for food from within the substrate, and search effort per food item increases as the food depletes. Eventually the effort required to find the next food item becomes so great that the animal quits the patch.

The giving-up density (GUD) is the food remaining in a food patch after the animal has "given-up" on the patch and quit foraging. The animal's willingness to expend effort to find another food item allows the GUD to reveal the animal's perceptions of the costs and benefits of foraging. A GUD will be low (fewer pieces of food will be left behind) when an animal feels like foraging is more beneficial than other activities. A GUD will be high when an animal does not forage effectively.

To collect GUDs, a measured quantity of food resource is mixed with a measured volume of inert substrate. The substrate limits the animal's rate of foraging, ensuring that the animal must give up time, vigilance, and other opportunities to obtain the food. Patches are modified by using different foods, locations, foraging substrate, size, and arrangement depending on the hypotheses being tested and the species involved. For example, squirrels can be studied using large, deep trays of gravel with hazel nuts or shallow basins with sand and sunflower seeds. Sparrows on the other hand would not be able to deal with large nuts but they will forage on tiny seeds in a sandy substrate. Project Squirrel is also exploring a new avenue of GUD research where depletion of a naturally occurring concentration of a resource can be quantified as rigorously as a managed food patch. This area will be described in detail in the Corn GUD section.

A guide to collecting GUDs in your yard

The following sections give details and advice about the fundamental steps necessary to collect GUDs. Two ways of collecting GUDs are described. Traditional GUDs, which is a well established method that has been used in hundreds of peer-reviewed studies, and a new method that we currently call Corn GUDs. Corn GUDs has never been used before but that, we hope, will become an accurate and efficient way for citizen scientists everywhere to collect GUDs from squirrels and, at some point, can be developed as method for studying many species. Collecting GUDs is not difficult but each step must be competed with care to ensure accurate data.

The details of the treatments may vary depending on the specific question being asked and other variables, but essentially, we are creating a place for squirrels to feed (a foraging patch) that consists of a measured food resource (usually sunflower seeds) mixed into an inert substrate (usually sand). Each evening we count how much food is left (collect GUDs) and re-set the patches. This is a simple, but powerful way to study nature.

Study Site

For either kind of GUD method, the study site must include spaces that include "escape substrates" and "cover"-- that is, a place an animal can move efficiently and a place they can go to feel safe. For squirrels, cover is a tree. You can imagine that during the summer, a squirrel may be willing to forage far from cover but, when there is snow on the ground, the escape substrate becomes more difficult to navigate so they must forage more close to cover to avoid predation. You may also find that cover that can be used by predators affects foraging of squirrels. A wide open view will make them feel secure while tangled underbrush promotes caution.

Each study site will have one pair of foraging patches but you can use this guide to test a wide range of conditions and you may want more patches in the future. One patch should be situated about one meter of the base of a tree no less that 15 cm diameter at breast height. The other patch should be situated 4 meters from the same tree. Both patches should be at least four meters from any other cover including trees of any size, shrubs, fences, walls, and the like. Each site will be different but, essentially, one patch is near cover and the other is in a potential danger zone. (See the diagram below for a residential example.)

