How-To-Do-It

Learning How to Observe the Behavior of Animals A Laboratory Exercise

E. Russell TePaske

What follows is a biology project that is easily modified to a local or zoo setting and that will introduce students to some methodology of the study of animal behavior. Animal observations have been limited arbitrarily to two hours of time. For students who already have learned how to observe animals, two hours is too little and the study should be extended. For students for whom this is the first experience in making animal observations, however, there is a pervasive tendency not to report what the animal was doing, but to report instead an *interpretation* of what the animal was doing. This error, if it has occurred, must be discerned by the student as a projection of his own personality into that of the animal. Two hours of observational notations are ordinarily sufficient to show whether or not this error has been made and it also then allows for its correction without having unduly penalized and/or frustrated an inexperienced student.

The remainder of this article is written in laboratory exercise format. My intent was that it be easily adaptable to classroom usage for those who chose to do so.

Purpose: To observe and interpret field, zoo, pet, or domesticated animal behaviors.

Materials: A lab/field notebook, pencil.

Species for study: Grackles, sparrows, pigeons, ducks, grasshoppers, crickets, ichneumon flies, wasps, bees, ants, pets, domesticated or zoo animals, i.e. what's available.

Briefing: Biological studies performed in the field where animals are seen in their natural environments provide the most accurate behavioral information on a species. Unfortunately, natural environments for most species don't exist close to one's school. Caged laboratory animals, domesticated farm animals, pets and the semi-domesticated species of zoos must usually suffice for behavioral observation and study. Unfortunately, caged and/or domesticated behaviors are often poor approximations of the behaviors of species members that exist in natural settings. Domestication and caging invariably produce some behavioral artifacts in those species that have submitted to it. All settings, of course, have natural habitats for some species. Cockroaches, flies, mosquitoes, ants, spiders, rats and mice are available for field study almost everywhere. Field studies that require any sort of blind to conceal an observer require too much expenditure of time for blind preparation and should be avoided.

Procedure: Behavioral units are the data of behavioral study. Each unit must be defined precisely enough that its frequency of occurrence can be quantified. If behavioral units are precisely defined and definitions are standardized from one observer to another, data sharing, pooling, or comparison become possible.

Make observations on an animal, or animal species, for two hours. The rules of thumb on animal observations are:

1. Write "like mad" about what the animal is doing
2. Quantify any behaviors you can
3. Interpret nothing while making observations

Keep notations in a notebook specifying dates, times, and locations of observations. Divide the notebook into a left-hand column called observations and a right-hand column entitled interpretations. The left-hand column should be about twice as wide as the right-hand one. If the observer later decides that an observation is really an interpretation (or vice versa), he/she may underline it and indicate by an arrow that it belonged to the opposite column.

When the observation period is terminated, the data should be analyzed and discussed. The analysis/discussion may be written, but if it is there should be an oral discussion also. The most important objective of the study was for the student to discern the difference between behavioral observation and behavioral interpretation. The student was given license to do both, but must discern the difference between the two or eventually conclude that behavioral studies are fabrications. The student must come to realize that there is room for diversity in interpretation, but that there is no room for diversity in definitions of behavioral units or in observation of them.

Follow up. When this study is concluded, students sometimes say they feel ready to begin it. Students may be assigned to do just that, except that behavioral observations should exceed two hours. Almost all students choose to start studies over rather than to continue with a previous one. Almost all redefine their behavioral units and delimit their observations to just two quantifiable units. Other observations become more-or-less incidental and provide an interpretive/observational context into which the quantified behavioral units are placed.

The follow-up study, if conducted, should include a written report. A minimum report would be interpretive notations in the laboratory (field) notebook and a one-page summarizing statement discussing the study. The summarizing statement should address conjectures the student makes concerning observed behavior and limitations and/or possible errors of the study. If the study has covered several hours observation time, the student should be encouraged to attempt behavioral flow diagrams, tables and/or graphs of the data collected and insert them in appropriate places in a longer report. What students have learned about animal behavior from this study, however, is of less importance than what they learn about how to learn about animal behavior.

E. Russell TePaske is a professor in the Biology Department at the Univ. of Northern Iowa, Cedar Falls, IA 50614, where he has taught since 1963. He received his B.A. degree from Westmar College, his M.A. degree from the Univ. of Northern Iowa, and his Ph.D. degree from Oklahoma State Univ. He is a member of the Animal Behavior Society, the American Society of Mammalogists, NABT, and the Midwest College Biology Teachers. He has published in several journals, including ABT (43(1):49-50) and (44(2):98-99).