Notable number of House Sparrows, *Passer domesticus*, at a roost in natural habitat near Marree in the western Lake Eyre basin

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Abstract

A roost of the House Sparrow, Passer domesticus*, was discovered at Muloorina Station in the western Lake Eyre basin in South Australia. Birds used stands of cumbungi (*Typha *sp.) within a channel of permanent water for roosting. A morning and an afternoon count in May 2017 revealed between 370 and 400 sparrows using this site. Birds arrived from and departed to the NW to areas of natural vegetation well away from human habitation and at the time showed no interest in the buildings of the Station, only 0.6 km to the E. In the morning sparrows departed from 23 minutes after sunrise. The roost emptied within 15 minutes. Flock size ranged from 1 to 80 sparrows (average 23.5 birds). In the afternoon sparrows started to arrive from 42 minutes before sunset over a period of 31 minutes in flocks of 1 to 20 birds (average 5.8 birds). The pattern of habitat use of the House Sparrow during and outside the breeding season in remote South Australia requires much further study.*

INTRODUCTION

The House Sparrow, *Passer domesticus*, is widespread in the arid zone of South Australia. It occurs around settlements, such as the towns of Maree, William Creek and Oodnadatta and a number of homesteads (Badman 1979, Baxter and Paton 1998). During a tour in a small group during May 2017 through parts of central and northern South Australia the House Sparrow was present in all the towns and at a couple of homesteads visited on our itinerary. Near Marree (see Figure 1) the species was encountered in larger numbers. According to Badman (1979) the House Sparrow commonly breeds in Marree and is likely to breed at other locations in the southern and western Lake Eyre drainage basin, mainly at homesteads, including Muloorina Station, about 50 km to the north-west of Marree. At the latter site it is apparently resident.

OBSERVATIONS

On 8 May 2017 we stopped at a rest area at Clayton River on the Birdsville Track about 50 km NE of Marree. While exploring the surroundings of the site for 10 minutes I heard the 'tshilp tshilp' of a flock of House Sparrows, but failed to actually see the birds in the dense vegetation. On returning to the rest area, members of our party mentioned that several sparrows had visited to get some water from a puddle at the base of a water tank.

Later in the day we put up our tents at the campsite at Muloorina Station on the Frome River (Figures 1 and 2), a good 50 km to the north-west of Marree. A channel at the site holds permanent water (Figure 2).

Near its northern end this watercourse has two dense stands of cumbungi, *Typha* sp, only a couple of metres apart, clearly visible as isolated dark areas within the paler colour of the water in Figure 2. These stands are surrounded on all sides by water (Figure 3). The buildings of the Muloorina Station are located 0.6 km to the east of the site (Figure 2).

Figure 1. Map of central South Australia showing Clayton, Marree and Muloorina Station

In the late afternoon loud and constant House Sparrow chatter came from the cumbungi; birds were seen moving between the two clumps and more birds were arriving, with the last one at 1725 h. Clearly, the cumbungi stands [29°14.224′ S; 137°54.025′ E] served as a roost site.

The next morning, 9 May 2017, the departure of

Figure 2. Aerial view of the homestead and waterhole, Muloorina Station

Figure 3. The stands of cumbungi that served as House Sparrow roost **Image Michael Lenz**

House Sparrows from their roost was monitored from 0625 h onwards (sunrise at 0651 h). Birds leaving were recorded and summed in 1-minute intervals (Figure 4).

Sparrows started calling shortly after 0700 h and were gradually moving up the cumbungi stems in readiness for departure. There was loud and constant chatter. The first birds left at 0714 h, the last ones at 0728 h, i.e. the roost site had emptied within 14 minutes. The total number of sparrows counted/estimated was 400. They flew out in flocks of 1 to 80 birds (n = 17; average size flock size: 23.5 birds; see also Figure 5). Notable was that all birds left to the NW, showing no interest in the nearby station buildings.

In the late afternoon of the previous day birds had been moving between both clumps of cumbungi, but on the following morning all sparrows came out only from the northern clump. Apparently they had taken some time to settle on their final roost position.

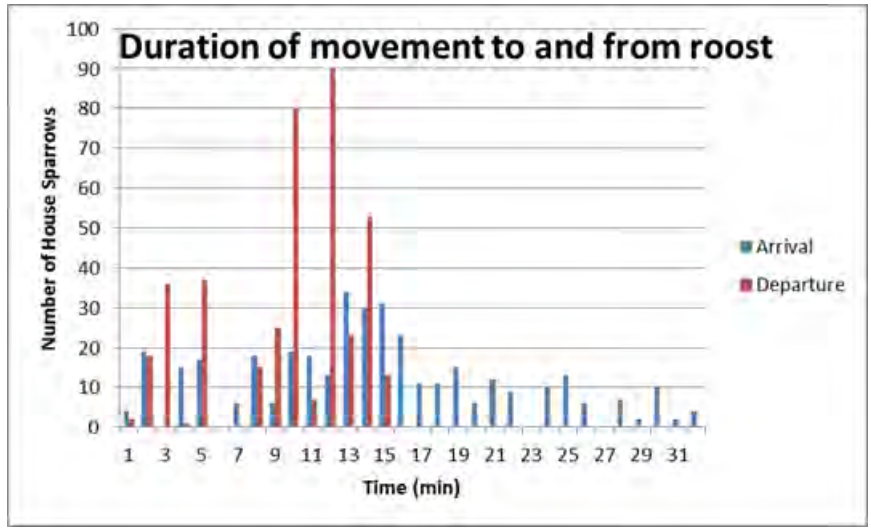

Figure 4. Duration (minutes) for House Sparrows to arrive at or depart from the roost