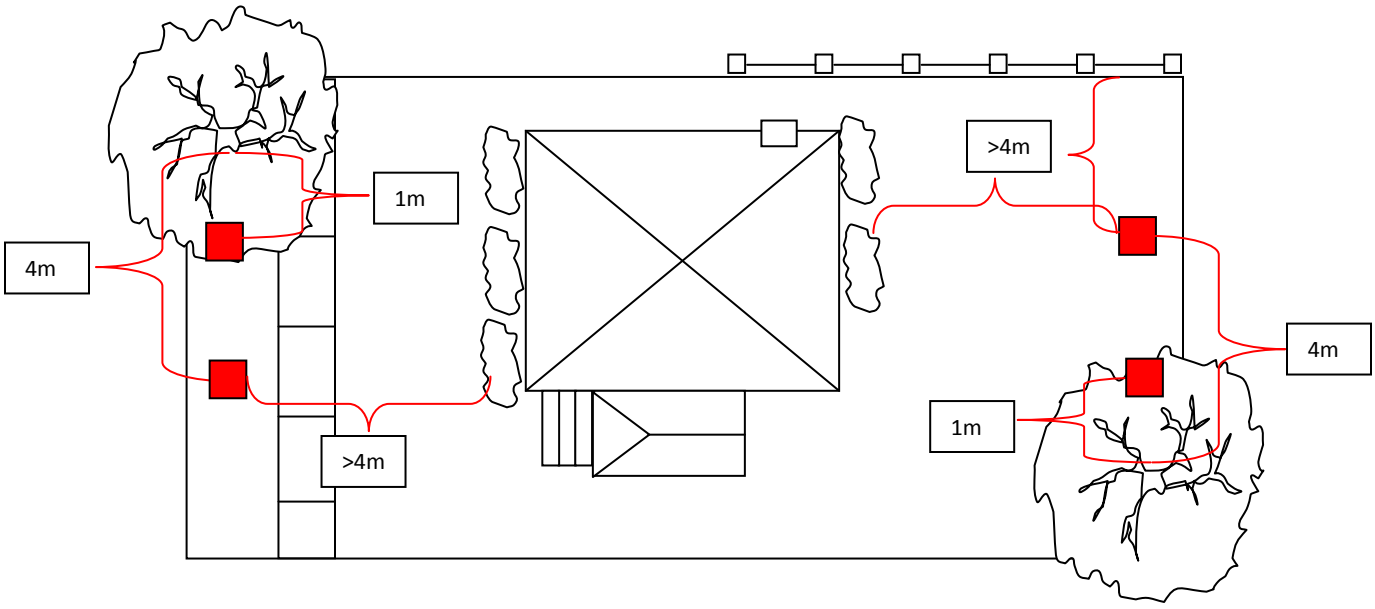

Figure 1: This is an example of where feeding patches might be located. One tray is one meter from cover, the other is four meters from cover and all trays are more than four meters from any other cover. Different sites will have different configurations but as long as these distances from cover are followed, data will be comparable from site to site.

Corn GUDs: An Experimental Method

The difference between Corn GUDs and Traditional GUDs

You are participating in a pioneering study to assess the value of a new study technique that is based on tried-and-true methodology. As noted earlier, one fundamental strength of traditional giving-up density methods is that they allow us to measure the trade-off that animals make between safety and food acquisition. Though these trade-offs occur naturally, they are usually not easily quantified because the variability from one place and time to another are too great. To overcome this variability we can offer feeding stations where the kind of substrate, food, and their ratio are carefully controlled. Experiments using these methods have yielded many useful conclusions. Though these methods are relatively simple, they still require an infrastructure of equipment which, on a large scale, amounts to a significant expense and some complexity that makes it difficult for some people to participate.

Corn GUDs is the first attempt to capitalize on naturally occurring food patches as a source of quantifiable data about an individual's perception of the environment. If these methods prove successful, they will allow citizen scientists world-wide to efficiently and simply collect data about tree squirrels in the neighborhoods. We also hope that the methods can be adapted to successfully study other organisms, from rodents to birds, on a wide scale.

Rationale

How much corn is left on the ear is a relatively coarse-grained estimate of food pressure and the danger of foraging on squirrels because they may simply strip kernels without eating them. The more they eat of the corn, the smaller the waste particles. Finally, we hypothesize that by measuring consumption of embryo versus endosperm we can estimate the balance between available bulk food in the environment and the energy provided by the food.

Corn is a palatable food to squirrels yet, as a main food source, it does not contain the energy necessary to maintain them. However, it is a better food source than many other kinds of food that are often present in the environment including soft mast and bark. It is expected that as the abundance or quality of other food sources decreases, squirrels will rely more on corn as a primary food source and that they will eat different parts of the kernel depending on their energy needs and access to other local food sources. Removing embryos is a common behavior in squirrels; grey squirrels regularly excise embryos from white oak acorns to prevent germination. Squirrels have been observed preferentially consuming the corn embryo and later returning to consume the endosperm. It is assumed that because the embryo is the most nutritious portion of the corn kernel, it is consumed even when other foods may be available but the lower quality endosperm is left until other food supplies have been exhausted. It is expected that embryos will be consumed in nearly 100% of kernels removed from the ear but, only as other food supplies diminish will the amount of endosperm consumed also begin to approach 100%.

