

# Lecture 1: What are birds and why would we study them?

## Class Business

- **Syllabus.**
- **Text books.** Gill's "Ornithology" is required. Other supplemental books are available, but optional.
- **Questions.** Please ask them! I will post questions and responses on the web page.
- **Office hours.** By appt. or after class. Email is best way to contact me. When you do this let me know (a) what you want to discuss and (b) when would be good times to meet (Mon or Wed work best).
- **Web site.** For each lecture I will aim to post an outline on the web ahead of time. But, these outlines are not a substitute for coming to class, and you should not expect them to include everything covered in class (e.g., none of the graphics will be in the web notes). In exams, you will be expected to know about all the things I talked about, not just the information in the web notes.
- **Field trips.** None associated with this course. In the past students have expressed interest in optional field trips, but in practice very few people have turned up when they have been run. If you are interested in bird-related field work, consider taking EEB 4261 (Ornithology Lab) later.

## Reading for this lecture

**Required.** Gill: pgs. xxi – xxvi and Chapter 1.

**Optional.** Procter & Lynch: Pages 1-6.

## 1. Why do people study birds?

### A) FASCINATION WITH FLIGHT

- i) Birds are not the only flying vertebrates, but they are the most successful.
- ii) Forms of flight are incredibly diverse: forwards, backwards, upside down, gliders, flappers, hovering, ....

### B) ECONOMIC IMPORTANCE

- i) Food. Red Junglefowl (chickens) domesticated at least 5000 years ago. Eggs have been a part of human diet throughout history.
- ii) Clothing/bedding. Auklet coats, eider down, shearwater feather sleeping bags, plumes for decoration.
- iii) Pets. Parrots (100,000s legally imported to US during 1960-80s; many more illegally; consequently many species now threatened with extinction; illicit trade remains lucrative), doves, finches.
- iv) Hunting. Waterfowl (the Anatidae) are the best studied bird family in North America (and probably the world). Tens of millions of Mourning Doves killed by hunters every year in the US. Much hunting money pays for conservation activities. Falconry (use of hawks to hunt with) is still popular in some areas.
- v) Birdwatching. About 46 million North Americans watch birds at least occasionally. Recent bird field guides have become best sellers. In 2001, \$32 billion spent on bird watching, generates \$13 billion in taxes, more than 800,000 jobs (see [http://library.fws.gov/nat\\_survey2001\\_birding.pdf](http://library.fws.gov/nat_survey2001_birding.pdf)).

### C) THEY ARE VERY, VERY COOL!

- i) High diversity (most numerous vertebrate group after fish; ~10,000 species in ~190 families)
- ii) Flight limits body form, but very diverse mouth parts, plumage, etc.
- iii) Wide size range: bee hummingbird to ostrich/albatross.
- iv) Extinct modern birds up to 9 feet tall.
- v) Ostrich eggs are the largest single cell in the world.
- vi) Incredible range of bird songs have fascinated and inspired people for centuries.
- vii) Lots of bizarre behaviors.

### D) THEY ARE CONSPICUOUS

- i) Most are active during the day (unlike many mammals, amphibians, etc.).

- ii) Many are relatively easy to watch.
- iii) They are found pretty much everywhere: they are found on all continents (one more than mammals) and in all oceans, and there are few habitats that do not have birds in them.
- iv) They are attractive to look at and listen to.
- v) Consequently, many modern ideas in animal behavior, ecology and evolution have been based on the study of birds.

## **2. What is a bird?**

### **A) BIRDS ARE BIPEDAL (2-LEGGED) VERTEBRATE ANIMALS**

- i) Birds are in the animal kingdom. They are vertebrates in the phylum Chordata. Within the vertebrates, they form a class of their own: Aves.
- ii) Birds are reptiles. They are derived from dinosaurs, and from an evolutionarily point of view are a kind of dinosaur.
- iii) Birds are NOT mammals.

### **B) DISTINCTIVE FEATURES (WHAT MAKES A BIRD A BIRD?)**

- i) NOT flight – lots of other animals fly (e.g., bats, many insects)
- ii) Feathers – birds are the only modern animals that have feathers (note, some dinosaurs had feathers too).
- iii) Bills – very varied, but always toothless and covered with a horny sheath.
- iv) Birds bodies are greatly modified for flight.