

# Teaching About Predatory Birds

RICHARD F. TRUMP

Senior High School

Ames, Iowa

“A chicken hawk is any big bird that you can shoot but can’t identify.” That’s how one of my students defined a term that wasn’t in the glossary of his biology text. As a matter of fact, he found very little in any text about any predatory bird.

Then why teach such a unit? Because this is a controversial topic with a right and wrong answer . . . Because it gives students an opportunity to evaluate a variety of sources of information . . . Because it encourages students to weigh evidence and reach their own conclusions . . . Because the study of predation is a vivid lesson in how nature works.

Some years ago I approached this unit with a crusader’s zeal. I lectured, showed pictures, provided the right literature. But besides bringing my own prejudices into sharper focus, this approach denied the students the richest reward education has to offer. It denied them the responsibility for making up their own minds.

So my viewpoint has changed. It may continue to change. But, for whatever it may be worth, this is the present work pattern:

1. Brief preview discussion, so students will know what we mean by predatory bird.
2. A quick “straw vote”: Should the number of hawks and owls be increased, decreased, or left about the same?
3. A period’s general reading—magazines, books, pamphlets; even the ads of ammunition companies.
4. A quick check to see if anyone would like to change his original vote. If it hasn’t already been mentioned, someone is sure to press this point: We can’t vote fairly on all predatory birds as a group: different kinds have different habits. This leads naturally to a discussion of what we need to know about predatory birds: How do biologists learn about their food habits? How does predation affect the populations of prey species? etc.

5. Study duplicated information adapted from “What’s a Hawk?”, *The Iowa Conservationist*, Vol. 2, No. 10.
6. Discuss identification of Iowa hawks. Life-size tracings on blackboard are helpful. Peterson’s *FIELD GUIDE TO THE BIRDS* has a plate which can be projected with a balopticon to obtain outlines. Descriptions are confined to distinctive “earmarks.”
7. Same for Iowa owls.
8. More general reading on predation.
9. Class conclusions. With some groups I have found it effective to let a student act as a judge, others as witnesses and jury.
10. Review of important points—an opportunity, if I haven’t had one already, to sum up my own opinions. Incidentally, I offer them as *opinions*, not as edicts.

The outcome? It is hard to measure thoughts and attitudes. And it might be uncomfortable for us teachers if we could. But some of the outcomes are apparent in the way students talk. I think it would be helpful to try recording a typical segment of discussion:

*Bill*: I don’t see why the marsh hawk is protected around here. Look at all the birds it eats!

*Gene*: Yeah, and rabbits too.

*Bruce*: Sure, but it eats rats too. And field mice. Those four mouse skulls in the show case all came from one marsh hawk, didn’t they?

*Bill*: Maybe so, but what does that prove? The same hawk maybe ate four birds the day before.

*Katherine*: How can a hawk kill a rabbit?

*Jim*: If there’s anything wrong with the law, it’s with the great horned owl? What’s so bad about it?

*Instructor*: Hold everything—one question at a time. Let’s go back to Bill’s comment.



A resident in Ames High's biology lab for six weeks, this Screech Owl was caught in a garage by student Bernadine Sifrit. It had complete freedom in the lab. In daytime it lived in this hollow log section on top of a book case. At night it frequently perched on the head of a stuffed bald eagle. Photo by Richard Trump.



Ready for take-off, this Red-tailed Hawk is wearing a numbered leg band furnished by the Fish and Wildlife Service to licensed bird-banders. This one was banded by the author near Keokuk. Photo by Richard Trump.

He said the marsh hawk may eat birds one day but mice the next. How do we *know* what they eat?

*Janice:* By finding what's in their gizzards.

*Katherine:* Oooh!

*Instructor:* Is that right, Marcia—look in their gizzards?

*Marcia:* That's what a pamphlet said. But it sounds like a wasteful method. Can't you find out what they eat by just watching them?

*Ron:* It takes too long. What's wrong with gizzards?

*Marcia:* You have to kill the bird to find out if it's bad.

*Bill:* Maybe it eats something different every day.

*Ron:* What if it does? The Department of Agriculture gets whole scads of specimens, and if you average everything together you have a pretty good idea what the bird really eats over a period of time.

A better way to know what a hawk or

owl eats is to study the bones and feathers that it regurgitates as pellets. But the real trouble is that even if you know what a bird eats, you still may not know what it *kills*. Maybe it's a scavenger and eats rabbits that are killed along the highway or chickens that die of disease.

*Instructor:* Then the bird-watching expedition Marcia was recommending would help decide the issue . . . .

*Marcia:* Did I say that?

*Instructor:* Well, if biologists get out and and really see the birds, they'll know if the predators are killing their own food or finding it already dead. If we depended on stomach and pellet analysis alone, we wouldn't know much about the economic status of the bald eagle or turkey vulture or several other birds.

*Jerry:* Is a turkey vulture the same as a turkey buzzard? My uncle was telling me about a buzzard nest in a hollow stump . . . Et cetera—with many detours.

Even sturdy individuals who don't like to admit they've changed their minds are likely

to be swayed by general agreement of the class. And such discussions with a little guidance, actually do reach a consensus. That is why I say that some of the outcomes are apparent in the discussions. Here are other ideas that are generally highlighted by student participation:

There's a general notion that the bigger the predator the bigger the prey. That's not altogether true. Look at the quantity of insects eaten by the big red-shouldered hawk. Then look at the larger proportion of birds taken by the much smaller sharp-shinned hawk.

In general, the larger, slower hawks are the most valuable. But they are also the easiest to shoot.

