

MEETING ON THE DECLINE OF THE URBAN HOUSE SPARROW *PASSER DOMESTICUS*: NEWCASTLE 2011 (10-11MARCH)

The Working Group on Urban Sparrows is investigating the decline of urban sparrows *Passer*, in urban and suburban habitats. At the second meeting in 2009 (De Laet et al 2009) it was decided to define a standardized census procedure that would enable meaningful comparisons of the House Sparrow *P. domesticus* breeding density in urban/suburban habitats throughout this species' range. A breeding-season mapping census based on 'active' nests was proposed, together with a simplified method of describing different types of urban/suburban habitats (De Laet et al 2011).

The theme of the third meeting was: 'What next.' Here we bring the abstracts of the talks given on the meeting. The hand-outs from the talks can be obtained by a simple email to the address above.

At the end of the first day we honored Denis Summers-Smith for his effort during many, many years to bring the decline of the urban House Sparrow under the attention of policy makers, scientists and the general public and offered him a award from all the WGUS members.

Presentations on the first day

1. URBAN SPARROW DECLINE: A WORLD – WIDE PERSPECTIVE

J. Denis Summers-Smith

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A major decline in urban House Sparrows (*Passer domesticus*) was first recorded in the 1990s in north-western Europe. More recent studies have shown that the decline is not limited to this area, but has now occurred over the whole of the Eurasian region and, moreover, involves two other species of sparrows that have taken over the urban sparrow role in areas where the House Sparrow does not occur: the Italian Sparrow (*P. italiae*) in Italy and the Tree Sparrow (*P. montanus*) in the Far East.

Vincent (2005) found that in some populations of House Sparrows in Leicester, England, complete broods were dying of starvation and the young from those nests that were successful were below normal weight at fledging. She attributed this to reduced availability of the invertebrate food required to rear the nestlings. This hypothesis was confirmed in study colonies in London where the provision of supplementary invertebrate food resulted in increased productivity, compared to those colonies in which it was not. However, this did not result in an increase of the population in those

colonies where supplementary food was provided (Mallord et al. 2009). This suggests that, although lack of invertebrates is a necessary factor in the decline, an additional factor is involved.

The widespread nature of the urban sparrow decline suggests that this additional factor must be common over the whole Eurasian area. It is proposed that this is increased atmospheric pollution by the exhaust emissions from vehicular traffic; including both vehicles with petrol and diesel engines. Such pollution is already a matter of concern through its effect on the respiratory system and neurological development in human children growing up in built-up areas. Urban sparrows are exposed to similar conditions and it is likely that they are affected in the same way.

The following circumstantial evidence is given in support of this hypothesis:

1. The later onset of the decline in Eastern Europe, where increases in urban traffic has lagged behind that in the more developed regions, is consistent with the suggestion that vehicular traffic pollution is the cause of urban sparrow decline.
2. House Sparrows have been studied in a 10 ha area of social housing in a small town in NE England since 2004. This is a good area for House Sparrows with ample availability of nest sites and invertebrate food. There is no through traffic as access is limited by a single one-way road. The population of House Sparrows has increased markedly in this area. It is suggested that is a consequence of reduced atmospheric pollution allowing the development of a more resistant population.
3. In contrast to the situation in England, there has been an increase in the House Sparrow population in the west of the British Isles (Wales, Scotland, Ireland) where atmospheric pollution levels are reduced through dilution by the prevailing unpolluted westerly wind. .

2. HOUSE SPARROWS IN SOUTHWEST LONDON

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Four studies document the numbers and distribution of House Sparrows in south-west London. In 1989, House Sparrows were the most abundant species in the back gardens of houses in the London Borough of Sutton. There, the highest population density was in the small gardens of terraced housing, but the large, greener gardens of detached houses had only a quarter of this density. Two studies in Wimbledon Park documented a rapid population decline beginning around 1988, at an average rate of 20% *per annum*, and reducing the population to under 5% of previous levels by 2000 – the population remains at that low level to date. A study in 2007-10 of a 25 Km transect from the inner edge of the London Green Belt to the urban centre found four factors correlated with high House Sparrow population density: many domestic garden outbuildings; nearness to allotment gardens; some nearby amenity grassland; and many garden hedges

and other low woody vegetation. Some 17 other possible explanatory variables were considered, but did not correlate significantly with House Sparrow density.

These studies do no more than suggest possible reasons for the decline and they also illustrate that no single census method is optimal for all purposes.

