

A comparison of the sex ratio of the museum specimens with the distribution of wing stripe types indicated that stripe width may be a sexing criterion and stripe brightness may be an aging criterion. Examination of a breeding population would help to resolve this matter.

#### Acknowledgement

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#### Literature Cited

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## **BOOKS for BANDERS**

**Edited by: Mabel Gillespie**

SINCE SILENT SPRING by Frank Graham, Jr. (Field Editor of Audubon Magazine) Houghton-Mifflin Co. 1970. 333 pages. \$6.95.

Eight years ago Rachel Carson's "Silent Spring" was published. It aroused bitter antagonism and drastic criticism from many; while confirming the opinions of thoughtful, and alerting others to threatening dangers. Recently published is this book of Graham's.

The author reviews the effect the Carson book had, both initially and more recently. Then he surveys the situation regarding insecticides and pollution during the past eight years. Bird Banders are presumably and intelligently aware of the situation in general, but many of us can well afford further education in particulars. In considering the book, there is a temptation to quote page after page because of the importance packed into every paragraph. In selecting details for mention,

the emphasis will be placed on instances in which bird life has been threatened.

In Chapter 8 - "Tainted Waters" - it is stated that Lake Michigan is contaminated chiefly by aerial drift from spraying operations. The concentrations of DDT in herring gulls were practically a hundred times greater than in the bottom mud. Not only do the chlorinated hydrocarbons remain stable for years; but also, as they move up a food chain through plants, smaller herbivores, larger carnivores, the poisons become more concentrated in living tissues.

The Lake Michigan gulls show poor breeding success. Between 30 and 35 percent of the eggs surveyed by scientists did not hatch. The eggs contained high residue levels of DDT (or DDE, a toxic breakdown product of DDT).

In Britain, birds of prey were ruthlessly killed during the 19th century. An act in 1954 protected birds of prey. In Scotland the decline of the Golden Eagle continued. This was traced to the custom of dipping sheep in dieldrin. In Israel, the decline of rodent-eating hawks was due to the use of wheat seeds coated with thallium sulphate.

Sparrow Hawks at the Patuxent Wildlife Research Center Experimental Station were divided into three groups. One was fed naturally, one was fed three parts per million of dieldrin, and the third was fed 15 parts per million. The two latter groups had poorer nesting success and thin eggshells. Some of the males in group three died.

Parathion, malathion, and carbaryl are non-persistent but should be used with great caution. "Used at the wrong season they either kill birds directly or wipe out the food supply on which birds depend...as they become more widely used, these chemicals will encounter resistance among pest insects."

"There is a common misunderstanding about the mechanism of insect resistance. An individual does not acquire resistance....a few individuals contain in their genetic make-up the traits that cause them to be resistant to a specific chemical compound. By virtue of this 'unnatural' selection they survive, passing on this trait through the genetic code to their offspring. A predominantly 'resistant' population comes into being."

"There is increasing concern among ornithologists in the United

States for the familiar warblers and other insectivorous birds which breed in the temperate zone but winter in the tropics where undesirable pesticide effects are likely to be magnified because of the absence of a dormant season:"

"Predator insects are rarely as resistant to chemicals as plant pests, and they are less numerous. When their food (the pest species) becomes scarce, predators produce fewer young per brood. Most insect control leads neither to total removal of pest species nor to reduced necessity for its control."

A survey of court cases contains valuable hints for citizen action against undesirable spraying. Finally there are constructive suggestions for alternative control measures. The problem of linden bugs, with a solution worthy of Perry Mason, suggested the use of juvenile hormones. A synthetic of these blocks the emergence of adult Aedes aegypti mosquitoes (vectors of yellow fever) and human body lice (vectors of epidemic typhus).

Other control measures are genetic manipulation, sexual attractants, specific disease, release of predators, altering life cycles of pests, cultural controls.

An appendix contains a discussion of pesticides by Shirley Briggs, formerly an associate of Rachel Carson. General rules and cautions are considered. Listed are eight acceptable pesticides, three bacterial insecticides and two dessicants, one of which is recommended for household use.

There follows a forbidding list of persistent, broad-spectrum pesticides. These include the chlorinated hydrocarbons, and general protoplasmic poisons. Finally there are to be avoided even non-persistent, broad spectrum pesticides - the organic phosphates. "There are more than 200 basic chemicals used in modern pest control. They are combined over and over so that the pest control people have at their fingertips more than 60,000 separate compounds. Each of them reacts differently, under different conditions, on different individual organisms."

Obviously, if there are no birds all our banding activities come to an end. In order to insure that avian life shall not be destroyed in mistaken and ill-advised attempts at pest control, it behooves banders to know about the situation so that they may use their influence toward the adoption of reasonable and long term measures of pest control.

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