

**Learning the Skills of Research:
Animal Behavior Exercises in the
Laboratory and Field**

Elizabeth M. Jakob and Margaret Hodge, Editors

[Sample Lab Exercise, Student Version]

Exercise 6 (Student): The Collection of Behavioral Data

Susan W. Margulis

Goals

1. To practice the two most common methods of behavioral data collection.
2. To understand the situations for which each method is most appropriate.

Additional files on CD: Video clips of meerkats and gibbons, example data sheet.

Background

Now that you've learned the basic differences between continuous, focal sampling and instantaneous sampling, you will next have the opportunity to practice these methods. In this lab, we will provide you with two ethograms (see Exercise 3 for more detail about ethograms and how they are constructed). One is for meerkats (*Suricata suricata*) and the other is for white-cheeked gibbons (*Hylobates concolor*). Familiarize yourself with these ethograms.

Methods

Choose a partner to work with. Begin with the video clip of meerkats. Meerkats are a type of mongoose. They inhabit arid areas of southern Africa, and live in groups that usually consist of several families. When foraging, one member of the group can usually

be found standing upright scanning the surroundings for danger. This individual is often referred to as a “sentry.”

You will be doing an instantaneous, scan sample of the animals in this group. Carefully review the ethogram and data sheet.

The camera will pan (or “scan”) across the group. Watch the tape at least once before you begin your observation.

On your data sheet, tally up how many animals you see engaged in each behavior. Note that you may not always see the same number of animals, as they may run in or out of the range of the camera. You and your partner may alternate roles of observer (watching the tape and calling out what each animal is doing) and recorder (writing the tally marks on the sheet).

Next, move on to the video clip of gibbons. White-cheeked gibbons are lesser apes from southeast Asia. They live in small family groups. Both mother and father care for the offspring. Females are blonde, and males are black. All infants are born with blonde hair, which turns black at about a year of age. Males retain their black hair, while females’ hair becomes blonde again as they approach maturity. The group you will observe consists of a mother and father, and their year-old son.

You will be doing a continuous, focal observation of the infant gibbon. Carefully review the ethogram and data sheet. Watch the tape at least once before you begin your observation.

Use the timer in the upper left corner of the screen to note on your data sheet the time at which a behavior state changes, or an event occurs. Check the appropriate behavior column. Your first entry should always be at time 0:00 (0 minutes and 0

seconds). For those behaviors that involve more than one animal (the focal subject plus another animal) be sure to indicate on your data sheet which animals are involved and who initiates a behavior. For example, “mom touches baby” is not the same as “baby touches mom.” Be consistent in your use of abbreviations. You may use “m” for mother, “f” for father, and “b” for baby. You may work with your partner or each do an independent observation, and compare your results.

Now look at the sample data on your CD. Compare your observations to the researcher sample. Open the “mock data” table, and use these data to calculate the percent agreement between two observers, following the instructions in the table legend.

Questions

In your write-up, include copies of your data sheets, and those of your partner or a member of another group. Please address the following points:

1. The similarity between observers is called *interobserver reliability*. How similar were your observations to another student’s observations? How similar were they to the “researcher sample” observations?
2. How do you explain any observed differences? Why is it important to minimize these? What could you do to maximize interobserver reliability?
3. Do you think it is possible to eliminate all interobserver variation? Elaborate.
4. What was the percent agreement calculated from the mock data?
5. What sort of questions about meerkat behavior could be addressed with the type of data that you collected? What about the gibbons?

Acknowledgments

Video footage was provided by Brookfield Zoo (© 2000 Chicago Zoological Society), and was filmed by Howard Greenblatt. The data sheets were developed in collaboration with the Center for Learning Technologies in Urban Schools, with partial funding by NSF grant DGE-9809636.

Further Reading

Altmann, J. 1974. Observational study of behavior: sampling methods. *Behaviour* 49:

227–265.

Lehner, P. N. 1996. *Handbook of Ethological Methods*. 2nd edition. Cambridge

University Press, NY.

Martin, P. and Basteson, P. 1993. *Measuring Behavior: An Introductory Guide*. 2nd

edition. Cambridge University Press, New York.

SCAN SAMPLING—Meerkats

Methods

Use scan (*instantaneous*) sampling to record the behavior of all meerkats that you see at 30-second intervals for 3 minutes. Using the ethogram provided below, enter on your data sheet the number of individuals in each behavior category on each scan. Always begin your scan when the stopwatch beeps. Always start your scan at the same location. You may work in pairs, with one member serving as the “recorder” and one the “observer.” Switch roles mid-way through.

Ethogram

States (for definition, see Exercise 4)

- **Forage:** Animal consumes or manipulates food or digs in the dirt in search of food.
- **Rest:** Animal sits or lies immobile, eyes open or closed, not doing anything else.
- **Play:** Animals engage in rough and tumble social interaction or chasing.
- **Sentry:** Animal stands upright on hind legs, alert, looking at surroundings.
- **Locomote (LOC):** Animal runs, walks, or climbs around exhibit.
- **Social Groom (SOC.GM):** Animal uses its teeth or front paws to comb through another animal’s fur.
- **Other:** Any other behavior not listed above.

FOCAL SAMPLING—White-Cheeked Gibbon

Methods

Use continuous focal animal sampling to record the behavior of the baby white-cheeked gibbon. Using the ethogram provided below, observe the youngster for 3 minutes. Whenever he changes his behavioral state, write down the time (minutes and seconds) and check the appropriate behavior column. Whenever he performs an event, write the time and mark in the column who is involved in the behavior: (M)other, (F)ather, (B)aby. For example, if the Father bites the Baby, write “FB” in the BITE/HIT column.

Ethogram

States (for definition, see Exercise 4)

- **Rest:** Animal sits, stands, or lies; immobile; no other activity. Eyes open.
- **Locomotion/ Explore (LOC):** Any movement by the animal, on the ground, rocks, or in trees.
- **Forage:** Animals searches for, manipulates, or consumes food or water.
- **Groom:** One animal runs its fingers or teeth through the fur of another.
- **Play:** Manipulation of objects or apparently purposeless movement. May involve another animal. Note who is involved and describe the play.
- **On Mom:** Infant clings to fur of mother.
- **Other:** Any behavior not listed above.
- **Out of View (OOV):** Animal is not visible.

Events (For definition, see Exercise 4)

- **Touch:** One animal puts hand on the arm, head, or other body part of another animal. Gesture is gentle and friendly, not aggressive.
- **Bite/Hit:** Aggressive, hard, rapid touch or push, or placing mouth on another animal and closing with apparent force.

Meerkat Scan Data Sheet (see Excel file)

Scan	Sentry	Forage	Locomote	Rest	Play	Soc. Groom	Other	Comments
1								
2								
3								
4								
5								
6								
7								

Date _____

Time _____

Observer _____