3. THE EFFECTS OF SUPPLEMENTARY FEEDING ON PRODUCTIVITY AND POPULATION SIZE OF SUBURBAN HOUSE SPARROWS – EVIDENCE FROM A REPLICATED FIELD EXPERIMENT ACROSS LONDON

**John W. Mallord, Christopher J. Orsman, Nancy Ockendon,
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Little is known about factors limiting avian demography and abundance, or about the impacts of widespread supplementary feeding, in urban landscapes. Previous studies have highlighted lack of invertebrate prey as a potential cause of population decline amongst suburban house sparrows.

We conducted a supplementary feeding experiment to test the hypothesis that invertebrate availability limits reproductive success and population size in urban house sparrows. The study was conducted across Greater London where house sparrow abundance declined by 60% over the preceding decade. Supplementary invertebrate prey was provided throughout four successive breeding seasons at 33 house sparrow colonies spread across Greater London. The quantity of invertebrates provided did not vary with colony size. Year-round seed was also provided *ad libitum* during the third and fourth years of the study. Thirty-three unfed colonies served as controls.

Per capita abundance of recently fledged young sparrows was higher at fed sites, during all four years of the study. This effect of feeding on reproductive output was significant in small (123% increase) and medium-sized colonies (51% increase), but not in large colonies.

There was no overall impact of feeding on the abundance of territorial adult male sparrow. However, feeding significantly increased the abundance of territorial males at small colonies (by 34%), while the combination of invertebrates plus seed had a positive effect on adult population trends at intermediate-sized colonies. Adult abundance declined rapidly at large colonies but feeding had no impact on the rate of decline.

We calculate whether per capita provision of mealworms was sufficient in large colonies to satisfy the invertebrate needs of nesting sparrows, and investigate whether there are any correlations between fledgling and juvenile abundance and adult trends with various habitat and environmental covariates and the abundance of potential predators and competitors.

4. LONDON HOUSE SPARROW PARKS PROJECT: TWO YEARS ON

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Recent research in Leicester and London has suggested that a lack of invertebrate availability during the breeding season may be limiting chick survival in UK urban / suburban house sparrow populations (Peach et al., 2008; Mallord et al., in prep). There is growing evidence that food availability limits reproductive success of a range of songbirds in urban-suburban habitats (Chamberlain et al. 2009). A trial is being run in London parks to investigate the effectiveness of three different habitat management regimes in providing seed and invertebrate food for house sparrows.

The habitat management treatments being tested are:

- a. Long grass: a change in mowing regime to allow grass to set seed and remain long over winter
- b. Wildflower meadow: cultivation and sowing with native meadow species, then management as a traditional haymeadow
- c. Wildlife Seed Mix': cultivation and sowing with a mix of species based on agri-environment scheme Wild Bird Cover plots, re-sown annually

Each trial plot is paired with a control plot of the usual management regime (short amenity grass). The plots are monitored for bird use (by all species), seed availability, and invertebrate abundance. Existing house sparrow breeding populations and their productivity are being monitored.

The project will soon enter its third and final summer. Results to date indicate that all plot types are showing higher invertebrate abundance and diversity than control plots. The composition of invertebrate communities appears to differ between treatments, and invertebrate abundance in the wildflower meadows may be increasing over time. Plot usage by seed eating birds, in particular by house sparrows, has been highest in the Wildlife Seed plots during late summer. Possible reasons for the observed patterns will be suggested. Future work on the project and possible applications for the results will be discussed.

The project is run in partnership with eight Borough Councils and other organisations across London, with nineteen parks involved. Funding has been gratefully received from SITA Trust, through the Landfill Communities Fund.

5. 4 YEARS MUS (MONITORING URBAN SPECIES), WINNERS AN LOSERS, WHAT'S UP WITH THE HOUSE SPARROW?

Jan Schoppers SOVON

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MUS (Monitoring Urban Species) is a simple scheme for breeding birds in the built-up area. It started on initiative of SOVON (Dutch Centre for Field Ornithology) in cooperation with Birdlife the Netherlands. It is a point counting (5 min. each) on 8-12 points (random chosen by computer) in a postal area. There are 3 periods of counting: 1-30 April, 15 may-15 June (both dawn) and 15 June-15 July (evening, especially for Swift). In 2007-2010 the number of counting's grew from more then 1200 to almost 1600, in 450-550 postal areas. More than 30% of de volunteers are female and 75% are new birders for SOVON.

