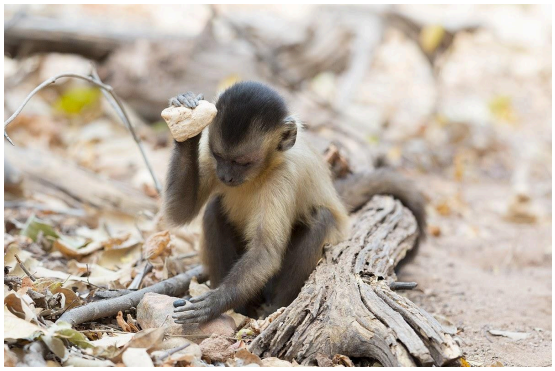
Primate Behavior Lab: Part II

Format: In person or online



A juvenile capuchin monkey in Serra da Capivara, Brazil, uses a stone as a tool to open a seed.

Author: Rebecca Frank

Source: “Activity 13.” 2019. Frank, Rebecca, Brian Pierson, Philip Stein. LAVC Anthro 111 Lab Manual. 7th Edition.

Time needed: 60-90 minutes

Learning Objectives

- Learn and practice scan sampling
- Learn and practice continuous focal animal follow
- Analyze primate observation data
- Reflect on the process of conducting nonhuman primate observation and data collection

Supplies Needed

- Paper, pencil, clipboard
- Student worksheet
- Stopwatch or cell phone
- Requires zoo visit

Readings

- Jaffe, Karin Enstam. 2019. Chapter 6: Primate Behavior and Ecology. *Explorations*.

Introduction

This lab requires that students visit a local zoo to observe and collect data on nonhuman primates. It is part two of a two-part primate lab. In part one, students learned about basic nonhuman primate behavior, practiced ad lib data collection, and created an ethogram. In part two, students will conduct scan sampling and continuous focal animal follow, analyze their data, and reflect on their findings.

Steps

- In order to complete this lab, students must first complete "Primate Behavior: Part I," in which students create an ethogram to be used for this lab.
- Students will need to go to the zoo, either in groups or individually, to conduct this lab.
- Students will record their data on the student worksheet (below). The worksheet includes instructions as well as space for data collection and analysis.
- In addition to having students turn in the worksheets, instructors may initiate a class discussion for students to describe their experiences and observations.

Review Questions

- Which behaviors did you see the most? Why do you think they were most common? Which behavior was rare or absent? Why do you think so?
- How might your data be different if you observed for more time or studied a wild group?
- How did male and female individuals behave differently in your data? Or how did older and younger individuals behave differently?
- Explain your observations, discussing specific behaviors.

Adapting for Online Learning

If this is an in-person lab, rank how adaptable to online learning it would be (mark in bold):
1 Not adaptable 2 Possible to adapt **3 Easy to adapt**

Tip: For online courses, students could complete the worksheet and turn it in online. It can also be interesting for students to observe humans with this very different frame. Many zoos have live webcams that would allow students to observe a group of primates from home. See:

- Chattanooga Zoo Tamarins
- Detroit Zoo Japanese Macaques
- Houston Zoo Chimpanzees

- PIN Common Marmosets
- Reid Park Zoo Lemurs
- San Diego Zoo Baboons
- San Diego Zoo Orangutans

References

Frank, Rebecca. 2019. “Activity 13.3: Scan Sampling” and “Activity 13.4: Continuous Focal Animal Follow.” In *LAVC Anthro 111 Lab Manual,* 7th Edition, edited by Frank, Rebecca, Brian Pierson, and Philip Stein.

Jaffe, Karin Enstam. 2019. “Chapter 6: Primate Behavior and Ecology.” In *Explorations: An Open Invitation to Biological Anthropology*, edited by Beth Shook, Katie Nelson, Kelsie Aguilera, and Lara Braff. Arlington, VA: American Anthropological Association. http://explorations.americananthro.org/

Image Attribution

Stone tool use by a capuchin monkey, by Tiago Falótico, is used under a CC BY-SA 4.0 License.

Primate Behavior Part II: Worksheet

Instructions

2a. Scan Sampling

The purpose of this exercise is to discover differences in behaviors and frequency of behaviors among different age/sex categories. You can also use this kind of data to compare different species.

In this exercise you will scan your group every 20 seconds. This means that you will look at what all animals in the enclosure are doing at the same moment by scanning the area from left to right and taking a "mental snapshot" of each individual's behavior. Mark a "1" in the appropriate behavior row under each animal in the scan sample table: A "1" is marked for each scan for each animal doing that behavior. Do a scan every 20 seconds, at exactly the 20-second mark, and note the behavior you saw each individual engaging in. Then stop until the next 20-second mark. Any behavior that occurs before or after the 20-second mark is ignored.

You score one behavior for each animal during each scan. If a particular animal cannot be seen, you still need to account for it. Include the behavior "out of sight" on your scan sample table, where you can mark this type of occurrence. If during a scan a particular animal is engaged in more than one behavior, note the priority behavior, as you determined in the ethogram section. With our limited ethogram, it is likely an animal will do something that does not fit any of your listed behaviors. In such instances, include the behavior "other" on your scan sample table.

The point of a scan sample is to gain a general sense of how a group spends its time. It usually focuses on a limited number of behaviors and, as you will see, it fails to record a great deal of what actually occurs. Think about the types of behaviors best captured via this method and the types of behaviors that should not be studied using a scan sample.

Below is a small example of a scan sample with only 10 scans. The behavior observed for each animal during a scan has been marked by a "1." Each column adds up to 10.