Predators eat mostly the animals that are easiest to catch, which generally means the foods that are most abundant. This is important to man's interests: When pests are abundant, that's when we most need pest control; when a valuable game bird is abundant, that's when we can best afford to spare some of them. Students are amused by the thought that man is much the opposite of wild predators in this respect. He often grabs for the things that are hardest to get. Social pressure convinces him that the rarest and most expensive items are best.

As one wit put it, "An owl that is finding plenty of rats doesn't care a hoot if rats happen to be cheap." Incidentally, investigations have shown that fluctuations in the diets of predators are a pretty good indication of the relative abundance of the prey species. Actually, of course, these fluctuations indicate changes in the *vulnerability* of the prey. And this is determined not by abundance alone but also by protective cover and related factors.

Here is another way in which predators affect man's interests. In any given area, the more food there is the more predators there will be to eat it. This is partly because the birds move into areas where they find plenty to eat. Another reason is that where food is plentiful, larger families of predators are matured. A long-eared owl, for example, starts incubating when the first egg is laid. The remaining eggs are laid on alternate days, so the clutch is a complete week or two after incubation started for the first egg. That means a wide discrepancy in age



Great-horned owl, reared from the fluffy stage by biology students Don Bappe and Paul Mumm, was a frequent visitor at Ames High. Interest in predatory birds is sharpened by having live specimens available. Photo by Richard Trump.

and size of the owlets. Now if there is plenty of food, this discrepancy may be unimportant. But if there is a shortage of food, some of the younger owls may not survive. That's one way in which nature adjusts the predator population to suit variations in food supplies.

One year as a class project we sent an inquiry to the conservation departments of each of the states and a number of Canadian provinces. We asked about their laws concerning predators, whether their laws were based on any special investigation of their predators, and what experience they had had with attempts at control. The responses are a valuable reference source for the more aggressive students. For class use, some of their pertinent excerpts were duplicated.

Audubon Magazine has since published an excellent article that reviews the legal status of predatory birds. It is by Richard Stuart Phillips, "A Fair Deal for our Birds of Prey?" in the Nov.-Dec. 1949 issue. While referring to sources of information, I want to mention some of the reference material we use for this unit. The magazine articles include Natural



Business end of a Great Horned Owl is the feet rather than the bill. This is a "winged" specimen found by students who were hunting pheasants near Ames. These owls frequently smell of skunk—one of their food species. Photo by Richard Trump.

History Magazine, Outdoor America, Nature Magazine, Audubon Magazine, Field and Stream, Outdoor Life, National Geographic, and Iowa Conservationist. We have several U.S.D.A. bulletins and Common Hawks and Owls of Iowa, published by the Extension Service, Iowa State College. Most valuable of the books on our shelves is Bent's Life Histories of the Birds of Prey published by the Smithsonian Institution; unfortunately this is out of print. Then we have a number of leaflets and reprints obtained from the National Audubon Society. Students are of course helpful in locating new material—especially in the sports magazines.

In listing our work pattern for this unit I may have given the impression that our sequence of topics is tightly mapped out in advance. It really isn't. And the sequence is likely to be interrupted when Jack brings a pet horned owl, or someone finds a hawk carcass displayed on a roadside fence. We examine the digestive tract of any fresh specimen. One red-tailed hawk, for example, contained only the bill, feet, and gizzard of a junco. The junco's gizzard, incidentally contained a number of weed seeds which germinated when we transferred them to a flower pot.

I said there is a right and a wrong answer to the predator question. This, I believe, is it: Campaigns for eliminating predatory birds are both poor economy and poor ecology.

We need predatory birds. And while very few species are beneficial enough to deserve absolute protection, no species is bad enough to deserve general persecution.

## Books for Biologists

PERCEPTUALISTIC THEORY OF KNOWLEDGE, Peter Fireman, 50 pp., \$2.75, Philosophical Library, New York, New York, 1954.

Perception, thinking, and logic are three basic mental activities, always interwoven and jointly lend themselves to the building of a perceptual view of the world and to the formation of a perceptual theory of knowledge.

ON THE NATURE OF MAN, Dagobert D. Runes, 105 pp., \$3.00, Philosophical Library, New York, New York, 1956.

This new work is offered as an attempt to define the border lines of human thinking and human morality. This type of soul-searching philosophy is sometimes baffling, frequently of melancholy character, but always fascinating and inspiring.

DICTIONARY OF ANTHROPOLOGY, Charles Winick, \$10, 579 pp., Philosophical Library, New York, New York, 1956.

This book is the only collection in any language of the specialized vocabularies of all the fields of anthropology. It includes approximately 10,000 entries from archaeology, cultural anthropology linguistics and physical anthropology. Many terms hitherto used on the basis of a tacit consensus about their meanings and a supposedly shared notion of their connotations are here defined explicitly for the first time.

PSYCHOLOGY—GENERAL, INDUSTRIAL, SOCIAL, John Menro Fraser, M.A., \$7.50, 310 pp., Philosophical Library, New York, New York, 1956.

The author has in this volume surveyed the fields of general, industrial and social psychology from the manager's point of view and drawn the main issues together. Detail has been disregarded in order to present a coherent theme.

THE WORLD OF BEES, Gilbert Nixon, 214 pp., \$4.75, Philosophical Library, New York, New York, 1955.

Bees have been a source of interest since ancient times. In this book Mr. Nixon has tried to give the reader a glimpse of the whole world of bees in all their intriguing diversity of habit and behavior.

(Continued on page 157)