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Jan HAVLÍČEK¹ & Jenny DE LAET²

¹ Dep. Zoology, Faculty of Science, University of South Bohemia in České Budějovice, Branišovská 1760, 37005 České Budějovice, Czech Republic

² ABLLOvzw & group Terrec, University of Ghent, Belgium

THE WORKING GROUP ON URBAN SPARROWS – 5TH INTERNATIONAL MEETING: ČESKÉ BUDĚJOVICE 2016 (3-4 NOVEMBER)

The Working Group on Urban Sparrows (WGUS) was set up in 2006, after the symposium „the status of the House Sparrow *Passer domesticus* in the urban environment“ on the 24th International Ornithological Congress. WGUS associate researchers investigate population changes and their potential causes in sparrows *Passer*, especially in urban and suburban habitats. To foster exchange of ideas and current results among WGUS member, the meetings in London (2007; De Laet et al. 2006), Newcastle (2009 and 2011; De Laet et al. 2009, 2011) and Ghent (2014; unpubl.) were arranged. The 5th meeting was held in České Budějovice, Czech Republic in November. 2016.

On the first day, we first discussed the mail of Denis Summers-Smith, as the oldest member of the WGUS Working Group. He drew our attention to his hypothesis that particulate contamination can cause respiratory disease and interfere with neurological development in human children (as well as sparrows) growing up in town centres. He also had the ambition to publish his suggestion that the Spanish Sparrow is now a UK breeding species (hybridising with House Sparrows). Talks on this first day focused on monitoring House Sparrow populations, and potential causes of their decline (predation, habitat changes) were presented. After the two presentations about the loss of breeding possibilities as a result of the salutary building insulation, a round table discussion focused on solving this problem was organised. A second round table discussion was pursued on the experience of participants using nest boxes for the House Sparrow.

On the second day an excursion to the different habitats (prefabricated housing estate, village former collective farm) used by the local House Sparrow populations was arranged.

Here we publish the abstracts & outcomes from the meeting.

1. 10 YEARS MUS (MONITORING URBAN SPECIES), STABILISATION OF THE HOUSE SPARROW?

Jan Schoppers

(e-mail: jan.schoppers@sovon.nl)

MUS (Monitoring Urban Species) is a simple scheme for monitoring breeding birds in the built-up area <https://www.sovon.nl/nl/MUS>. It started in Sovon (Dutch Centre for Field Ornithology, www.sovon.nl) in cooperation with Birdlife the Netherlands. It takes the form of a point count (5 min. each) at 8-12 points (randomly 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 2007-2016 the number of counts grew from more than 1200 to 1800, in 450-650 postal areas. More than 30% of the 750 volunteers are female and 50% are new birders for Sovon. Since 2014 MUS is financed by the Network Ecological Monitoring (NEM, <http://www.netwerkecologischemonitoring.nl/>) a partnership of governmental organizations.

Overall trend urban species

Yearly about 160 species are counted and in the last two years we have been able to calculate a trend in 75 species (>99% of the 380.000 individuals). Nine species showed a strong decline in numbers in 2007-2015, 22 a moderate decline, 18 were stable, 18 showed a moderate increase and nine species a strong increase. For typical urban species the balance was even more negative: 11 species showed a decrease, 7 an increase and one species was stable. In general, the majority of species that nest in trees and shrubs are declining, whereas most species that nest near water are increasing. The number of species that breed in houses are almost equal in decline (4) and increase (3). Slight decline 4 species, stable 4, slight increase 2 and strong increase 1.

Trend House Sparrow

Since 2013 MUS has been integrated with BMP (the Breeding birds Monitoring Program). The trends are calculated by CBS (Statistics Netherlands). After a steep decline in the eighties and nineties we see a stabilisation of the House Sparrow since the beginning of this century. In the agriculture area there is a difference between the higher part (increase) and the lower (decline). It's also coincides with the division between sand and clay/moor soils.

