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PRELIMINARY REPORT ON THE FOOD OF THE COMMON WATER SNAKE

by

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The common water snake (Natrix s. sipedon), which ranges throughout Michigan, has long been the recipient of the most uncomplimentary remarks from anglers. Whether or not this snake competes directly with fishermen is a bone of contention. The Institute for Fisheries Research and co-operating agencies present findings here which tentatively remove from the shoulders of the water snake many of the insults which have been heaped thereon.

On the basis of the food contained in one hundred specimens collected during all of the summer months, and under the average conditions represented by this small series of individuals, it appears that this snake has little if any effect on the yield of game fishes from natural waters--trout and non-trout. At fish hatcheries and rearing stations, however, this reptile is definitely a nuisance.

Trout waters

Sixty-three of the specimens from trout streams contained food which was studied (Table 1). Only four of these snakes had eaten trout, a small one each. By far the most important food of the snakes in this series were the forage and non-game fishes, which occurred in 52 of the stomachs.

These fishes were mostly muddlers and minnows and a few lampreys. A few frogs, insects, earthworms, and leeches also appeared in the food.

Non-trout waters

Sixteen of the water snakes examined from non-trout waters contained food (Table 2). Game and pan fishes were represented in only two stomachs. The bulk of the food, as for trout waters, was made up of forage and other fishes--lampreys, minnows, darters, sticklebacks, etc. Mudpuppies and frogs were present in two snakes each.

Fish hatcheries and rearing stations

Of the many specimens opened from these stations, only 21 contained food. Some of the snakes were from trout-cultural waters, others from forage fish rearing ponds. Practically all (20) of these individuals gave evidence of having eaten the fishes being reared and averaged three of these fishes each. A few contained remains of miscellaneous fishes, one, a toad, and another, some insects.

Conclusions

In so far as any definite statements can be made on such scanty material, the following seem warranted. Pending the examination of additional material and a review of the literature on this snake, it may be tentatively be concluded that: (1) Predation by the common water snake on game fishes under average conditions in natural waters need be of no concern to anglers or fish managers. (2) Control of the common water snake at fish hatcheries and rearing stations should be continued and traps should be employed to capture these snakes before they enter raceways or rearing ponds.

Acknowledgments

The snakes on which this report is based were collected by staff members of the Institute, by other employees of the Department of Conservation, and by other interested parties. I acknowledge with sincere gratitude the kind cooperation of these individuals. In all, more than 222 specimens were on hand for study, but more than half of these contained no food. Owing to this fact, additional material is desired.

This report is preliminary and introductory to a more extensive study on the common water snake which is planned by the author and J. Clark Salyer, II, of the U. S. Bureau of Biological Survey. Several years ago, while employed by the Institute for Fisheries Research, Salyer began an investigation of this problem in Michigan.

Financial support from the American Wildlife Institute provided laboratory assistants for this study in the persons of William C. Beckman and Frances V. Hubbs and also aided the author personally. Laboratory facilities were provided by the Museum of Zoology and the Department of Zoology of the University of Michigan. I extend my thanks to these agencies and individuals.

Table 1

Food of 63 common water snakes from trout streams in summer

Food item	Number of snakes containing food item	Percentage frequency of occurrence
Trout	4	6.4
Other fishes	52	82.5
Remains of unidentified fishes	3	4.8
Frogs	4	6.4
Insects	4	6.4
Miscellaneous invertebrates	2	3.2

Table 2

Food of sixteen common water snakes from non-trout waters in summer

Food item	Number of snakes containing food item	Percentage frequency of occurrence
Game fishes	2	12.5
Other fishes	9	56.3
Remains of unidentified fishes	2	12.5
Mudpuppies and frogs	4	25.0