We expect that the results of the corn GUD experiments will reflect those of the traditional GUDs in a meaningful way. It is possible, perhaps likely, that they will give a different picture of squirrel needs and preferences but we expect the overall message of the results to be the same, i.e. if traditional GUDs are low, then more corn should be consumed and, as GUDs drop, the amount of corn embryo consumed should rise.

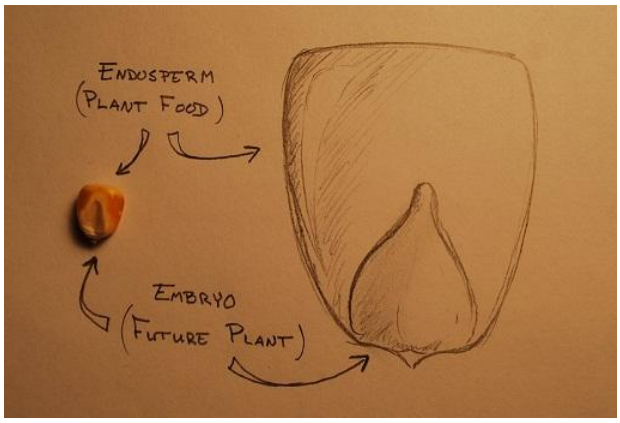

Figure 2: The endosperm and embryo of a corn seed are easy to distinguish, even in an intact kernel.

Figure 3: These kernels show how precisely a squirrel can excise the embryo of a corn kernel, leaving the endosperm behind.

Materials

For Corn GUDs, each study site will have one set of the following

- Foraging trays
- Two ears of dried feed corn (one per tray)
- Datasheet sets for each tray
- Foraging sites for each tray
- Scale

Study Site

This method uses an ear of dried corn which is affixed to a feeder in a way that gives squirrels access but minimizes feeding by other species. The feeder is placed so that the waste generated by feeding can be easily collected. As noted above, one tray is places one meter from cover, the other three meters from cover.

Bait the Patches

GUDs will be collected once a season: Winter, between January 15th and February 15th; Spring, between April 15th and May 15th; Summer between July 15th and August 15th; and Fall, between October 15th and November 15th. If you want to collect more frequently, that's great. If your schedule requires you to collect at a different time, that's fine as variance from the established dates increases, so does the difficulty of correlating your data with other data.

If the site has been used for Traditional GUDs already, pre-baiting is not necessary. If it has not been previously used, prebaiting by simply scattering some dried corn, sunflower seeds, or some other palatable food for three days before opening the patches is desirable. This way squirrels will know that there is food to be had at your site.

Once it is time to collect the GUDs, weigh the whole ear of corn and record this on your data sheet. Then screw the ear of corn onto the holder of the foraging tray and place the tray in the measured foraging site in the morning-- the earlier the better. You will bring the trays in at the end of the day.

Fig. 2 This shows an ear of corn that has been tied to a porch railing and fed upon for a few days

Fig. 3 This shows the same ear of corn after many days of feeding. The string may need to be tightened or replaced if feeding is very aggressive.

Collect the GUDs

Once feeding begins, GUDs will be collected for five days. For example, if squirrels don't feed until the third day after opening the patches, the trays will be out for a total of seven days by the end of the experiment, even if they don't feed again.

Each morning, place the tray outside then, at about the same time each evening, bring the patches inside. Leave the ear of corn attached to the foraging patch but collect all the corn that was removed from the ear for sorting and weighing. You can dispose of the waste corn once it's weighed. Be careful not to knock corn from the attached ear. Follow the datasheet to record the GUDs. One set of datasheets per patch.

- The total mass of the waste corn.
- Mass of the intact kernels.
- Mass of kernels with excised embryos.
- Mass of small particles.
- Also record the non-GUD data indicated.

Enter these data into the online form as soon as possible.

Test yourself before you begin

Every task associated with collecting GUDs is simple but requires accuracy so, before you begin collecting experimental data, test yourself. See how fast you can be and, most importantly, see how accurate you are. Bait the patch with 40 pieces, then 20, 10, 5, and 1. Collect your sham GUD data and record it on the standard datasheet as you would for a real trial. Then, have someone else bait the patch for you so that you don't know how many pieces you are supposed to recover. Repeat this procedure until accurate data collection is second nature. Can you be both fast and accurate? Most people find they need to slow down on certain steps to maintain accuracy.