In the urban area there was a steep decline (50% or more) in the nineties. In the last ten years we see stable numbers. In the higher part there is a light grow but in the lower part (most urbanized) the numbers are stable or tending to a little decline.

Trend per habitat

The numbers in City parks are stable for almost 10 years, Business parks, Before WW-2 open building and After WW-2 closed building. The birders found an light increase in Old, Before WW-2 closed, After WW-2 open and New open. A strong increase was counted in New closed. The highest numbers were found in Before and After WW-2. The trend in general is negative. About 70% of the House Sparrows in the Netherlands live in the urban environment. The highest numbers are found in districts and houses build after WW2 with 2,3-3,2 House Sparrows/point. Before WW2 the numbers are lower 1,5-3,3. In the older parts before 1900 we found 0,9-1,7. Surprisingly high numbers were found in new construction especially in open building blocks with 2,0-4,0 House Sparrows/point. In general the numbers in the higher part of Holland are 1,6 times higher.

Discussion

We can speculate about the decline and the recent stabilisation of the House Sparrow. Reconstruction of buildings leads to a loss of breeding habitat. Although we know that mitigation works. So new builds are not the cause of the decline of the House Sparrow. Maybe the loss of breeding sites is not the main course of the decline. In the breeding season trees are important for the insects for the juveniles. Most trees in the urban habitat in Holland are non-native and provide significantly fewer insects than native species. The local government has nowadays also less money for maintenance. Management of green in the public space is reduced by converting bush and shrub areas into lawn.

New: Garden count, State of the birds 2016 and a new MUS course

A new project, see www.tuintelling.nl was started in 2014. It is like the Garden Bird Watch in Great Brittan. Sovon and 13 other organisations are involved. The aims are more nature engagement of garden owners and monitoring of birds and other animals and plants in the garden. You can do a weak count and point count, like MUS, and there are also special projects. The start in the first two years is very promising with more than 7.300 volunteers and almost 100.000 counts.

Each year we have in November the Sovon bird counters conference. We have published the State of the birds 2016 and it has the topic Urban birds.

After almost ten years we make a new digital course for MUS volunteers. First we asked the (potential) MUS-counters by survey what their needs are about identification, how to survey and results. At the end of 2016 the new course will be available on www.sovon.nl

Benchmark urban birds

In 2017 Sovon and Birdlife International will create a website about benchmarking urban birds by MUS. The results of your city are compared with similar districts in the rest of Holland. It is showing groups of birds with similar habitat requirements for example the group of birds which breed in houses.

2. THE CURRENT STATUS OF SPARROWS IN THE CZECH REPUBLIC: RESULTS FROM NATIONAL MONITORING

Jan Havlíček, Jaroslava Bandhauerová, Martin Šálek, Roman Fuchs

(e-mail: JanHavlicek.cz@gmail.com)

The oldest records regarding the occurrence of House Sparrows in the Czech Republic, in particular from the Bohemian part of Austria-Hungary are dated to 19th century (Heyrovský 1888; Špatný 1890). Šír (ex Bureš et al. 1995) made a simple statistic about the occurrence of this species during the 2nd half of 19th century: presence of the species – 189, abundant – 142, rare – 4, absent – 20 localities.

The first mention of the population of House Sparrows declining in the Czech Republic comes from Prague from 1920s – 1930s. Baum (1954) stated that the reason for these changes can be found in the replacement of horses from the centre of the city (see the situation in Kensington Garden in London; Sanderson 1996; Moss 2001; Clover 2008). During most of the 20th century the House Sparrow was ignored as a pest species. During the national atlas mapping in 1973-1977, 1985-1989 and 2001-2003 (Šťastný et al. 2006) it was found in most of all quadrants. Although its population decline was mentioned in some publications during the 2nd half of the 20th century, there are no detailed studies which can support this estimation. More detailed information about most common bird species including House and Tree Sparrows is provided by the JPSP which is organized by the Czech society for ornithology (CSO) from 1982 (ČSO/JPSP). The results from this program revealed, that the House Sparrow population declined by 40 %. In addition, there is data from repeated monitoring in Prague where the House Sparrow population declined approximately 82 % between 1985 – 1989 and 2002 – 2006 (Fuchs in lit.) and from the Krkonoše mountains where the dramatic decline and disappearance of high elevation populations was documented (Flousek et al. 2015). In 2003 the House Sparrow was established as Bird of the Year (popular campaign of the CSO) with the goal of spreading information about its population changes and collecting data from volunteers.