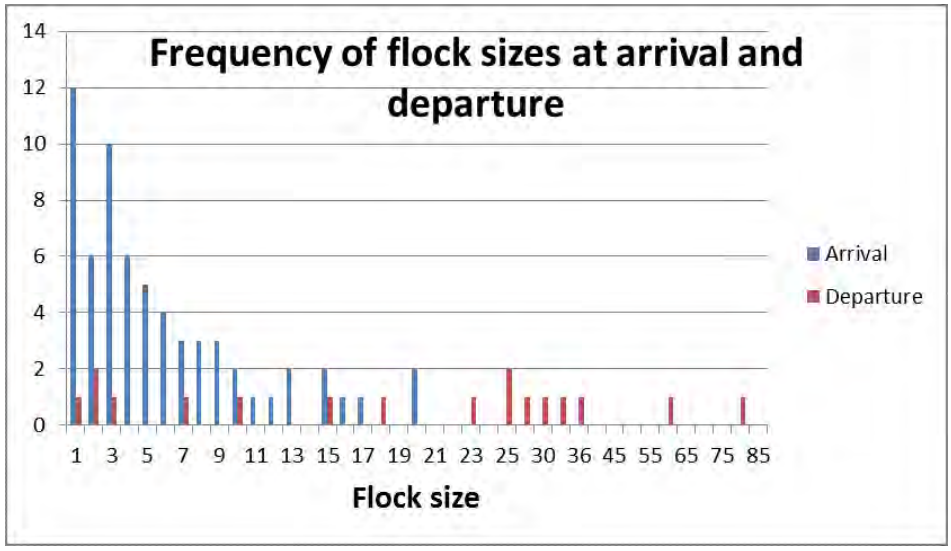

Figure 5. Frequency of flock sizes of the House Sparrow at roost arrival and departure

In the afternoon of 9 May the return of the House Sparrows was also monitored, chiefly to get further confirmation on the number of birds using this site and on the direction(s) from which the birds might arrive.

The sunset time for this day was 1737 h. The roost site was kept under observation from 1600 h onwards. The first birds arrived at 1655 h and the last birds at 1726 h. Arrival at the roost had taken 31 minutes, i.e. twice as long as the departure (Figure 5). The total number of birds was 371. All birds came from the NW and not from the nearby settlement.

A notable difference to the morning departure was that sparrows arrived in smaller groups (n = 64) of 1 to 20 birds (average flock size: 5.8 birds; see Figure 5). This allowed far more accurate counting of arrivals. Hence, the number of 371 sparrows of the afternoon is more reliable than the 400 from the morning.

DISCUSSION

Not being familiar with the distribution of the House Sparrow in South Australia it came as a surprise to see (a) House Sparrows in such large numbers, and (b) fully at home in natural habitat. Graham Carpenter (pers. com.) of Birds SA explained 'While House Sparrows are generally considered resident or sedentary, it has been noted that they often colonise temporary camps (such as roadworks camps) in the arid areas [of South Australia] and have been able to spread rapidly towards Western Australia. This suggests that sparrows are very mobile in the arid regions, presumably moving between watered sites such as homesteads and bores on a regular basis. However, the concentration of sparrows reported here appears larger than previously observed.'

Notable declines in House Sparrow numbers have been recorded in Europe from around 1970 onwards or even earlier, particularly in cities such as London, Hamburg, Warsaw and many others (Böhner and Witt 2007), but also in farmland (e.g. Newton 2017). However, the decline is not universal. For example, in Berlin the House Sparrow population has remained at a high and stable level (Böhner and Witt 2007).

In urban areas of southeastern Australia House Sparrow numbers started to decrease from around 1980. In Adelaide's parklands a sharp decline was recorded after 1982, with numbers falling from 150-250 to between none and >50 since 1995 (Whatmough, van Weenen