Also, if you have a partner with you when you are recording data, beware, science is conducive to some very absorbing conversations that can influence the accuracy of your data recording. Make sure your partner has the same high standards that you do when it comes to data accuracy.

Data Management

Science is based on the ability to draw conclusions that allow us to make generalizable theories. All of the activities outlined in this manual are for one end: to collect useful data. **To be useful, data must be collected systematically under the most standardized conditions possible and recorded accurately**. Please be very careful while collecting, recording, storing, and transmitting data to be sure it is all accurate.

- Test yourself to verify your compliance with data recording standards. See the sidebar for self-test tips.
- With everything going on while collecting GUDs, it's easy to make mistakes. Double check yourself as you record data to make sure you entered everything correctly. When submitting your data electronically, double check it to ensure accuracy. Your GUD data and photos are going to be combined with data collected in many different places. Accuracy and legibility are paramount.

Timing

Trays should be opened according to the schedule set for a particular study. Most foraging trials are conducted in coordination with several other trials.A lot of problems can arise to prevent efficient data collection. You might get stuck in traffic, have an appointment or emergency, it might rain, or you might just forget. If you get to the patches late, look to see if nocturnal species might have begun foraging and make a note of it in your data sheet, then collect the data as usual. If rain threatens, bring the trays in so they don't get wet. If your foraging trays have been open but you don't have time to collect the data that evening, close them to prevent additional foraging and collect the data in the morning. Take notes about any problems you encounter.

Safety

Collecting GUDs is one of the most safe ways to gather data on an animal because there is no need for the observer and the animals to come into direct contact. By baiting with small quantities of food like sunflower seeds or corn it is unlikely that you will attract any more wildlife to your yard than were there already. Because of the short duration of the project, the regular foraging patterns of your neighborhood wildlife are unlikely to change. However, it is likely that you will become more aware of your local animals and their activities.

Squirrels do not carry rabies but it is never a good idea to approach a wild animal, no matter how cute, friendly, or needy it may seem. Whether or not they are rabid, most animals will defend themselves if they feel threatened. Squirrels are very cute and may seem friendly but they may react to a given situation differently than you might expect. In addition to their amazingly sharp teeth and powerful jaw muscles, squirrels have razor-sharp claws that are just as good at cutting skin as climbing trees. You should especially avoid animals that are behaving strangely.

Squirrels are likely to carry fleas and may carry other parasites. For the most part you can prevent exposure to these organisms by doing what you normally do—avoid coming in contact with wild animals and their feces. If you think the experimental set up has become contaminated and you are uncomfortable handling

it, just leave it all alone and contact Project Squirrel; we will come out and clean it up. Alternatively, you can just throw out contaminated materials.

Breathing silica sand dust or dust from dried feces can be hazardous to your health.

Wash your hands thoroughly after working with the patches.

Always feel free to contact us with questions about the project, especially related to safety.

One fun part of participating in wildlife observation is that you will learn and see new things. You will become more aware of the ecology in your neighborhood. If you ever see something that makes you uncomfortable, play it safe and avoid exposure—and no matter what you see, if it is interesting, record it on your data sheets Feel free to contact the Project Squirrel Team with questions, concerns, and observations at any time at sciurus@uic.edu.

Fig. 4 Study skins showing the typical size and coloration differences between, from left to right, Fox (*Sciurus niger*), Gray (*S. carolinensis*), and Red (*Tamiasiurus hudsonicus*) squirrels

Traditional GUDs: An Introduction to an Established Method

For your information, we have included a brief primer on conducting Traditional GUDs. For the most part, the skills you have learned with Corn GUDs apply here but the materials and their usage is a little different.

Materials

For Traditional GUDs, each study site will have one set of the following :

- Datasheets
- Four foraging patches (marked with the substrate depth) and lid
- Five 4-liter bags of screened sand
- Sand scoop
- 20 envelopes containing 12 grams of whole, shell-less sunflower seeds
- One envelope with pre-baiting and replacement seeds
- One sieve assembly (screen and base)

Patch Preparation

Put the foraging trays in the selected sites. Add the sand to the marked level on the tray and cover with the lid. (The patch and the lid look very similar but the lid is slightly larger so that it can seal out precipitation. The lid also helps keep other animals out of the patches at night.)