In 2010 we established a working group of the CSO and initiated national volunteer monitoring focused on the House Sparrow, Tree Sparrow and Collared Dove. There are two periods of field work: breeding and winter season. We use a standard transect method and volunteers are asked to walk slowly (<3 km/h) and count the birds along

the transects. Transects include all available local roads, streets, pavements and pathways as well as local dairy farms and other agricultural infrastructure.

During the winters 2009-2014, 149 villages were monitored. The House Sparrow was the most dominant species (88.6% of villages occupied; 4.32 ± 4.67 ind./100 m of transect), followed by Tree Sparrow (67.1% villages occupied; 1.83 ± 3.53 ind./100 m of transect) and Collared Dove (65.8% villages occupied; 0.72 ± 1.51 ind./100 m of transect). Occurrence of House and Tree Sparrow was significantly affected by the number of instances of poultry keeping. In both species, occupied villages showed a higher number of instances of poultry keeping. We did not find any such significant relationship for Collared Dove. The population density of House Sparrow was significantly higher in villages with dairy farms, but we failed to find this relationship for Tree Sparrow and Collared Dove. Habitat preferences were similar for all three studied species. They positively responded to the proportion of shrubs/trees, the keeping of poultry, and dairy farms, they avoided houses, arable land, and grasslands. This study was published in *Journal for Nature Conservation* (Šálek et al. 2015).

During the breeding season 2010 – 2016 volunteers and our team monitored more than 180 localities. Preliminary results indicate that the presence or absence of dairy farms affects the population size of the House Sparrow and Collared Dove. In the case of the House Sparrow we found, that abundance inside the farm is higher in comparison to the rest of village. This indicates the importance of farms and surrounding biotopes during the breeding season. Our future study will focus on the utilization of differed places and habitats inside the villages, where we have data from both, winter and breeding seasons.

All cited literature can be supplied by the author.

3. HOUSE SPARROW POPULATION DECLINE HAS BEEN CAUSED BY THE EURASIAN SPARROWHAWK

Christopher Bell

(e-mail: cp_bell@btinternet.com)

Regression analyses of census data that have appeared to demonstrate a lack of association between House Sparrow declines and increased predator abundance suffer from a number of drawbacks, including failure to take account of the effect of spurious spatial correlation arising from sequential habitat occupation as predator and prey populations vary.

Independent studies using varied approaches have shown a strong association between the decline in the numbers of sparrows attending garden feeding stations in winter and the build-up and expansion of Eurasian Sparrowhawk populations. However, this has been interpreted as a behavioural response to increased risk of predation, independent of the simultaneous decline of sparrows at a population level.

This is an implausible interpretation for a number of reasons. House Sparrow data on garden bird feeding stations is highly correlated with breeding bird census data which forms the basis of population estimates, reflecting the highly sedentary nature of the species. Sparrow populations also show a pattern of gradual decline following the appearance of Sparrowhawks at garden feeding stations suggesting a population process, rather than an immediate step-down pattern as might be expected if the decline in numbers were a behavioural response. The same patterns has also emerged from more recent analysis of breeding bird census data for House Sparrows, and this cannot be regarded a behavioural response unless this is also conceded to be the basis of perceived population decline.

