

## PARASITES OF THE EUROPEAN STARLING IN ILLINOIS

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SINCE the European Starling (*Sturnus vulgaris*) has established itself on the North American continent it has, as a result of several investigations concerning its economic status, aroused much interest because of its yearly increase in numbers. The Starling's habits in most cases seem to be "beneficial to man or of an economically neutral character" (Kalmbach, 1931, p. 26). Tendencies for harm are "intensified by the birds' flocking habits, as well as by a general increase in abundance in recent years, and have led to insistent demands for curtailment in numbers."

The gregarious habit of the Starling is without question the greatest tendency for harm, and is responsible for damage done to tree foliage and agricultural crops. Since they have established themselves permanently in many parts of the United States, the food problem has become acute for them during the winter months. Interesting observations have been made by M. S. Ferguson (1932), concerning the feeding habits of the Starling in Canada during the winter months. Ferguson's report indicates that Starlings will feed on almost any food scraps and when practically no food is to be had, they will pick up non-food particles as may be found on or around farm premises.

The habit of frequenting various poultry yards in search for food raises a point of interest concerning the possibility of the Starling becoming a carrier of avian parasites from one domestic flock to another. In an attempt to investigate such a possibility, this study was made to determine the parasites in the intestinal tract of the Starlings in several areas of Illinois. The investigation covered the period from September, 1935, to January, 1936, and the intestines and tracheae of one hundred thirty-two Starlings were examined. Of this number, fifty-one birds were hosts to one or more parasites, all of which were found in the intestinal tract. Forty-five were hosts to *Hymenolepis farciminosa*; three to *Rhabdometra nullicollis* (?) and three to Acanthocephala: *Mediorhynchus grandis* (Van Cleave).

No evidence of the presence of the gapeworm (*Syngamus tracheae*) so common in poultry, was forthcoming. This is especially interesting when compared with similar investigations carried on by E. A. Lewis (1926) in Europe. Dr. Lewis found a thirty-five per cent infestation in the Starlings which he examined. In discussing the possibility of spreading the gapeworm from one locality to another, Dr. Lewis says that "Starlings are known to migrate over wide areas, and data collected regarding infestation of Starlings with the gapeworm, show a high percentage; it is therefore

claimed that Starlings, in particular, are more important than the turkey as a means of spreading the gapeworm." In a "Survey of Welch Helminthology," Dr. Lewis (1927) reports that intestinal nematodes present in Starlings were not very numerous, for he found only two species (*Porrocaecum ensicaudatum* and *Capillaria ovopunctata*). Since none of the nematodes as reported in the Starlings of Europe was found in the birds examined in this study, it may be that the avian nematodes have not found a host in the Starling of this immediate area. It is quite probable, however, that a more thorough investigation might reveal evidence of nematode infestation in this same area at some future date.

Birds from six different Counties of the State were examined, with the largest number coming from De Witt County, as shown in the first table. Because of the larger number coming from De Witt County, a comparative table will appear later using De Witt as a basis for comparison.

Counties	Number parasitized	Number non-parasitized	Per cent parasitized
Alexander.....	1	1	
Champaign.....	0	1	
De Witt.....	43	64	40.18
La Salle.....	3	5	
Marshall.....	0	1	
Woodford.....	4	9	
Total.....	51	81	38.6

Had the investigation been carried on for an entire calendar year and over a more extensive area of the State, interesting observations would, no doubt, have been made concerning the season of the year when parasite infestation would increase. Because of limiting this study to a period of five months, and to a small section only of the State, it is obvious that no definite conclusions can be drawn from this survey.

The following table shows the infestation as arranged by months:

Month	Number parasitized	Number non-parasitized	Per cent parasitized
September (1935).....	10	11	47.6
October.....	11	25	30.8
November.....	16	23	41.02
December.....	13	14	48.1
January (1936).....	2	8	20.0

For comparison with the above table, the following for De Witt County only is of especial interest:

Month	Number parasitized	Number non-parasitized	Per cent parasitized
September (1935).....	7	4	63.63
October.....	8	19	29.6
November.....	15	23	39.47
December.....	12	14	46.15
January (1936).....	1	7	12.5

Using De Witt County as the most representative county, it can be said (advisedly) that September was the month of greatest infestation. From the table which summarizes the total birds examined by months, it seems that the percentage was a trifle higher in December than in September, but as stated before, no definite conclusion can be drawn from this table.

The number of parasites per bird varied to the point that the host which was most heavily parasitized had fifteen cestodes, while the ones with the fewest number gave evidence of only fragments of cestode. The average number of parasites per bird for the entire number examined was 1.14, while the average number for the total of the parasitized birds only, was 2.96. A total of one hundred and fifty-one parasites was examined.

The following table gives a summary of the number of parasites per bird:

Number of parasites fragments	Number of birds
	3
1	19
2	10
3	7
4	4
5	2
6	0
7	1
8	2
9	0
10	0
11	1
12	0
13	1
14	0
15	1

In an investigation carried on in 1909 by B. H. Ransom (1909, p. 114), five species of cestodes common to North American birds were found in the Starling. One of the five (*Hymenolepis farciminosa*), was found to be most common to the birds examined in this survey by Dr. Ransom.

It is also of interest to note that D. E. Salmon (1896, p. 32) reported the presence of *Hymenolepis farciminalis* in the Starling as early as 1896.

Considering the fact that the Starling was first introduced into the

United States in 1890 (Chapman, 1932, p. 429) and the fact that it so rapidly adapted itself to its new environment, one is lead to believe from this investigation that the rate of increase of parasite infestation in the Starlings of Illinois is not dangerously great.

#### SUMMARY

1. Because of the superficial number of birds examined, no definite conclusions concerning cestode and nematode infestation can be forthcoming, but evidence at hand is a good indication of what might be expected in the Starling.

2. The yearly increase in numbers of the Starling in Illinois will unquestionably cause future surveys to show variation from the data collected in this investigation.

3. A more extensive survey which would be more representative of single flocks, and more representative of the various regions of the State, would, without doubt, reveal greater variety and numbers of parasites than found in this survey.

4. The possibility of the Starling becoming a menace in carrying cestodes and nematodes to poultry flocks in Illinois is at present not very great.

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