Pre-baiting

Pre-baiting should be done for three days prior to collecting GUDS. Simply put a pinch of seed on top of the sand in the patch. Do not mix the seed in. By doing this, you are alerting local squirrels to a potentially good place to forage. In future days, when you mix the seed in to the sand, they will be likely to forage there, even though the seeds are not as visible.

Bait the Patches

Squirrels love sunflower seeds because they are high in energy and low in toxic compounds. Because they are not in the shell, squirrels won't try to cache the seeds. By mixing the seeds with sand, animals must spend time looking for seeds rather than watching for predators. If they think the area is risky, they won't spend as much time looking for seeds so the GUD will be high. That is, many seeds will be left. However, even if they are in a risky area, they may take a "freebie" (a single seed out in the open). On the other hand, if the squirrels feel safe, they will spend more time looking for seeds and the GUD will be low.

- Prepare the patches. Stir the sand and the measured sunflower seeds together (this should be all of the seeds in the envelope). Shake the try a little to smooth the surface of the sand. The seeds should be distributed randomly in the substrate so some may be visible on the surface.

There should not be any broken seeds in the envelope but, if there are, please remove and replace them with an equivalent amount of unbroken seed from the pre-baiting seeds.

- Keep the trays covered until it is time to forage.
- Open the squirrel trays between 6:00 am and 9:00 am. (Close them between 5:00 and 8:00 pm.)

Collect the GUDs

This is where you start to see results. Did an animal find the patches? How much food did they leave behind? Do any patterns seem to be emerging? You will see amazing results from your yard and later, your results will be combined with others to create a larger picture.

- Between 5:00 pm and 8:00 pm, close the squirrel patches.
- Use the sieve assembly to screen the contents of the patch and count the remaining food.
- Record the GUD—the number of unconsumed sunflower seeds—along with any observations you make on the data sheet. If you find seeds that are in pieces of about ½ or more, record them as ½. Seeds that are less than about ½ should be recorded as 0.
- Cover the patches to prevent raccoons, cats, or other nocturnal animals from disturbing them and re-bait them in the morning for the next period of foraging.
- Be sure to keep the sand dry.

Additional Data

In addition to the GUD data, a variety of location-specific and abiotic data are recorded. Please note these data as carefully as you do the GUD data. We also encourage you to record other interesting or potentially significant observations. If you can, take pictures of the squirrels and other wildlife in your yard. Your yard may be different than everyone else's; often times, biological phenomena that are common in one place are rare in another.

Fig. 5 Squirrels (Order Rodentia, Family Sciuridae) can be found throughout the world. The largest in North America are the groundhogs and marmots, like this one. The largest Sciurid, a marmot, is 7.5 kg (16.5 lbs) and the smallest, the African Pygmy squirrel, is only 16.5 g (0.6 oz).

Procedural Checklist for Corn GUD Collection

___Weigh the ears of corn and record this on the data sheet.

___Prepare the patch by affixing the ear of corn to the feeding patch by screwing the base of the corn onto the eyebolt. (Do not remove the corn ear until the end of the feeding period) unless it is completely consumed before the last day.)

___At the beginning of your day, place the prepared patches 1 and 4 meters respectively from escape cover.

___Allow foraging during daylight hours.

___At the end of the day, check the patches for foraging. If there has been foraging, record the GUD and empty the feeding patch. If there has not been foraging, just record the other data. (Note that depending on your daily schedule, you may bring the patches in at the end of the day and have students record the GUD the next morning before putting the patches back out.)

___Bring the patches inside at the end of your day.

___At the beginning of your day, return the patches to the regular foraging sites.

___Allow feeding for 5 days. It may take a few days for foraging to begin. It is also possible that animals will not forage for 5 consecutive days but after the five days, the patches should be closed or reset.

___ Report your data using the link at Project Squirrel.org

Procedural Checklist for Traditional GUD Collection

___Prepare: fill the patch to the mark with 4 liters of sand.

___Bait: mix one envelope of seed into the sand.

____Allow foraging: Open the station between 6 am and 9 pm.

____Collect GUDs: Between 5 pm and 8 pm, sieve the foraging patch and count the remaining seeds.

___Record data: Record the number of seeds, other data, and observations on your datasheet.

___Refill the foraging patch and cover.

___ Report your data using the link at Project Squirrel.org