The favoured theory of a decline in winter food availability caused by agricultural intensification requires an additional explanation for urban sparrow decline, which is attributed to decline in the abundance of insect food for nestlings. Variation within urban areas is then explained by socio-economic factors such as prevalence of native shrubs in gardens. However, the timing, severity and extent of urban sparrow decline in Europe can be parsimoniously explained by the pattern of settling by Eurasian Sparrowhawks in urban areas, and by similar small raptors elsewhere.

Resistance to the idea that Sparrowhawks are responsible for Sparrow decline may arise from concerns about the possibility that this could also apply to population decline among rural songbirds in general, since the attribution of such declines to agricultural practices has facilitated lobbying and rent-seeking by ecologists, leading ultimately to policy prescriptions that have met with little success.

4. WINTER IS COMING... DENSITY AND DISTRIBUTION OF COMMON SYNANTROPIC BIRD SPECIES IN URBAN AREAS

Markéta Machová, Jan Havlíček, Roman Fuchs

(e-mail: maky.orel@gmail.com)

Cities are problematic areas from the view of its avifauna. They consist of various kinds of biotopes, which has a positive impact on biodiversity of birds. But individual urban biotopes have lower biodiversity values than those nonurban. Nevertheless (and also according to increasing number of urbanized areas) there is a trend of gradual colonization of cities by species, which learn how to use new resources present there. Some of currently common synantropic species of birds adapt to this specific habitat so much that we can observe fundamental changes in their ecology (for example disappearance of winter migration strategy of blackbird). Quick and strong changes are typical for urban areas. These changes together with another factors limiting survival can have significant impact on strictly adapted species or urban populations of other bird species. Evidence of this impact can appear especially during adverse seasons of

a year, i.e. autumn – winter. In this study we focus on a few common synantropic bird species in the Czech Republic, which are House Sparrow (*Passer domesticus*), Eurasian Tree Sparrow (*Passer montanus*), Blackbird (*Turdus merula*) and Eurasian Collared Dove (*Streptopelia decaocto*). Aim of our work was to map the distribution of these species during autumn and winter in the area of the city České Budějovice. Also we did a detailed evaluation of typical characteristics of vegetation used by these species. We focus on bird species whose abundance in urban areas is changing – declining or even increasing. Our results describe various limiting factors that have an impact on the numbers of birds in populated areas. Most important of these factors seems to be the density of vegetation (i.e. available shelter and nesting sites) and food sources. Obtained data can therefore help to plan types and density of urban vegetation so it can positively affect abundances of resident bird species and also increase avifauna diversity of the city.

5. FROM POPULATIONS TO FOOD, FROM FOOD TO GENES

Jan Havlíček, Lubomír Piálek, Roman Fuchs

(e-mail: JanHavlicek.cz@gmail.com)

The House Sparrow is well-known for its dramatic decline in abundance and distribution across most of its European range during the last few decades. The most referred to potential reason for this change is lack of food as a consequence of changes in agriculture and the socioeconomic status of the human population. Although there are many studies focusing on the impact of food composition, amount and quality on the growth and condition of nestlings, only a few studies have examined preferences and utilization rate of different potential foraging habitats. In our study we used the method of observing focal individuals – parents delivering food to nestlings, to determine specifically used food patches. The study was carried out in typical Central-European rural and city settlements in South Bohemia. We found that rural House Sparrows when feeding their nestlings preferred habitats typical for traditional rural settlements and farms such as poultry yards and ruderal habitats. In both, rural and urban localities they also frequently visited trees and scrub and in urban areas bins and containers. We hypothesize that the lack of “typical” rural habitats, better maintenance of public green sites, and elimination of “natural” scrub in urban localities causes a shortage in the availability of food that negatively affects urban populations of House Sparrows. Finally, we found differences in feeding home-range areas and distance to food patches from the nest between rural and urban localities where House Sparrows invest more energy in food searching and delivering to the nestlings.

