

What are birds and why
we study them???

I. Why do people study birds?

A. Fascination with flight

B. Economic importance

C. They are very cool!

D. They are conspicuous

II. What is a bird?

A. Birds defined

B. Ornithology defined

A. Fascination with flight

Man has always been fascinated with birds because of their ability to fly.

Not only flying animals but they are certainly most successful!

Forms of avian flight are incredibly diverse!!!

- forwards
- backwards
- upside down
- gliding
- hovering



B. Economic Importance

- i. Food – Red Junglefowl domesticated at least 5000 years ago!



Eggs have been part of human diet throughout the history of Man!

ii. Clothing / bedding

- Auklet coats
- Eider down
- Shearwater feather sleeping bags
- Plumes for decoration



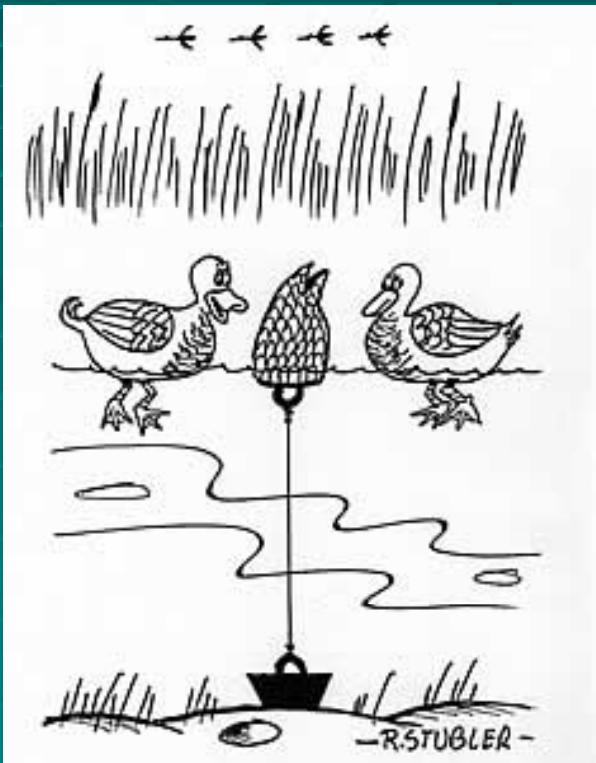
iii. Pets

- Parrots – 100,000 legally imported to US during 1960 – 80's; many more illegally!
- Doves
- Finches



iv. Hunting

Hunting important sport in North America and large #'s of waterfowl and upland game hunters



I don't know who he is but he's got to come up for air sometime!

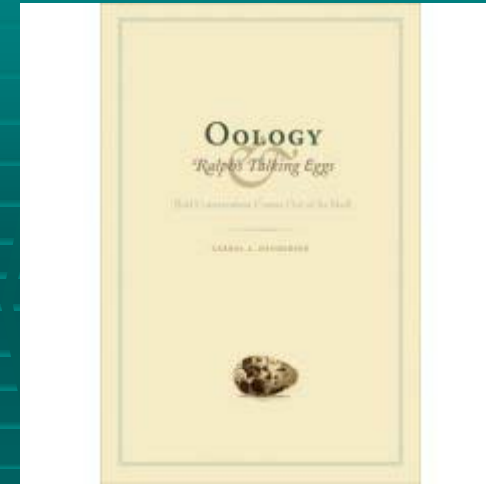


Conservation and research projects paid for by hunter licenses, fees and taxes



v. Oology

The study of eggs -
Specifically bird eggs!



Eggs from at least 25 species of birds fill this drawer from Ralph Handsaker's egg collection. While most drawers in the two massive chests held neatly arranged eggs in tidy partitions, this particular drawer was a catch-all of various eggs, nests, and documents. This same photo runs on pages 34 and 35 in the October issue of *Birder's World*.
Photo by Carrol Henderson

Hobby in late 19th and early 20th century

Largely responsible for conservation of birds and interest in bird watching.

vi. Bird watching is a huge industry!!

- *Sibley's Field Guide to Birds*
– New York Times Bestseller
- 1/5 People claim to be “birders”
- higher income/higher education more likely to be birders
- 54% female / 72% married



- 27% of Utah residents bird-watch (US avg 22%)
- Montana 44%

ECONOMIC IMPACT

- \$ 32 billion retail sales
- \$ 85 billion in overall economic output
- \$ 13 billion in state and federal income taxes
- 863,406 jobs!

C. They are very cool!!

- i. High diversity (~10,000 species) – 2nd most numerous vertebrate group
- ii. Flight limits body form but diverse in mouth parts, plumage etc.
- iii. Large range of body size



iv. Extinct modern birds up to 9' tall!!

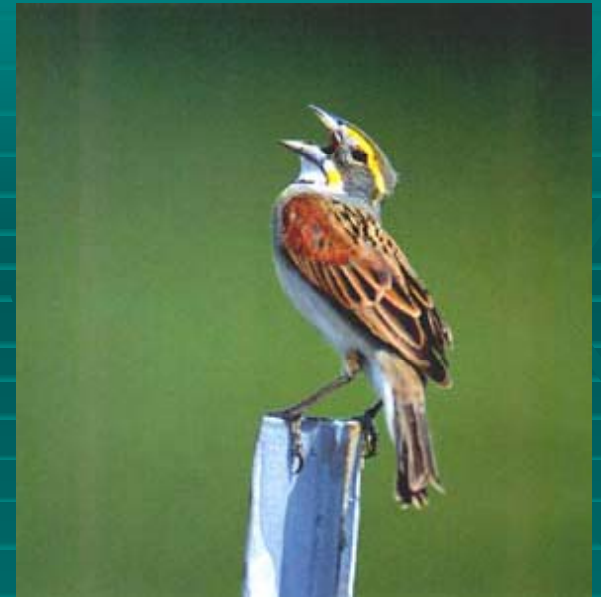
iv. Largest single cell in world!

iv. Incredible range of bird songs

iv. Tremendous behaviors

D. They are conspicuous

- i. Most diurnal (unlike mammals)
- ii. Easy to observe
- iii. Global in distribution
- iv. Appealing
- v. Many modern ideas in animal behavior, ecology and behavior have been based on study of birds



II. What is a bird?

A. Birds defined

- Class Aves within Phylum Chordata
- Birds are reptiles – derived from dinosaurs and evolutionarily can be viewed as dinosaurs
- Unique characteristics due to flight



Achievements for Flight

1. Lightness –

- feathers,
- loss of teeth,
- reduction of skeleton
- shortening of intestine
- elimination of urinary bladder
- air spaces in bones, body cavity



2. Streamlining

Achieved by feathers and body shape. Smooth out angular air-resistant surfaces

3. Centralization and Balance

Achieved by

- positioning all locomotor muscles towards body center of gravity – leaving wings controllable by tendinous strings
- positioning gizzard (avian substitute for teeth) and other heavy abdominal organs in the center of the body

4. Maximum Power

- exceptionally high body temperature
- feathers (conserving heat)
- increased heart rate
- more rapid circulation
- greater O₂ carrying capacity
- unique respiratory system
- highly selective diet

5. Visual acuity and rapid control

- large eyes, wide visual field
- brain with greatly enlarged visual centers



B. Ornithology Defined

The science of birds



“Ornithology consists in the rational arrangement and exposition of all that is known of birds, and the logical inference of much that is not known. Ornithology treats of the physical structure, physiological functions, and mental attributes; of their habits and manners; of their geographical distributions and geological succession; of their probable ancestry; of their every relation to one another and to all animals, including man.”

Elliott Coues