9.20  M.I.T. 2005
Animal Behavior

Below is an outline for the initial classes. Please do the following:
--Review the book list: How many of these authors/books have you read/seen/heard of? Which books would you suggest adding?
--Review the topics list. We will not have time to deal with all of these topics, but most of them will come up in the readings or the classes. Students are welcome to make additional or alternative suggestions.
--Read the outline below, for class discussion.

Introduction 1: Topics, readings, class sessions, requirements

A. Topics list (handout):
   1. Rationale.
   2. Levels of treatment. (Backgrounds of students? Note “special topics” seminar level vs. undergraduate survey level.)
   3. Time needed to cover various topics.

B. Readings:
   1. List of books: textbooks plus books for selected readings; others we will not have time to read despite their value
   2. Effort expected outside of class
   3. Approach: Read for key concepts & their illustration in actual examples. Always try to answer the study questions, which will be posted on the MIT server.
   4. Assignment for next session: Chapter 11 from Tinbergen’s book Curious Naturalists. Graham Scott ch 1. Study questions on these readings.

C. Session plan:
   1. Lecture/discussion of key concepts in readings, using the study questions for guidance.
   2. Some sessions will include viewing of selected videos.
   3. Student discussion and presentations

D. Requirements:
   1. Do all assigned readings. Attempt to answer study questions before class; these will be discussed in class, along with additional material.
   2. Weekly short quizzes or homework assignments
   3. Midterm and final exams
   4. Project paper and short presentation, late in the term.
Introduction 2:

A. How have we learned of animals and their behavior?
   1. Pets.
   2. Folklore. (Examples from students? The medieval bestiaries. See examples in R. Hendrikson, More Cunning Than Man: A Social History of Rats and Men, Dorset Press, N.Y., 1983.)
   3. Human uses of animals. (Meat, leather industries; sports; hunting; some religions.)
   4. Biological sciences: mostly uses as well. (Biology; comparative psychology; pharmacology; toxicology; neuroscience)
      Anthropomorphism re cognition and feelings ("anthropomentism", "anthropaffectism"). Regard for apparent (subjectively assessed) consciousness, in humans and other animals.
   6. Contrasting attitudes in different religions. The extremes of Judaism/Christianity and Jainism.
   7. Basic science approaches in this class -- both descriptive and experimental, and with the perspective of evolution.

B. Scientific approaches to the study of animal behavior:

   1. Focus on the individual organism

      a. "Comparative Psychology" in America: The real focus was/is on humans.
         Notes on non-biological comparisons, "homologies", "phylogenetic scale".

      b. "Ethology"

         2) Whitman and Heinroth.
            Stories from Lorenz, ibid., p.100, 107.
         3) Cf. Charles Darwin
            Illustrations from his book.
         4) "Human ethology" of Eibl-Eibesfeldt (see K.L., pp.10-11).
            Note the popular "body language" craze.
         5) "Neuroethology"-- an approach that goes two ways:
            a) Ethology informs brain & behavior studies.
            b) Brain manipulation effects --> new info. on behavioral organization.
               Examples: multiple kinds of aggression; evidence of primitive vs. advanced behavioral elements (spinal/brainstem vs. forebrain localization).
2. Focus on societies

3. Focus on habitat and the species it supports, and interactions ("balance")
   a. "Ecology": E.g., Tropical rainforest (see Tropical Nature, by A. Forsyth and K. Miyata), Tropical savannah, etc. Animals are a part of each habitat.
   b. The problem of breadth: Knowing too little about everything. Hence, people often think of ecology as focused on “conservation”. But there are good examples of ecology as a science that includes animal behavior: See mammalogy books, e.g., Francois Bourliere, The Natural History of Mammals; others on modern “behavioral ecology”.
   c. When the behavior of animals becomes critical: "Upsetting the balance of nature." Examples: African elephants and the acacia trees. Human hunting, pollution effects, pleasures that encourage poaching. "Killer" bees, etc.

4. Focus on single species or groups of species in a broad way that includes ecology and behavior.
   a. "Mammalogy" (origins, characteristics, classifications, behavior, ecology)
   b. "Primatology", "cetology", "entymology", etc.

5. The amateur "naturalists": The disciplined hobbyist's contributions. (Cf. astronomy.) Details, when amassed, have been important in the development of ideas about behavioral evolution.

See Lorenz's comments about the contributions of amateur ornithologists -- bird watchers -- to early ethology.

Also, Jim Corbett's stories (Jungle Lore, Oxford Univ. Press, 1953): Examples from the life of a hunter who cared about animals.