In the subsequent part of our study, we would like to examine if the food availability and history of individual populations (populations in cities, in villages with an active,

disused or no farm) can affect the genetic structure of the populations. Unlike previous studies based on microsatellite loci we use Double Digest Restriction-site Associated DNA Sequencing (ddRADseq), a recently developed method (Peterson et al. 2012) which facilitates cost-effective genotyping for a tuneable range of markers (hundreds to hundreds of thousands) and numerous samples (several hundreds). Comparing hitherto used methods the ddRADseq represents a cheap way of obtaining an enormous amount of sequencing data (homologous across samples) at once; the same data can subsequently be processed in various contexts (population genetic, phylogenetic, phylogeographic, evolutionary genetics) and in the framework of different projects.

We suppose that our (potential) findings are relevant for future conservation strategies for farmland and synanthropic bird species.

6. REDUCTION OF CO₂ EMISSION CAUSES MASSIVE LOSS OF HOUSE SPARROW HABITAT

Liset Karman

(e-mail: liset.karman@huismusbescherming.nl)

All over this world, global warming is considered to be a problem. The main cause of it seems to be the greenhouse-effect which is in turn caused by the thick layer of CO₂ in earth's atmosphere and outer space.

Trees are the main organisms that reduce CO₂ and transform it to oxygen, on which many other organisms live. But the trees are not abundant enough anymore to do this job for us. So the layer of CO₂ thickens, and the global warming starts playing its part. Creating deserts and floods where there were none before.

Every city, every country, every continent in the world realizes that the CO₂ needs to be reduced to turn this tide. And so plans are made to do so.

One of the very important measures, that is taken in Europe, is the insulation of housing and therefore reducing the generation of greenhouse gasses.

This involves wrapping the house from top to bottom in a layer of material that will not allow warmth to leave the house, unless it is controlled.

Since House Sparrows have essential parts of their habitat in and on these houses, this habitat is destroyed with the insulation of the house. In some cases this happens in huge amounts, with massive speed. Too fast to first do research of 3 or 4 years to establish how great the problem really is.

Solutions are at hand, but are not yet common knowledge, let alone common practice.

What can we, as WGUS, do to prevent the destruction of so much of the essential house sparrow habitat?

7. NEW APPROACHES IN INSULATION OF BUILDINGS – OPPORTUNITIES FOR HOUSE SPARROW

Stefan Vreugdenhil

(e-mail: Stefan.Vreugdenhil@vogelbescherming.nl)

Declining population of house sparrow

In 2004 it became clear that house sparrow (*Passer domesticus*) populations in the Netherlands were declining so rapidly, that the species qualified for the national Red List of threatened species. For VBN/Birdlife Netherlands this prompted the start of a conservation programme for urban birds. One of the main goals of this programme is the standard application of mitigation measures (e.g. artificial nesting opportunities) in construction and renovation projects.

New developments

Currently, new developments increase the possibilities of achieving this goal. As a result of the Paris Agreement and the European Energy Efficiency Directive, ambitious targets are set throughout Europe to reduce the energy use of houses, offices and other types of buildings. In addition, the European Commission is performing a 'Fitness Check for the Construction Sector'. We expect that these developments, which at first sight seem to pose even a greater threat to house sparrow populations, can be altered into an opportunity.

Examples in the Netherlands

In the Netherlands, in this context several developments take place that may have negative effects on the nesting opportunities for species that are highly dependent on buildings, like house sparrow. One example is the renovation of complete housing blocks by applying prefab facades and roof elements in addition to the existing building. In this way, over 100.000 houses are planned to be renovated in a couple of years. This will just proof to be the experimental beginning of a much greater development, with ambitions of contractors to work beyond the borders of our country. Another example is the common practice of filling up cavity walls with insulation material. When this is done without sufficient care of bird species which are dependent on our buildings, this will have devastating effects on these species on a national level. This will add up to the population decline that we already have seen for house sparrow, and also swift (*Apus apus*), in the last decades.