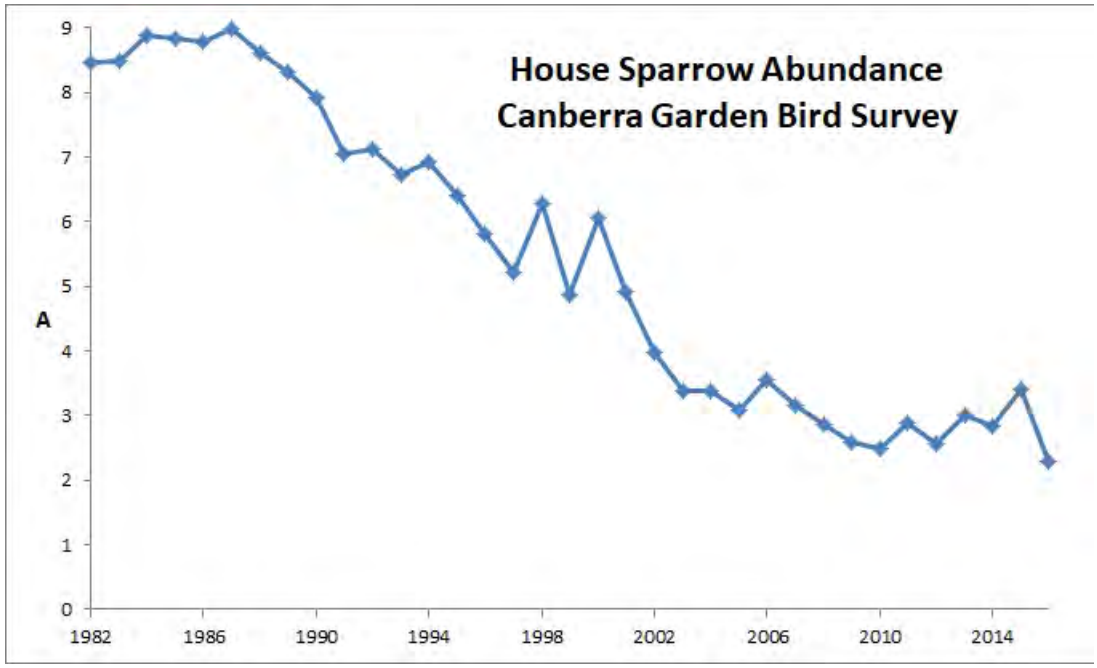

Figure 6. Abundance (A) of the House Sparrow in Canberra from the Garden Bird Survey (The value A is the average number of individuals of a species recorded at a 3 ha site in suburban Canberra for each week over the full year; see also Canberra Ornithologists Group 2017; Veerman 2006.) (Graph courtesy of Duncan McCaskill, Canberra).

and Tan 2013). The overview in Higgins, Peter and Cowling (2006) lists notable declines for Maryborough, Townsville, Brisbane, Sydney, Canberra and Melbourne at similar times to Adelaide or starting a few years later.

An example of the downward trend of the House Sparrow population is given for Canberra (Figure 6) where through the Canberra Ornithologists Group's Garden Bird Survey (GBS) a continuous record is available for the last 37 years (Canberra Ornithologists Group 2017; Veerman 2006). For the first 14 years of the GBS, commenced in 1981, the House Sparrow was the second most abundant species in the GBS (Veerman 2006), in 2015/16 it ranked as No. 41 (Canberra Ornithologists Group 2017).

The reasons for the decline in House Sparrow numbers are still debated. Here in Australia are listed, depending on location, increases in the Common Myna, *Acridotheres tristis,* and Noisy Miners, *Manorina melanocephala*, sparrow-proofing of houses, and a decline in the number of chickens kept in backyards (Higgins, Peter and Cowling 2006). In general, the ongoing renovations of older housing stock or complete replacement of houses with modern structures would reduce the availability of nest sites for the sparrows. It takes 10 years or more before a solidly executed house construction might again provide entry points for small nesting birds.

In Europe, the decline seems to be attributed mainly to a reduction in available nest sites at buildings and inadequate food supplies during the nestling period (especially a lack of insects) and changes in farming practices (Newton 2017) although the issue is far from being fully understood (Böhner and Witt 2007).

Observations in Australia indicate that the House Sparrow will use a variety of alternative nest sites to buildings when good food supplies are available, including shrubs and trees with dense foliage, tree hollows, dense creepers on house walls and trees and nests of other bird species (e.g. Watson 1955; Lenz 1990; Higgins, Peter and

Cowling 2006; Lenz, Nicholls and Williams 2013). Perhaps House Sparrows also use alternative nest sites to the ones in town buildings and homesteads in central South Australia and expand breeding into bush settings.

The high number of sparrows at Muloorina Station in May 2017 may not necessarily be typical. Very likely House Sparrows had a very good breeding season in 2016 after widespread rainfall. For example, in 2016 Oodnadatta and Leigh Creek recorded rainfall of 288 and 390 mm, exceeding the average rainfall for the sites by 70% and 63% respectively (Bureau of Meteorology 2017). (Unfortunately, corresponding values are not available for the 2016 rainfall at Marree.)

The observations at the roost site near Muloorina Station in early May indicate that, at the time, the sparrows were not spending the day around the nearby buildings. They arrived from and departed to areas of natural vegetation well away from human habitation. However, outside the breeding season sparrows will often forage in areas distant from human settlements, e.g. in stubble and waste fields (Watson 1955; McKenzie 1979; and examples from Europe: Bruch *et al.* 1978; Newton 2017). The station buildings may become important again during the breeding season by providing 'typical' House Sparrow nest sites under roofs and the like.

The House Sparrow is usually closely associated, if not even synonymous with human habitation. The observations reported here indicate that the species can live more independently from settlements even in the arid interior. The pattern of habitat use of the House Sparrow during and outside the breeding season in remote South Australia requires much further study.

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