FIELD NOTES ON SALMONELLA INFECTION IN GREENFINCHES AND HOUSE SPARROWS

Author: CORNELIUS, L. W.

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Sanderstead, Surrey, is a wholly residential area about twelve miles south of London, adjoining open country. In winter, where food is offered in the gardens, the resident House Sparrows *(Passer domesticus)* are joined by flocks of Greenfinches *(Carduelis chloris)* which have spent the rest of the year in the fields and hedgerows. In a garden which has been studied for five years, over 200 Greenfinches have frequently been counted feeding together and banding has shown that probably over 1000 visit the garden in the course of the winter (L. W. Cornelius, 1968. B.T.O. Ringer's Bulletin, December). About 200 House Sparrows feed there at the peak periods of January and February.

In the winter of 1964-65 an unusually large number of dead birds were seen but none was sent for examination. Many sick birds also were observed; efforts were made to save them but mostly without success.

A similar situation arose in the winter of 1965-66. On 27th April, 1966, a Greenfinch and a House Sparrow, sent to the laboratory for examination were found to have been infected with *Salmonella typhimurium* (J. E. Wilson and J. W. Macdonald, 1967. British Vet. Journal: 212). By this time most of the Greenfinches had dispersed to the countryside.

The winter of 1966-67 again produced numbers of dead and dying birds in the study area and between 23rd of January and 24th of April 1967, seven Greenfinches, five House Sparrows, and a Dunnock *(Prunella modularis)* were all found infected with *S. typhimurium.*

A heavy fall of snow in mid-December 1967 brought the flocks into the garden earlier than usual and the first case of *S. typhimurium* was confirmed in a House Sparrow on the 18th of December. Between this date and the 26th of February, 1968, eight Greenfinches and five House Sparrows had died of the disease and more were being found, in addition to numbers of sick birds. By this time, however, outbreaks had occurred all over southern England. (J. W. Macdonald and L. W. Cornelius, 1969. British Birds: 1). As the laboratory was working to capacity, no further specimens were sent from Sanderstead. The outbreak again subsided with the milder weather at the end of March. The phage type of all isolates of *S. typhimurium* from the birds examined from Sanderstead was U 218.

Discussion

In addition to the recurring outbreaks on Sanderstead, field reports were studied of three outbreaks in other parts of Surrey. All the birds affected were Greenfinches and House Sparrows and in every case the birds had flocked in numbers to gardens and elsewhere where food was offered. The affected birds all exhibited the symptoms of standing about huddled and hunched, pecking feebly, and in the last stages of the illness could be picked up by hand. Many were also found huddling against walls of the houses, probably to take advantage of the radiated heat. They were found by the dozen and score and some people reported burning them in heaps. In all the cases investigated, large quantities of peanuts had been offered and, although this was an unlikely source of infection, samples from the affected areas were examined but no salmonella organisms were found.

It is significant that other species of birds feeding at the same time should appear to be unaffected. Blue Tits *(Parus caeruleus)* for example, also feed with Greenfinches and House Sparrows and although some carcasses of Blue Tits had been examined, none had been infected with *Salmonella.* The Blue Tit has a different feeding habit, however, and it normally seizes a nut or piece of

food and flies off to consume it elsewhere. Starlings *(Sturnus vulgaris)* also feed in flocks in the gardens but rarely remain still and prefer to forage over a larger area as they probe beneath the soil. Greenfinches and House Sparrows, however, crowd onto the feeding tables and remain there until the food supply is exhausted or they are disturbed. They are therefore exposed for long periods to carriers and linger on contaminated ground. Wobeser (G. Wobeser, 1967. Ontario Bird Banding 3: 114-115) has reported salmonellosis in House Sparrows which had been congregated around feeding stations in the winter months.

The dispersal of Greenfinches in the spring makes it difficult to ascertain if this species continues to be affected during the rest of the year. Banding has shown, however, that House Sparrows remain in the same locality throughout their lives. Individuals banded at the study area have been retrapped from time to time up to seven years after the original capture.

During the spring and summer months when food is no longer offered, the House Sparrows, while remaining in the same area, tend not to flock but are forced to forage individually, except when random scraps of food are thrown out. If this species continued to be affected during the rest of the year, one would expect to find some bodies or to observe sick birds. In fact, in the study area over the five years no sick House Sparrow has been seen and none has been found affected by salmonellosis other than in the winter months.

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L. W. CORNELIUS

20 Blacksmiths Hill,
Sanderstead, Surrey, England

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