After three years we had the first trends/year changes of 35 species and in the forth year there were 60. Winter influenced birds as Grey Heron, Winter Wren, Kingfisher and Robin showed a decline. But also a successful urban species as the Common Blackbird and Feral Dove declined and the Common Starling has a steep decline. The stable species are for example the Mallard, Common Wood Pigeon and Carrion Crow. In the group of winners there is a remarkable position of water birds as Greylag Goose, Canada Goose, Tufted Duck and also Egyptian Goose, Common Coot and some Gulls. Also increasing are the Peregrine Falcon, Stock Dove, Swift, Bleu and Great Tit, Jackdaw and last but not least the House Sparrow (index 100, 98, 108, 111 in 2007-10). The two cold winters (2009 & 2010) had no influence on the trend of the House Sparrow in the urban area. The increase is formally noticed in the higher part (above sea level and sand) and stable in the lower part (sea level and under it and clay) of the Netherlands. The density in the higher part is also 60-80% higher. But there are great differences in both groups. So is the province of Flevoland (polder, lower part) the best with 39 House Sparrows/postal area in the second round and also in the lower part Noord-Holland and Zuid-Holland doing not good with 11,3 and 11,4 and also Utrecht with 16,9 House Sparrows. These last three are the most urbanized areas of the Netherlands. Comparing a old city as Amsterdam and a new Almere (>1980) the numbers are 6&10x (1 & 2 round) higher in Almere. The distribution in Almere is homogeny through the whole city, but in Amsterdam there are huge lacks in the centre and the districts near to it. In the most cities the Swift is present in the city centres, so it seems that nesting sites are not a problem for the House Sparrow. Probably the lack of enough food (whole year, seed and insects) is the major cause of the lack of House Sparrows. If we compare Almere and Groningen (both 190.000 inhabitants) the distribution of the House Sparrow in Almere is more regular. Almere is also the fastest growing city in the Netherlands. The buildings and houses are most low rise and there are much green corridors through the whole city. When we zoom

on the building period there are no great differences between higher and lower part of the Netherlands before WW II. The deviation becomes in the period after WW II and the numbers are higher (and deviation) in the younger periods. The cause of that difference is interesting for investigation.

Through MUS we have a good scheme for monitoring urban birds and the House Sparrow. There was a moderate increase of the House Sparrow in 2007-10 what gives a little hope for the future. If it is a temporarily increase or the beginning of the recovery of the great decline in the last decades (50%) is the question. Every year extra the results and index become more significant and we looking forward to the fifth year. We will monitor it in the future with MUS. www.sovon.nl

6. HOUSE SPARROW, EVIDENCE BASED CONSERVATION IN THE NETHERLAND

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Introduction

The house sparrow once was by far the most common bird in The Netherlands. Since 2004 it is red listed, the total decline is over 50%. Locally the house sparrow has disappeared. In 2005 Vogelbescherming Nederland, the Dutch Birdlife Partner, started a programme for conservation of urban birds, including the House sparrow.

Population development of the house sparrow is well known, but very little is known of breeding success, dispersal, survival rate and composition of the population in different habitats. To get better understanding of possible reasons of decline a survey on colour banded house sparrows started in May 2007. The survey is supported by Birdlife Netherlands.



Survey

The survey is carried out by René Oosterhuis on three locations: Leek [sub urban, 10.000 inhabitants] and Lettelbert [rural village, 200 inhabitants], in the second half of 2010 a third location was added: the city of Groningen [urban]. On these locations each year 50 house sparrows are trapped and colour banded with a unique colour

combination. Of all individuals sex, age, body weight, fat score and body measures are noted.

The goal of the survey is to find out more about

- Survival rate
- Maximum age
- Dispersal
- Differences between habitats

Sightings of color banded house sparrows are recorded with camera traps on the trapping site and on feeding stations in the neighborhood. Date, time, breeding related activity [song, transport of nest material, transport of food, feeding young etc.] are noted. Also the percentage of banded house sparrows is noted to estimate the population size.

On the same locations of this survey a breeding bird monitoring scheme is carried out. To find out how the local population trend is related to the national trend.

Results so far

On January 1st 2011 776 house sparrows were color banded; 526 in Leek [suburban], 173 in Lettelbert [rural] and 68 in Groningen [urban]. Camera traps make on average 1000 records of color banded sparrows each month. Since the start of the survey 45.000 records are taken, of which 95% on trapping location.

House sparrows in Leek [suburban] have the highest mortality in summer, while house sparrows in Lettelbert [rural] have the highest mortality in winter.

House sparrows banded in Leek[suburban] are seen within 2 km around the trapping site. A remarkable difference with House sparrows ringed in Lettelbert [rural], which are seen over much bigger distances. On the other hand the rural House sparrows are more sedentary and less likely to roam (Fig. 1).



Figure 1. Clear difference in dispersal of house sparrows in suburban (left) and rural (right) situation. Green star = catching site, red star = sightings of colour banded sparrow.

Presentations on the second day

1. SUSTAINABLE URBAN DEVELOPMENT AND THE HOUSE SPARROW AS A BIO INDICATOR

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In 2002 The Flemish Bird protection society started with a national House sparrow weekend on which the public was invited to count tsirping House sparrow males in their garden.