Behavior	Adult Male	Adult Female 1	Adult Female 2	Juvenile Male
Walk	11	1	11	11
Feed	1111	1111	11111	111
Auto-groom	11	111	111	
Solitary play	11	11		11111
Total	10	10	10	10

Each behavior for each animal can then be calculated: # of observed scans/ # of total scans*100. This will tell you the percent of scans spent doing each behavior. In the first box, 2 marks = 2/10 scans*100 = 20%. The adult male spent 20% of his observation time walking. This can be compared to the Adult Female 1 who has 1 mark in that first row = 1/10 scans*100 = 10% of her observation time spent walking.

2b. Continuous Focal Animal Follow

In the scan sample data, you recorded a series of "snapshots" of activity across a whole group. This can generate a lot of data about many individuals. However, it also fails to record a great deal of detail about the sequence of behaviors leading up to, and following from, a single event that you record in your scan.

Continuous focal animal follows represent the other end of the data collection spectrum. In this method you continuously monitor the activities and interactions of a single animal—your focal animal—for a set period of time. At the end of that time period you begin a new sample on a different focal animal. By continuously following the activities of one individual, you record much more detail than in a scan sample, but you only have details about one individual and those it interacts with. It also takes a lot more time to gather enough data because you are watching only one animal at a time. See the example below.

Focal: Adult Female 1

Time	Behavior
3:30:00	AF1 walk (abbreviated wlk)
3:3014	AF1 approach (app) AF2, AF1 lunge (lun) AF2
3:30:20	AF2 leave (lv) AF1
3:30:43	AF1 sit eat
3:34:02	AM app AF1, AF1 stop eat sit
3:34:10	AF1 groom (grm) AM
3:42:27	AF1 stop groom (stgr) AM, AF1 lean (ln) AM
3:42:35	AM lv AF1, AF1 eat

In this example, only a limited number of behaviors are recorded. And while you can use these codes to re-create what happened, it doesn't read like a running narrative of *everything* that happened. Also note that some behaviors, like groom, have a clear start and stop time. Other behaviors, like lunge, just happen and do not last a period of time. Finally note that the adult female is the focus, though you do capture her brief interaction with another female and an adult male.

Continuous focal data can be more difficult to analyze than scan sample data. In this exercise we will look at the duration of a behavior, such as grooming or eating.

Remember in the scan sample, you counted instances of a behavior, and then calculated a rate based on how many scans (or instances) that behavior occurred out of your total number of scan observations. With continuous data, you know exactly when a behavior began and when it ended, so you can figure out exactly how many seconds an individual spent grooming or eating (for example). The number of seconds spent doing a behavior divided by the total number of seconds spent observing an individual will also give you the rate or proportion of time spent in that activity. Rates from scan samples and continuous follows are usually very similar, assuming enough data has been collected over multiple days and during similar times of day.

Worksheet

2a. Scan Sampling

In the table on the following page, list the behaviors from your ethogram down the rows in the left column. Across the top, list the animals in your study group.

Do 50 scans. Noting the behavior for each individual every 20 seconds by making a 1 (tick mark) in the correct box. This will take you about 17 minutes to do 50 scans, one scan every 20 seconds. Use your phone or a stopwatch to keep track.

Behaviors ⇓	IDs ⇒				

Not Visible					
Other					
Total Scans	50	50	50	50	50

From your scan sample data, sum the marks in each box (total number of observations for each behavior for each individual). Divide each sum by 50 (total number of scans) and multiply by 100. Write this percentage in the cells of the scan sample data using a different color pen or pencil so you can easily read them.

For example, if you observed 15 instances of allogrooming in the adult female, then 15 observed instances divided by 50 scans, times 100 is 30%. Do this for each box in the chart, and record the rates (percent of observation time). Each column should add up to 100 percent.

2b. Continuous Focal Animal Follow

For this exercise, use your same set of ethogram behaviors (from “Primate Behavior Lab: Part I”) and select one of the individuals in the same primate group you have been watching to be your focal animal. In the empty space on the following page, record the ID of that individual, the time you will begin watching, and then on each line, record the time to the nearest second (as best you can) for everything that individual does, recording *only* behaviors listed in your ethogram. Start a new line as the time or the activity changes. Continuously record everything your focal does for 10 minutes. In some ways, this will look like the ad lib data, except that it will only use your ethogram behaviors and will focus on the activity of a single animal. This type of data is often recorded using abbreviated codes for the behaviors to make recording data faster, so use the codes from your ethogram. It is also common to record the details of interactions between your focal and another individual.

Focal ID:

Start Time:

Tallying the Focal Data

Select one behavior from your ethogram that you observed during both your scan sample and your continuous focal follow. Select a behavior that has a start and stop time and lasts for a duration (such as eating, sitting, grooming, or play). In the following table, calculate how many seconds your focal animal spent performing that behavior and then calculate the rate by dividing by 600 seconds (the number of seconds in 10 minutes).

Behavior:

Start Time	Stop Time	Duration in Seconds

Total Duration of Behavior:

Rate = Total Duration of Behavior/600 seconds =

How much of the time did your focal spend doing this behavior during the focal sample? During the scan sample? Are these rates similar? Why do you think the rates were or were not similar?
Did you prefer scan sample or focal follow data? Why?

When you have completed your calculations, answer the following questions, discussing your results. You may do this at the zoo or another time before the exercise is due.

What behaviors did you see the most? Why do you think those were the most common? What behavior was rare or absent? How might your data be different if you observed for longer or if you studied a wild group?
How did male and female individuals behave differently in your data? Or compare older and younger individuals. Explain your observations, discussing specific behaviors you observed.