Approach of VBN/Birdlife Netherlands

VBN/Birdlife Netherlands aims to secure a bird proof renovation and insulation of buildings. We put this into practice by informing contractors of the range of possibilities

to include nesting opportunities for house sparrow and swift in their activities. If necessary, we don't hesitate to enforce legal actions as these species are protected by the EU Bird Directive and national law. However, first and foremost we see the new approaches as an opportunity to change the manner of the contractors work permanently, in a way house sparrow and swift profit as well. We show them that the measures have been proven to be effective for the species, cheap and easy to apply. Therefore, besides lobbying the construction industry, we are initiating pilot projects with constructors, housing associations and municipalities, in collaboration with the Dutch Mammal Society to include bats as well. Although this process can at times be difficult, we believe it will eventually be the most beneficial strategy for house sparrow conservation.

8. GREAT TIT (*PARUS MAJOR*)
AND HOUSE SPARROW (*PASSER DOMESTICUS*) INVESTIGATION
IN 3 CITIES IN OOST-VLAANDEREN (BELGIUM)

Jenny De Laet

(e-mail: Jenny.DeLaet@UGent.be)

For the past 3 years we, ABLLO vzw and group Terec UGent, have an urban Great Tit and House Sparrow citizen science project in 3 cities of Oost-Vlaanderen (Belgium): Ghent (capital city of Oost-Vlaanderen), Sint-Niklaas (a small urban capital area) and Dendermonde (small urban area).

Nest boxes for Great Tits hang at private (private houses, schools, rest homes and companies) and public places (parks, cemetery and other public places). Citizens are involved in the collection of the data as the number of eggs and first egg date. Parents and young are ringed and measured during the breeding season. It is clear that both urban broods and urban juvenile parents are most susceptible to the negative effects of urbanisation and that climate change affects urban breeding.

Since 2002 VBV (Bird protection Flanders) launches a widespread call to count during one day in the second weekend of April, the number of chirping House Sparrows in their garden. An important result is that in all Flemish cities the house sparrow groups are extremely small (≥ 5 HS) while optimal HS groups (> 20 HS) have become rare while important differences exist between counties.

For 2017 we plan a new urban project to optimise the conditions for the urban House Sparrow. For this we will hang up nest boxes in max. 5 optimal (> 15 HS) urban House Sparrow populations and sample both the House Sparrows of the optimal populations and rest populations in between.

9. „WHAT CAN BE DONE WHEN HOUSING INSULATION,
THAT IS NECESSARY TO LOWER CO₂ PRODUCTION AND REDUCE CLIMATE
CHANGE, HAS A SIDE EFFECT: MASSIVE LOSS OF HABITAT
FOR HOUSE SPARROWS” (ROUND-TABLE DISCUSSION)

chairman: Liset Karman

(e-mail: liset.karman@huismusbescherming.nl)

House Sparrow Conservation Holland is a foundation that aims to support and protect House Sparrows and their habitat in the Netherlands. We have twenty years of hands-on experience in building habitat that is perfectly suitable for house sparrows. A presentation on how this came about, given at the WGUS meeting in 2011, can be viewed at this address: http://www.huismusbescherming.nl/pdfs/NewcastleHouseSparrowMeeting2011-topic_02_mini.pdf

In 2016 there are urgent climate issues in the Netherlands, as well as in other countries.

In solving these, the urban sparrows seems to potentially lose almost all of their habitat, which would in fact make survival for sparrows in urban areas quite impossible.

To explain this potentially disastrous scenario:

All over this world, global warming is considered to be a problem. The main cause of it seems to be the greenhouse-effect, which is in turn caused by the thick layer of CO₂ in earth's atmosphere and outer space.

Trees are the main organisms that reduce CO₂ by transforming it to oxygen, on which many other organisms live. But the trees are not abundant enough anymore to do this job for us. So the layer of CO₂ thickens, and the global warming starts playing its part. Creating deserts and floods where there were none before.