ABLOOvzw and UGent (Terrestrial Ecology Unit) analyzed in 2007 the first 5 years and found there were:

- Less repeat counts
- No standardized methodology to count House sparrows
- No zero counts

In cooperation a House Sparrow workgroup was started in 2010 with a constant or increasing number of counters that count every year on the same place and same time in a standardized way to create a long term urban investigation. After one year we found that the Flemish part of Belgium is characterized by small house sparrow groups (Fig. 2).

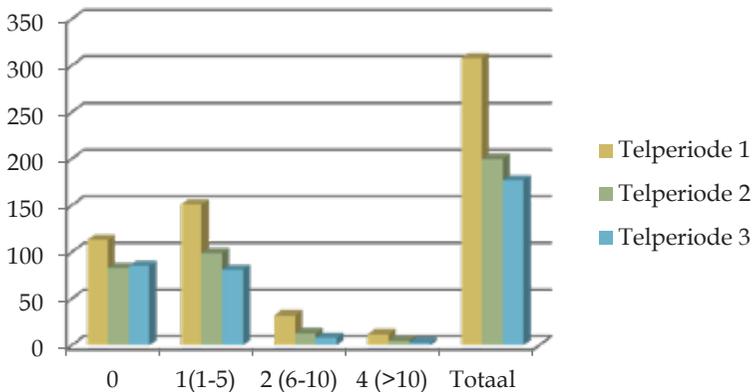


Fig. 2. Counts during different periods in 2010

In Ghent it was found (Vangestel 2010) that urban green connectivity is important for the urban House sparrow. A sustainable urban development is important for the House sparrow and other urban birds. Flanders is characterized by a important degree of urban sprawl. It is important to combine rural and urban features together in a sustainable way. A solution for this is the lobe-city model in which built-up city-lobes are separated by blue-green fingers. The blue-green fingers are penetrating deep into

the city centre. Blue-green fingers decrease the urban heat-island effect. The lobe-city model creates a solution for the urban House sparrow and for urban biodiversity in general.

2. ON THE EXPANSION OF A HOUSE SPARROW COLONY IN ANDIJK (NETHERLAND)

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Since the winter of 1997-1998, two of the board members of what in 2009 became Stichting Witte Mus (Foundation White Sparrow) have been supporting the House Sparrow. This was done on their own property in Andijk, the Netherlands. I am one of those two people.

Since we supported the local group of less than ten House Sparrows, this group has grown to a free living colony of more than 50 breeding pairs, breeding 3 or 4 times a year, producing many hundreds of juveniles each year.

We started our mission to help the local population of less than ten House Sparrows due to a plague of mosquito's. This plague is quite common when living near the IJsselmeer. The IJsselmeer is a lake with mostly sweet, still water, where insects can reproduce with little disturbance.

To control these insects we started winter-feeding the few House Sparrows that lived in our garden.

Within about 3 years it became obvious that, not only the insects were down to a more acceptable level, but the House Sparrows had multiplied to a small flock in summer.

We then started noticing in spring that the Sparrows were fighting amongst each other for food.

To us that was a sign to keep supplying seeds for a longer period in the year than just the three winter months.

And so we did. Until eventually we were feeding the House Sparrows the whole year round.

Our reasoning behind doing what we did was that we figured the House Sparrow knew better what it needed than we did. So we watched and "listened" to what the House Sparrows showed us.

From this "listening" came many adjustments of the garden in order to suit the House Sparrows and make life better for them.

The result in 14 years time is that there now lives a colony of at least 50 breeding pairs around and on our property. They are capable of hatching 4 nests each, and they mostly do. The nests consisted in 2009 of an average of 4 fledglings. Which meant that by autumn the flock had grown to hundreds and hundreds of House Sparrows.

After about four years the first Sparrow Hawk appeared. But with these hundreds of young House Sparrows many more predators came along. They made it clear that safety during the day and during the night, is very important for the survival of a House Sparrow. In this aspect the alarm calls of other birds play an important role.

We now are trying to find a balance between a colony of House Sparrows big enough to be able to spread itself over a bigger part of the country, a colony that stays healthy nevertheless, and the amount of predators coming for the colony.

Apart from that we are helping create more environments in the Netherlands where the House Sparrow can thrive.

We believe that it would be better for the environment and the House Sparrow if they need not live so concentrated as they do on our property. But we also believe there must be a sort of breeding ground, from where the surrounding area can be repopulated with House Sparrows.

References among others:

<http://www.youtube.com/user/stichtingWitteMus>

<http://www.stichtingwittemus.nl/>

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Finally we thank all the participants for their valuable contribution.

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