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CHARGES THAT BIRDS DESTROY
FISHES ARE OFTEN UNFOUNDED

Biological Survey Shows that Many
Birds Wrongly Accused Often
Benefit the Fishes

Great blue herons and other fish-eating birds, like most other birds, feed on what is common and easy to get, says the Biological Survey of the U. S. Department of Agriculture. Their choice of food is so largely governed by availability that in most waters they will get only a small proportion of game or commercial fishes, as it is in small proportions that these fishes occur. The more valuable fishes not only are few in numbers in relation to the non-commercial species, but usually inhabit deeper water, are swifter, and hence are harder to catch than many of the so-called coarse fishes. In some trout streams there may be a preponderance of trout over other fishes, but in such streams the birds often find and capture water insects, crustaceans, frogs, snakes, and other creatures more easily than they do the elusive trout.

Wondering what becomes of the immense numbers of trout fry that are planted in streams, anglers naturally attribute their disappearance to the enemies that are most obvious, and they are particularly likely to blame the larger fish-eating birds, such as the herons. Studies of trout streams by the Biological Board of Canada, however, show that the greatest losses in trout

fry are caused by enemy and competitor fishes. Few realize what serious destroyers of spawn there are among the fishes themselves, such as sticklebacks, sculpins, suckers, minnows, and the like.

After hatching, the little fishes are decimated by cannibalistic attacks, of which none are worse than those of the trout and other game fishes themselves. Besides the fish enemies of fishes the streams teem with insect and other enemies, such as the larvae of the predacious diving beetles, or "water tigers," nymphs of dragon flies, giant water bugs, and crawfishes. All such fish enemies in turn are preyed upon by birds, and it is probable, except at fish hatcheries, that in most cases fish-eating birds more than make up for the harm they do in eating valuable fishes by their destruction of natural enemies of the whole fish tribe.

Illustrating the food habits of the group of fish-eating birds by those of the great blue heron, which is one of the largest and most conspicuous of the number, the Biological Survey states that in 150 stomachs examined, commercial or game fishes occurred only a few times, as follows: eel, 1; grunt, 1; pickerel, 2; trout, 9; sunfishes, 10; yellow perch, 13; and catfish 17 times. A mere consideration of these numbers would give an impression adverse to the bird, were it not for the fact that sunfishes are not of great value either for food or sport, and catfish are notorious spawn eaters. That the great blue heron undoubtedly eats scores of the enemy and competitor fishes for every trout that it consumes is shown in the fact that among such fishes the following occurred in the number of stomachs mentioned: suckers in 29, minnows in 23, sticklebacks in 14, darters and carp in 7 each, killifish in 5, and sculpins, gars, and madtons in smaller numbers.

The diet of great blue herons was stated to be by no means restricted to fishes, for in it are several other enemies of fishes, as dragon-fly larvae

in 37 stomachs, crawfishes in 33, giant waterbugs in 9, and predacious diving beetles in 7. Some of the other miscellaneous items found in the food were snakes, frogs, salamanders including the mud puppy, and leeches. The salamanders, leeches, and water snakes also are classed as enemies of fishes.

The Biological Survey finds that the great blue heron takes a considerable number of small mammals also, especially meadow mice. Meadow mice were found in 8, other mice in 4, and shrews in 5 of the 150 stomachs reported upon. Many observers in Western States have commented on the destruction of harmful rodents by great blue herons, and in 1889 a law was passed in California protecting the bird on account of its feeding on pocket gophers and ground squirrels.

The great blue heron is known, however, to be destructive about fish hatcheries, and the Department of Agriculture has issued an order permitting the control of this and other fish-eating birds at such places. On the other hand, in localities away from hatcheries, it is certain that the bird ordinarily consumes a much larger number of fishes not utilized by man than it does of those that are. Among these, as has been noted, are numerous spawn-eating fishes, which if allowed to live, probably would do more harm to game and commercial fishes than does the heron. Taken in connection with other fish enemies destroyed by the heron, the Biological Survey states that there is little doubt that the bird does more good than harm under natural conditions.

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