Every city, every country, every continent in the world realizes that the CO₂ needs to be reduced to turn this tide. And so plans are made to do so.

One of the very important measures that are taken in Europe, is the insulation of housing with, as a result, reduction in the amount of greenhouse gasses that is generated. An innovative way of doing this, is to wrap the house from top to bottom in a prefabricated layer of material that will not allow warmth to leave the house, unless it is in a controlled way.

But what about the urban sparrow that lives close to humans?

Since urban sparrows have essential parts of their habitat in and on these houses, this habitat is destroyed with the insulation of the house. Urban sparrows are losing their communal roosts, their hiding places for bad weather, and their nesting-places on a very large scale. In some cases complete residential areas are already insulated in as little as 4 days. The speed at which this is happening in the Netherlands is much too fast to first do research of 3 or 4 years to establish how urgent the problem really is, before taking action.

Solutions are at hand, but are not yet common knowledge, let alone common practice. Building-companies only have to integrate large enough spaces for the urban sparrows in the prefabricated “coat” they put over the houses. Some criteria have to be met for this.

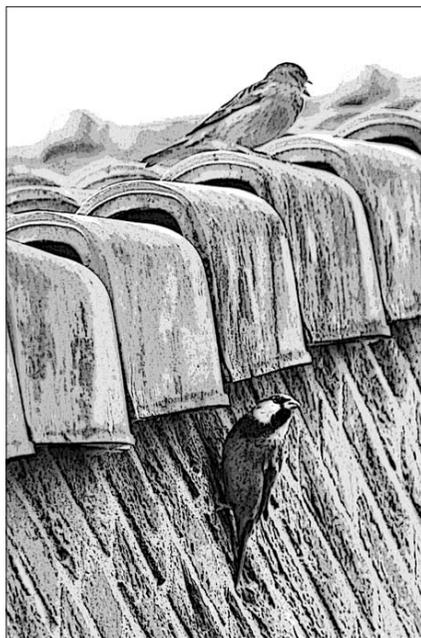
As W.G.U.S. we have discussed this problem. In the Netherlands it is obvious, from the year 2009 on, that renovation and insulation of houses is costing urban sparrows much of their habitat. And, in spite of laws to protect the habitat of house sparrows, it is not being replaced.

But it seems that many of us have not yet noticed the problem urban sparrows meet when insulation of housing is taking place. In some countries the main idea even (still) seems to be that sparrows are mostly a nuisance.

This means that we, as a worldwide Working Group on Urban Sparrows, cannot yet take a stand in this ongoing loss of habitat, if it is only clearly occurring in one or two of the countries of the participants present. But we will keep in touch by e-mail to keep track of this problem.



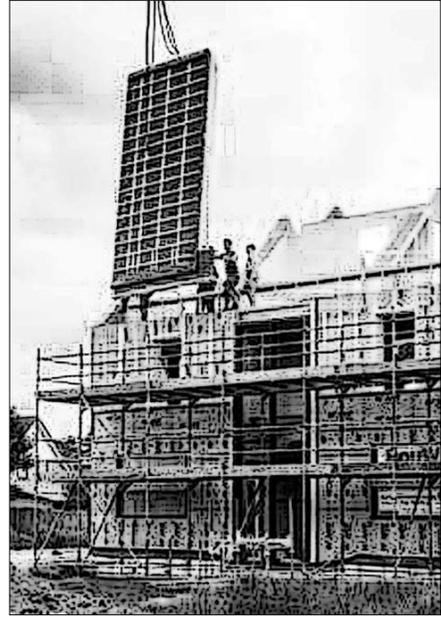
1. Nest of house sparrows in roof of house.



2. Nest of house sparrows in roof of house.



3. The old way of renovating a roof (2009-2016) with no regard for house sparrows, but relatively small scale, “handmade”.



4. The new way of renovating a roof (2016-2017) with no regard for house sparrows, prefabricated panels are put in place.

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Finally, we thank all the participants for their valuable contribution.